

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	NAPP2217931599
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party	XTO Energy	OGRID	5380
Contact Name	Garrett Green	Contact Telephone	575-200-0729
Contact email	garrett.green@exxonmobil.com	Incident #	(assigned by OCD)
Contact mailing address	3104 E. Greene Street, Carlsbad, New Mexico, 88220		

### Location of Release Source

Latitude 32.33641 Longitude -103.83180  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	James Ranch Unit 108H	Site Type	Production Well
Date Release Discovered	06/22/2022	API#	(if applicable)

Unit Letter	Section	Township	Range	County
G	01	23S	30E	Eddy

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 checked="" type="checkbox"/> Crude Oil	Volume Released (bbls)	1.59	Volume Recovered (bbls)	.09
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls)	7.26	Volume Recovered (bbls)	.41
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?		<input type="checkbox"/> Yes <input checked="" 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  
External corrosion caused a flowline to release fluids to soil. A vacuum truck recovered all free fluids. A third-party contractor has been retained for remediation purposes.

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State of New Mexico  
Oil Conservation Division

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

### Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" 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: NA	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Garrett Green</u>	Title: <u>SSHE Coordinator</u>
Signature: <u></u>	Date: <u>06/27/2022</u>
email: <u>garrett.green@exxonmobil.com</u>	Telephone: <u>575-200-0729</u>
<b><u>OCD Only</u></b>	
Received by: <u>Jocelyn Harimon</u>	Date: <u>06/28/2022</u>

Incident ID	NAPP2217931599
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## 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>&gt; 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 checked="" type="checkbox"/> Yes <input 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 <b>not</b> on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input 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.

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State of New Mexico  
Oil Conservation Division

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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: \_Garrett Green\_\_\_\_\_ Title: \_Environmental Coordinator\_\_\_\_\_

Signature:  Date: \_\_\_12/19/2022\_\_\_\_\_

email: \_garrett.green@exxonmobil.com\_\_\_\_\_ Telephone: \_\_\_575-200-0729\_\_\_\_\_

**OCD Only**

Received by: \_\_\_Jocelyn Harimon\_\_\_\_\_ Date: \_\_\_12/19/2022\_\_\_\_\_



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State of New Mexico  
Oil Conservation Division

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## Remediation Plan


**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Garrett Green Title: Environmental Coordinator  
Signature:  Date: 12/19/2022  
email: garrett.green@exxonmobil.com Telephone: 575-200-0729

**OCD Only**

Received by: Jocelyn Harimon Date: 12/19/2022

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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State of New Mexico  
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- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Garrett Green Title: Environmental Coordinator  
Signature:  Date: 12/19/2022  
email: garrett.green@exxonmobil.com Telephone: 575-200-0729

**OCD Only**

Received by: Jocelyn Harimon Date: 12/19/2022

☐ Approved ☒ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature:  Date: 4/28/2023

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State of New Mexico  
Oil Conservation Division

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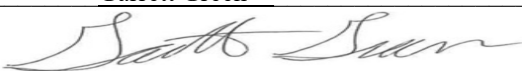
## Closure

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

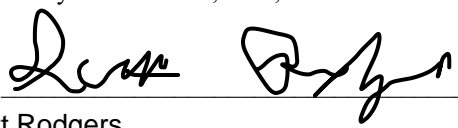
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public 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: Garrett Green Title: Environmental Coordinator  
Signature:  Date: \_\_\_\_\_  
email: garrett.green@exxonmobil.com Telephone: 575-200-0729

**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: 03/11/2024  
Printed Name: Scott Rodgers Title: Environmental Specialist Adv.



## APPENDIX D

### NMOCD Notifications

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**From:** [Hamlet, Robert, EMNRD](#)  
**To:** [Collins, Melanie](#)  
**Cc:** [Ben Belill](#); [Green, Garrett J](#); [DelawareSpills /SM](#); [Bratcher, Michael, EMNRD](#); [Velez, Nelson, EMNRD](#)  
**Subject:** (Extension Approval) - XTO - James Ranch Unit 108H - Incident Number nAPP2217931599  
**Date:** Wednesday, July 26, 2023 3:24:05 PM  
**Attachments:** [image003.png](#)

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[ \*\*EXTERNAL EMAIL\*\* ]

RE: Incident #**NAPP2217931599**

**Melanie,**

Your request for an extension to **October 25th, 2023** is approved. Please include this e-mail correspondence in the remediation and/or closure report.

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



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**From:** Collins, Melanie <[melanie.collins@exxonmobil.com](mailto:melanie.collins@exxonmobil.com)>  
**Sent:** Wednesday, July 26, 2023 11:31 AM  
**To:** Enviro, OCD, EMNRD <[OCD.Enviro@emnrd.nm.gov](mailto:OCD.Enviro@emnrd.nm.gov)>; Hamlet, Robert, EMNRD <[Robert.Hamlet@emnrd.nm.gov](mailto:Robert.Hamlet@emnrd.nm.gov)>; Bratcher, Michael, EMNRD <[mike.bratcher@emnrd.nm.gov](mailto:mike.bratcher@emnrd.nm.gov)>; Harimon, Jocelyn, EMNRD <[Jocelyn.Harimon@emnrd.nm.gov](mailto:Jocelyn.Harimon@emnrd.nm.gov)>  
**Cc:** [bbelill@ensolum.com](mailto:bbelill@ensolum.com); Green, Garrett J <[garrett.green@exxonmobil.com](mailto:garrett.green@exxonmobil.com)>; DelawareSpills /SM <[DelawareSpills@exxonmobil.com](mailto:DelawareSpills@exxonmobil.com)>  
**Subject:** [EXTERNAL] XTO - Extension Request - James Ranch Unit 108H - Incident Number nAPP2217931599

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

All,

XTO is requesting an extension for the current deadline of July 27, 2023, for submitting a remediation work plan or closure report required in 19.15.29.12.B.(1) NMAC at the James Ranch Unit 108H (Incident Number nAPP2217931599). Initial site assessment and delineation activities

have been completed and were documented in a Remediation Work Plan, approved by NMOCD on April 28, 2023. XTO requires BLM approval to access the work area to excavate the impacted soil and investigate the Site for naturally occurring chlorides, as proposed in the approved Remediation Work Plan. A Sundry Form requesting access was submitted to the BLM on May 16, 2023, and in response, BLM requested a botany survey of the work area. A botany survey was completed on July 21, 2023, and the results of the survey are pending. To review the results of the botany survey, excavate impacted soil, investigate for naturally occurring chlorides, review laboratory analytical results, and submit a remediation work plan or closure report, XTO requests an extension until October 25, 2023.

Thank you,

*Melanie Collins*



Environmental Technician

[melanie.collins@exxonmobil.com](mailto:melanie.collins@exxonmobil.com)

432-556-3756

**From:** [Hamlet, Robert, EMNRD](#)  
**To:** [Collins, Melanie](#)  
**Cc:** [DelawareSpills /SM](#); [Green, Garrett J](#); [Ben Belill](#); [Ashley Ager](#); [Tacoma Morrissey](#); [Kalei Jennings](#); [Bratcher, Michael, EMNRD](#); [Nobui, Jennifer, EMNRD](#); [Harimon, Jocelyn, EMNRD](#)  
**Subject:** (Extension Approval) - James Ranch Unit 108H - Incident Number NAPP221793159  
**Date:** Monday, September 19, 2022 3:21:36 PM  
**Attachments:** [image003.png](#)

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[ \*\*EXTERNAL EMAIL\*\* ]

RE: Incident #NAPP2217931599

**Melanie,**

Your request for an extension to **December 19th, 2022** is approved. Please include this e-mail correspondence in the remediation and/or closure report.

**Robert Hamlet** • Environmental Specialist - Advanced

Environmental Bureau

EMNRD - Oil Conservation Division

506 W. Texas Ave. | Artesia, NM 88210

575.909.0302 | [robert.hamlet@state.nm.us](mailto:robert.hamlet@state.nm.us)

<http://www.emnrd.state.nm.us/OCD/>



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**From:** Collins, Melanie <[melanie.collins@exxonmobil.com](mailto:melanie.collins@exxonmobil.com)>

**Sent:** Monday, September 19, 2022 12:04 PM

**To:** Enviro, OCD, EMNRD <[OCD.Enviro@emnrd.nm.gov](mailto:OCD.Enviro@emnrd.nm.gov)>; [mike.bratcher@state.nm.us](mailto:mike.bratcher@state.nm.us); Hamlet, Robert, EMNRD <[Robert.Hamlet@state.nm.us](mailto:Robert.Hamlet@state.nm.us)>

**Cc:** DelawareSpills /SM <[DelawareSpills@exxonmobil.com](mailto:DelawareSpills@exxonmobil.com)>; Green, Garrett J <[garrett.green@exxonmobil.com](mailto:garrett.green@exxonmobil.com)>; [bbelill@ensolum.com](mailto:bbelill@ensolum.com); Ashley Ager <[aager@ensolum.com](mailto:aager@ensolum.com)>; Tacoma Morrissey <[tmorrissey@ensolum.com](mailto:tmorrissey@ensolum.com)>; Kalei Jennings <[kjennings@ensolum.com](mailto:kjennings@ensolum.com)>

**Subject:** [EXTERNAL] XTO - Extension Request - James Ranch Unit 108H - Incident Number NAPP2217931599

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

All,

**XTO – Extension Request – James Ranch Unit 108H – Incident Number nAPP2217931599**

XTO is requesting an extension for the current deadline of September 20, 2022 for submitting a remediation work plan or closure report required in 19.15.29.12.B.(1) NMAC at the James Ranch

Unit 108H (Incident Number NAPP2217931599). The release occurred on June 22, 2022, and initial site assessment activities were completed July 26, 2022. Additional delineation activities were completed last week and are pending laboratory analytical results. In order to review the laboratory analytical results, discuss remedial options, and submit a remediation work plan or closure report, XTO requests an extension until December 19, 2022.

Thank you,

*Melanie Collins*



Environmental Technician

[melanie.collins@exxonmobil.com](mailto:melanie.collins@exxonmobil.com)

432-556-3756



**Ben Belill**

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**From:** Tacoma Morrissey  
**Sent:** Wednesday, December 14, 2022 1:49 PM  
**To:** Ben Belill  
**Subject:** FW: XTO - Sampling Notification (Week of 10/17/22 - 10/21/22)

See below!

**Tacoma Morrissey**

Senior Geologist

337-257-8307

Ensolum, LLC



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**From:** Green, Garrett J <garrett.green@exxonmobil.com>  
**Sent:** Monday, October 17, 2022 11:21 AM  
**To:** ocd.enviro@emnrd.nm.gov; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>  
**Cc:** Tacoma Morrissey <tmorrissey@ensolum.com>; DelawareSpills /SM <DelawareSpills@exxonmobil.com>  
**Subject:** XTO - Sampling Notification (Week of 10/17/22 - 10/21/22)

[ \*\*EXTERNAL EMAIL\*\* ]

All,

Please see the update below to this week's sampling schedule. XTO plans to complete final sampling activities at the following sites the week of Oct 17, 2022.

**Monday**

- BEU 29W Vader 100H / nAPP2102831345

**Tuesday**

- BEU 29W Vader 100H / nAPP2102831345
- PLU 21 BD 125H/ nAPP2214547737

**Wednesday**

- BEU 29W Vader 100H / nAPP2102831345
- PLU 30 Big Sinks/ nAPP2209137379, nAPP2208351954, nAPP2206853301

**Thursday**

- PLU 30 Big Sinks/ nAPP2209137379, nAPP2208351954, nAPP2206853301
- JRU 108 / nAPP2217931599
- JRU 106 / nAPP2212344322

**Garrett Green**

Environmental Coordinator  
Delaware Business Unit

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**From:** Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>  
**Sent:** Thursday, August 31, 2023 10:01 AM  
**To:** Collins, Melanie <melanie.collins@exxonmobil.com>  
**Cc:** Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>  
**Subject:** RE: [EXTERNAL] XTO - Sampling Notification (Week of 9/5/23 - 9/8/23)

**External Email - Think Before You Click**

Hi Melanie,

The OCD has received your notification. When reporting sampling at multiple locations it is required to provide the date and time for each location. Include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Thank you,

Shelly

Shelly Wells \* Environmental Specialist-Advanced  
Environmental Bureau  
EMNRD-Oil Conservation Division  
1220 S. St. Francis Drive | Santa Fe, NM 87505  
(505)469-7520 | [Shelly.Wells@emnrd.nm.gov](mailto:Shelly.Wells@emnrd.nm.gov)  
<http://www.emnrd.state.nm.us/OCD/>

---

**From:** Collins, Melanie <[melanie.collins@exxonmobil.com](mailto:melanie.collins@exxonmobil.com)>  
**Sent:** Thursday, August 31, 2023 8:49 AM  
**To:** Enviro, OCD, EMNRD <[OCD.Enviro@emnrd.nm.gov](mailto:OCD.Enviro@emnrd.nm.gov)>; [spills@slo.state.nm.us](mailto:spills@slo.state.nm.us)  
**Cc:** [bbelill@ensolum.com](mailto:bbelill@ensolum.com); Green, Garrett J <[garrett.green@exxonmobil.com](mailto:garrett.green@exxonmobil.com)>  
**Subject:** [EXTERNAL] XTO - Sampling Notification (Week of 9/5/23 - 9/8/23)

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

All,

XTO plans to complete final sampling activities at the sites listed below for the week of September 5, 2023.

Tuesday

- PLU 18 TWR Sat Battery / nAPP2230551957

Wednesday

- PLU 18 TWR Sat Battery / nAPP2230551957
- James Ranch Unit 19 Tank Battery / NAPP2322348507 (SLO)

Thursday

- PLU 18 TWR Sat Battery / nAPP2230551957
- James Ranch Unit 2 702H / nAPP2211654411
- JRU 108 / nAPP2217931599
- Hudson 1 Fed Com 9H / nAPP2322645119

Friday

- PLU 18 TWR Sat Battery / nAPP2230551957
- JRU 108 / nAPP2217931599
- Hudson 1 Fed Com 9H / nAPP2322645119

Thank you,

*Melanie Collins*



Environmental Technician

[melanie.collins@exxonmobil.com](mailto:melanie.collins@exxonmobil.com)

432-556-3756

**From:** [Collins, Melanie](#)  
**To:** [ocd.enviro \(ocd.enviro@emnrd.nm.gov\)](mailto:ocd.enviro@emnrd.nm.gov)  
**Cc:** [Green, Garrett J](#); [Ben Bellil](#)  
**Subject:** XTO - Sampling Notification (Week of 9/11/23 - 9/15/23)  
**Date:** Wednesday, September 6, 2023 2:39:22 PM  
**Attachments:** [image001.png](#)

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[ \*\*EXTERNAL EMAIL\*\* ]

All,

XTO plans to complete final sampling activities at the sites listed below for the week of September 11, 2023.

Monday

- JRU 108 / nAPP2217931599
- BEU 70 / NAPP2318139530

Tuesday

- JRU 108 / nAPP2217931599

Wednesday

- JRU 108 / nAPP2217931599

Thursday

- JRU 108 / nAPP2217931599
- PLU 29 Big Sinks West CTB / NAPP2320634792

Friday

- PLU 29 Big Sinks West CTB / NAPP2320634792

Thank you,

*Melanie Collins*



Environmental Technician

[melanie.collins@exxonmobil.com](mailto:melanie.collins@exxonmobil.com)

432-556-3756



## APPENDIX E

*Remediation Work Plan* December 19, 2022

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December 19, 2022

**New Mexico Oil Conservation Division**

1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

**Re: Remediation Work Plan  
James Ranch Unit 108H  
Incident Number nAPP2217931599  
Eddy County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared this *Remediation Work Plan (Work Plan)* to address impacted soil at the James Ranch Unit 108H (Site). Soil was impacted due to a release of crude oil and produced water. Based on delineation activities and laboratory analytical results, XTO is submitting this *Work Plan* describing remediation actions completed to date and proposing to investigate naturally occurring chloride concentrations within the shallow caliche formation identified in the area.

**SITE DESCRIPTION AND RELEASE SUMMARY**

The Site is located in Unit G, Section 1, Township 23 South, Range 30 East, in Eddy County, New Mexico (32.33641°N, 103.83180°W) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM).

On June 22, 2022, corrosion on a flowline resulted in the release of 7.26 barrels (bbls) of produced water and 1.59 bbls of crude oil into the pasture underneath active surface flowlines. A vacuum truck was immediately dispatched to the Site to recover the free-standing fluids; approximately 0.41 bbls of produced water and 0.09 bbls of crude oil were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification Form C-141 (Form C-141) on June 27, 2022. The release was assigned Incident Number nAPP2217931599.

**SITE CHARACTERIZATION AND CLOSURE CRITERIA**

The Site was characterized to determine applicability of Table I, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29, (19.15.29) 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 a recent soil boring drilled for determination of regional groundwater depth. On June 4, 2019, a soil boring (C-4325) was drilled within a ½-mile east of the Site. Soil boring C-4325 was drilled to a depth of 150 feet bgs. A field geologist logged and described soils continuously. No moisture or groundwater was encountered during drilling activities. The borehole was left open for over 72 hours to

XTO Energy, Inc  
Remediation Work Plan  
James Ranch Unit 108H

allow for potential slow infill of groundwater. After the 72-hour waiting period without observing groundwater, it was confirmed that groundwater beneath the Site is greater than 150 feet bgs. The borehole was properly abandoned with drill cuttings and hydrated bentonite chips. Shallower soil borings permitted by the NMOSE, C-03559 point of diversion (POD)-1 through POD -4, were drilled and plugged just south of the release in 2012. The deepest soil boring, POD-1, was drilled to 50 feet bgs and no groundwater was encountered in any of the shallow soil borings. All wells used to determine depth to groundwater are depicted on Figure 1 and the Well Record and Log for each well is included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a freshwater emergent wetland, located approximately 3,919 feet southeast 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 underlain by unstable geology (high potential karst designation area).

Based on the existence of high potential karst underlying the Site, the following NMOCD Table I Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH): 100 mg/kg
- Chloride: 600 mg/kg

## DELINEATION SOIL SAMPLING ACTIVITIES

On July 26, 2022, Ensolum personnel completed a Site assessment to evaluate the release extent based on information provided on the Form C-141 and visual observations. Seven delineation soil samples (SS01 through SS07) were collected within and around the release extent from a depth of approximately 0.5 feet bgs. Delineation soil samples SS01 through SS03 were collected within the release extent, and samples SS04 through SS07 were collected around the release extent to confirm the lateral extent. The delineation soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride Hach® chloride QuanTab® test strips. The release extent and delineation soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation was completed during the Site assessment and a photographic log is included in Appendix B.

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 under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of the following constituents of concern (COC): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0. Soil samples delivered to the laboratory the same day they are collected may not have equilibrated to the 6 degrees Celsius required for shipment and long term storage, but are considered to have been received in acceptable condition.

XTO Energy, Inc  
Remediation Work Plan  
James Ranch Unit 108H

Two potholes (PH01 and PH02) and one borehole (BH03) were advanced by use of heavy equipment and hand auger. Potholes PH01 and PH02 were advanced to a depth of approximately 7 feet bgs and were collected in the vicinity of delineation soil samples SS01 and SS02, respectively. Discrete delineation soil samples were collected from each pothole at depths ranging from 2 feet bgs to 7 feet bgs. Borehole BH03 was advanced in the vicinity of delineation soil sample SS03 to a depth of approximately 1-foot bgs until auger refusal. A sample was collected a depth of 1-foot bgs. Soil from each pothole and borehole was field screened and handled as described above. Field screening results and observations for the potholes and borehole were logged on lithologic/soil sampling logs, which are included in Appendix C. The delineation soil sample locations are depicted on Figure 2.

Ensolum observed a caliche formation in PH01 and PH02 between 3 and 7 feet bgs exhibiting elevated (greater than 3,000 mg/kg) chloride field screening results. As such, Ensolum advanced one pothole (BG01) to evaluate naturally occurring chloride concentrations outside of the release extent and in an area that does not appear to have been disturbed by oil and gas operations. Pothole BG01 was completed approximately 60 feet northeast of the edge of the release extent and was advanced to a depth of 6 feet bgs. Discrete soil samples were collected at depths of 0.5 feet bgs in a poorly graded sand, and 4 feet bgs and 6 feet bgs in the underlying caliche formation. Field screening results and observations for the pothole was logged on lithologic/soil sampling logs, which are included in Appendix C.

## LABORATORY ANALYTICAL RESULTS

Laboratory analytical results indicate TPH concentrations exceeded 100 mg/kg in samples collected within the release footprint from 0.5 to 4 feet bgs in SS01/PH01 and at the ground surface at SS02 and SS03. Similarly, chloride concentrations exceeded 600 mg/kg within the release footprint in samples from the ground surface in SS01, SS02, and SS03 and at depth in PH01 and PH02. Chloride concentrations detected at depth were variable, ranging from 3,160 mg/kg to 26,700 mg/kg. Laboratory analytical results are summarized in Table 1 and laboratory analytical reports are included in Appendix D.

Laboratory analytical results for soil samples from BG01 collected from the underlying caliche formation at 4 feet bgs, and 6 feet bgs, indicated chloride concentrations were within range of those detected in the subsurface in similar lithology within the release footprint.

## PROPOSED REMEDIATION WORK PLAN

Based on the presence of elevated TPH concentrations in soil within the release footprint, XTO proposes to excavate soil containing TPH exceeding 100 mg/kg. Based on field screening and laboratory analytical results, the excavation will proceed to approximately 4 feet bgs. Following removal of the soil, Ensolum personnel will collect five-point confirmation soil samples representing at most every 200 square feet of the excavation floor and sidewalls. The soil samples will be handled as described above and delivered to Eurofins for analysis of BTEX, TPH, and chloride.

Based on the laboratory analytical results for chloride concentrations in samples collected from BG01, PH01, and PH02, Ensolum suggests there is potential for naturally occurring elevated chloride in the underlying caliche formation, which may demonstrate a shallowing westerly trend based on auger refusal in BH03 and lessening visible vegetation in the same direction. To evaluate naturally occurring chloride in the identified caliche formation, XTO will advance four additional background potholes (BG02 through BG05) in undisturbed pasture areas located approximately 180 feet to 280 feet from the edge of the release extent in multiple directions. The locations proposed are as close as possible to the



XTO Energy, Inc  
Remediation Work Plan  
James Ranch Unit 108H

release but outside of disturbed areas. Soil samples will be collected from each pothole at 1-foot intervals and include both the caliche formation and overlying sand. The soil samples will be field screened for chloride and advanced until chloride concentrations are less than 600 mg/kg or enough representative samples of the caliche have been collected to document naturally occurring conditions. The delineation soil samples will be handled as described above and analyzed at the laboratory for chloride.

Following excavation of TPH-impacted soil within the release footprint and completion of background sampling, XTO will submit a report requesting closure based on removal of impacted soil or a revised work plan to address any remaining chloride in soil exceeding background concentrations. XTO will complete the proposed remediation activities within 90 days of the date of approval of this *Work Plan*.

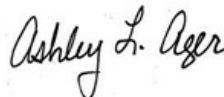
XTO believes the scope of work described above is equally protective of human health, the environment, and groundwater. As such, XTO respectfully requests approval of the *Work Plan* from NMOCD.

If you have any questions or comments, please contact Ms. Tacoma Morrissey at (337) 257-8307 or [tmorrissey@ensolum.com](mailto:tmorrissey@ensolum.com).

Sincerely,  
**Ensolum, LLC**



Benjamin J. Belill  
Project Geologist



Ashley L. Ager, M.S., P.G.  
Program Director

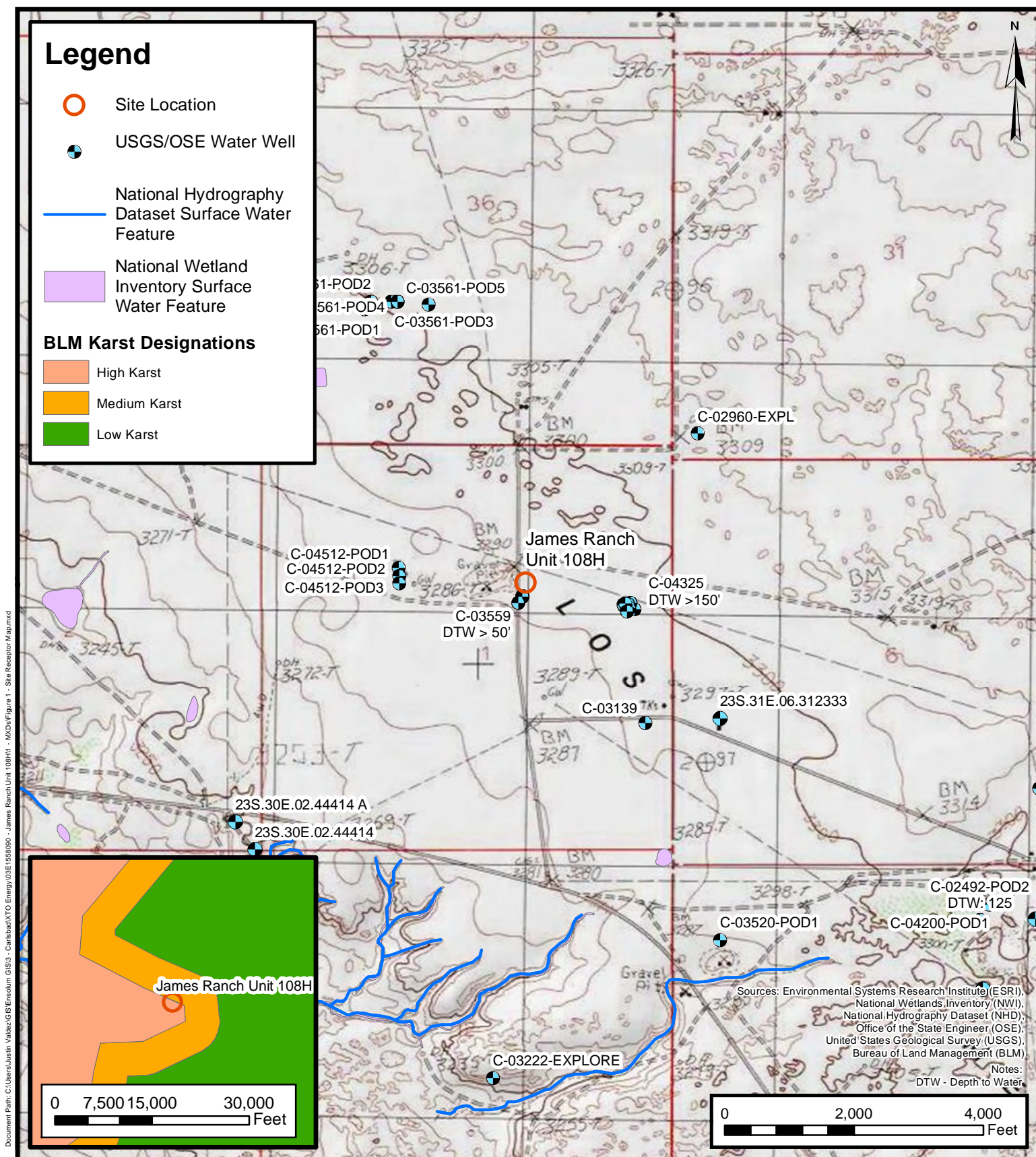
cc: Garrett Green, XTO  
Shelby Pennington, XTO  
Bureau of Land Management

Appendices:

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



FIGURES



## Site Receptor Map

James Ranch Unit 108H

XTO Energy, Inc

Unit G Sec 1 T23S R30E

Eddy County, New Mexico

Incident Number: nAPP2217931599

FIGURE

1

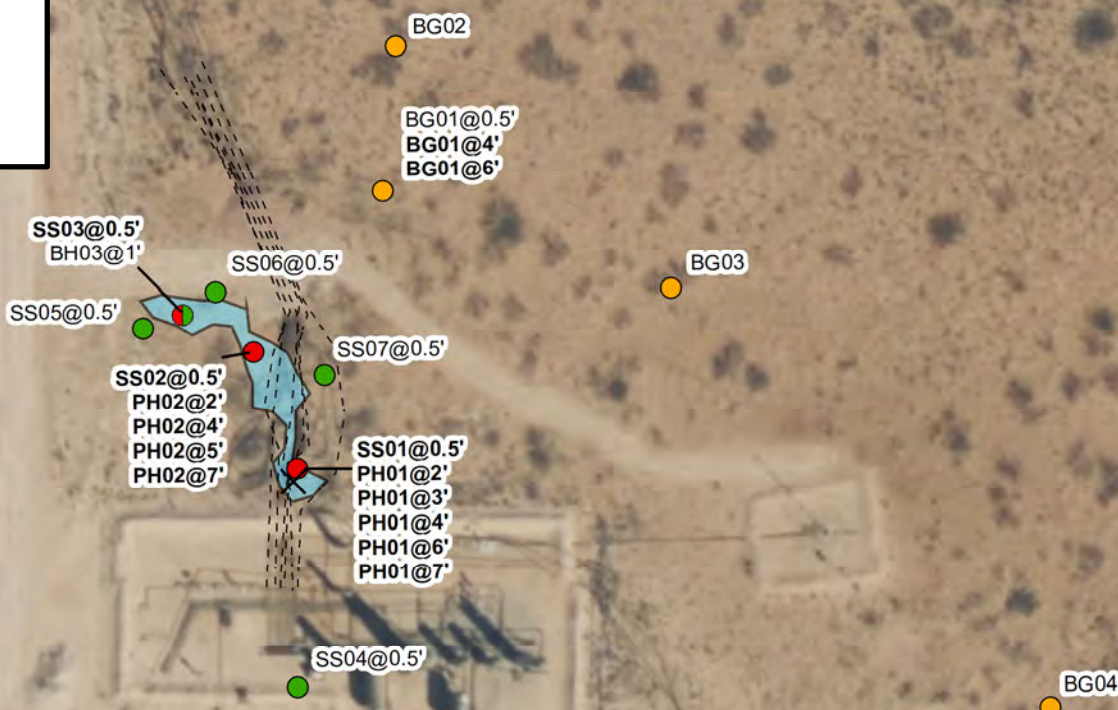


Environmental, Engineering and  
Hydrogeologic Consultants



## Legend

- ✕ Release Point
- Background Delineation Location
- Delineation Soil Sample with Concentrations Exceeding Closure Criteria
- Delineation Soil Sample with Concentrations Previously Exceeding Closure Criteria
- Delineation Soil Sample in Compliance with Closure Criteria
- Surface Flowline
- Release Extent



Notes:  
Soil samples in **bold** indicate  
soil concentrations exceed the applicable  
regulatory criteria.  
Sample ID@ Depth Below Ground Surface.

0 70 140  
Feet

Sources: Environmental Systems Research Institute (ESRI)

## Delineation Soil Sample Locations

James Ranch Unit 108H  
XTO Energy, Inc  
Unit G Sec 1 T23S R30E  
Eddy County, New Mexico  
Incident Number: nAPP2217931599

FIGURE

2





TABLES



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
 JRU 108H  
 XTO Energy, Inc  
 Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Delineation Soil Samples										
SS01	07/26/2022	0.5	1.05	41.5	2,140	16,300	4,760	18,440	<b>23,200</b>	<b>4,930</b>
PH01	10/20/2022	2	<0.0498	2.40	935	3,250	2,180	4,190	<b>6,370</b>	<b>2,870</b>
PH01	10/20/2022	3	<0.0497	32.6	848	1,970	1,190	2,820	<b>4,010</b>	<b>12,300</b>
PH01	10/20/2022	4	<0.0499	27.1	531	1,340	824	1,876	<b>2,700</b>	<b>3,160</b>
PH01	10/20/2022	6	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	<b>26,700</b>
PH01	10/20/2022	7	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	<b>4,100</b>
SS02	07/26/2022	0.5	<0.0499	1.98	1,050	9,700	1,720	10,750	<b>12,500</b>	<b>1,650</b>
PH02	10/20/2022	2	<0.00201	<0.00402	<49.9	63.5	<49.9	63.5	63.5	<b>13,600</b>
PH02	10/20/2022	4	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	<b>22,100</b>
PH02	10/20/2022	5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	<b>6,400</b>
PH02	10/20/2022	7	<0.00198	<0.00396	<50.0	<50.0	<50.0	<50.0	<50.0	<b>5,550</b>
SS03	07/26/2022	0.5	<0.0497	13.3	188	9,420	1,960	9,608	<b>12,400</b>	<b>9,420</b>
BH03	09/08/2022	1	<0.00199	<0.00398	<49.9	<49.9	75.6	<49.9	75.6	54.1
BG01	10/20/2022	0.5	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	10.4
BG01	10/20/2022	4	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	<b>4,860</b>
BG01	10/20/2022	6	0.00216	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	<b>4,650</b>
SS04	07/26/2022	0.5	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	131
SS05	07/26/2022	0.5	<0.00199	<0.00398	<49.8	<49.8	62.8	<49.8	62.8	13.6
SS06	07/26/2022	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	10.9
SS07	07/26/2022	0.5	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	8.7

## Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

Concentrations in **bold** exceed the NMOCD Table 1 Closure Criteria or reclamation standard where applicable.

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics


TPH: Total Petroleum Hydrocarbon




## APPENDIX A


### Referenced Well Records


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		<b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>C-4325(MW01)</b>		Date: <b>5/22/19</b>		
				Project Name: JRU 10		RP Number: 2RP-3404, 2RP-3464, 2RP-3179		
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>				Logged By: BEN BELILL		Method: <b>Loic</b>		
Lat/Long: <b>32.335339, -103.827697</b>		Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO		Hole Diameter: 6.15"		Total Depth: <b>150'</b>		
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0		(SP-SM)	
D	<112	0.5	N	MW01	1	1'		Silty SAND dry, browned, poorly graded, f.-m., some vegetation.
D	<112	0.4	N	MW01A	2	2'		
D	<112	0.1	N	MW01B	3	3'		
D	<112	0.3	N	MW01C	4	4'	CLICHE	CLICHE w/ Sand, dry, lt brown/tan, oily earth, some m. red sand, no odor.
P	<112	0.1	N	MW01D	5	5'		
D	<112	0.5	N	MW01E	6	6'		
D	<112	0.4	N	MW01F	7	7'		
D	<112	0.3	N	MW01G	8	8'		
D	403	0.1	N	MW01H	9	9'	SP	SAND w/ Caliche, dry, lt brown/brown, f.-m., poorly graded, no odor.
D	345	0.8	N	MW01I	10	10'		SFT
D	345	3.1	N	MW01J	11	11'	(SP-SM)	SANDY SILT, dry, browned, <del>no odor</del> , some fine sand, poorly graded, f.-m., no odor.
					12	12'		





 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier <del>XXXX</del> <b>MW01</b>	Date <b>5/22/19</b>					
Project Name: JRU 10		RP Number: 2RP-3464, 2RP-3179 2RP-3243						
<b>LITHOLOGIC / SOIL BORING LOG</b>		Logged By: BEN BELILL	Method					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO	Hole Diameter: <del>6.00</del>					
Total Depth:		Comment: All Chloride test include a 60% error factor.						
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
1650	D <112	1.6	N	MW01K	12	12'	(SP-Sm)	STFA
	D <112	3.8	N	MW01L	13	13'		
	D <112	4.9	N	MW01M	14	14'		
	D <112	4.8	N	MW01N	15	15'		
	D <112	1.1	N	MW01O	16	16'		
	D <112	0	N	MW01P	17	17'		
	D <112	4.1	N	MW01Q	18	18'	ML	SILT, dry, ben/ind, no plastic, no odor
	D <112	6.5	N	MW01R	19	19'		
	D <180	1.3	N	MW01S	20	20'		
	D <180	9.2	N	MW01T	21	21'		
	D <112	7.4	N	MW01U	22	22'		
1725	D <112	5.1	N	MW01V	23	23'		
					24	24'		


 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MWD1</b> Date: <b>5/22/19</b>						
<b>LITHOLOGIC / SOIL BORING LOG</b>		Project Name: <b>JRU 10</b> RP Number: <b>2RP-3464, 2RP-3179, 2RP-3243</b>						
Lat/Long:	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Logged By: <b>BEN BELILL</b> Method: <b>Total Depth</b>						
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	6.5	N	MWD1 AA	24	24	ML	SAA
D	<112	4.6	N	MWD1 X	25	25'		
D	<112	5.1	N	MWD1 Y	26	26'		
D	<112	9.4	N	MWD1 Z	27	27'		
D	<112	0.8	N	MWD1 AB	28	28		
D	<112	1.2	N	MWD1 AC	29	29		
D	<112	0.9	N	MWD1 AD	30	30		
D	<112	0.8	N	MWD1 AE	31	31		
D	<112	3.0	N	MWD1 AF	32	32		
D	<112	3.1	N	MWD1 AG	33	33		
D	<112	0.0	N	MWD1 AH	34	34		
	<112	0.0	N	MWD1 AI	35	35		
					36			

 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b>	Date: <b>5/22/14 - 5/23/14</b>					
		Project Name: JRU 10	RP Number: 2RP-3464, 2RP-3179 2RP-3243					
<b>LITHOLOGIC / SOIL BORING LOG</b>		Logged By: BEN BELJILL	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter: 6.15"					
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	1.0	N	MW01 AF 36	36	36	CL	silty CLAY, dry, red/bra, low plasticity, no odor.
D	<112	0.0	N	MW01 AJ 37	37	37		
D	<112	1.5	N	MW01 AK 38	38	38		
D	<112	0.0	N	MW01 AL 39	39	39		
D	<112	0.0	N	MW01 AM 40	40	40		
D	<112	0.0	N	MW01 AN 41	41	41		
D	<112	1.4	N	MW01 AO 42	42	42		
D	<112	2.8	N	MW01 AP 43	43	43		
D	<112	1.8	N	MW01 AQ 44	44	44		
D	<112	2.5	N	MW01 AR 45	45	45		
D	<112	1.9	N	MW01 AS 46	46	46		
D	<112	2.0	N	MW01 AT 47	47	47		
					48			




		<b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier MW01		Date 5/23/19		
				Project Name: JRU 10		RP Number: 2RP-3464, 2RP-3179 2RP-3243		
<b>LITHOLOGIC / SOIL BORING LOG</b>				Logged By: BEN BELILL		Method:		
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.		Hole Diameter: 6.15"		Total Depth:		
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0730	D <112	0.3	N	MW01 AW 48	48	48	CL	silty CLAY, dry, red/brn, low plasticity, no odor
0735	D <112	1.3	N	MW01 AX 49	49	49		silty CLAY w/ calcine, dry, red/brn, low plasticity, some poly coated tan calcine gravel, no odor
0740	D <112	1.2	N	MW01 AW 50	50	50		silty CLAY, dry, red/brn, low plasticity, no odor
0750	D <112	1.2	N	MW01 AX 51	51	51		
0800	D <112	1.3	N	MW01 AX 52	52	52		
0810	D <112	1.5	N	MW01 AZ 53	53	53		
	D <112	0.1	N	MW01 BA 54	54	54		
	D <112	0.3	N	MW01 BB 55	55	55		
	D <112	2.0	N	MW01 BC 56	56	56		
	D <112	2.9	N	MW01 BD 57	57	57		
	D <112	3.8	N	MW01 BE 58	58	58		
	D <112	2.3	N	MW01 BF 59	59	59		
					60			

		<b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01		Date: 5/23/19		
				Project Name: JRU 10		RP Number: 2RP-3179, 2RP-3464, 2RP-5243		
<b>LITHOLOGIC / SOIL BORING LOG</b>				Logged By: BEN BELILL		Method:		
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.		Hole Diameter:		Total Depth:		
Comment All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	2.8	N	MW01 BG 60	60	60	CL	Silty CLAY, dry, brn/md, low plasticity, no odor.
P	<112	2.9	N	MW01 BH 61	61	61		
P	<112	2.8	N	MW01 B I 62	62	62		
D	<112	3.4	N	MW01 B J 63	63	63		
D	<112	1.6	N	MW01 BK 64	64	64		
D	<112	11.7	N	MW01 BL 65	65	65		
P	<112	4.5	N	MW01 BM 66	66	66		
P	<112	3.7	N	MW01 BN 67	67	67		
P	<112	1.9	N	MW01 BQ 68	68	68		
D	<112	1.1	N	MW01 BR 69	69	69		
D	<112	2.3	N	MW01 BQ 70	70	70		
D	<112	1.7	N	MW01 BR 71	71	71		
					72			


 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b> Date: <b>5/23/19</b>						
Project Name: JRU 10		RP Number: 2RP-3179, 2RP-3464, 2RP-5243						
<b>LITHOLOGIC / SOIL BORING LOG</b>		Logged By: BEN BELILL Method:						
Lat/Long:	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO	Hole Diameter: Total Depth:						
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
P	<112	3.1	N	MW01 BS 72	72	72	CL	Soft
B	<112	1.0	N	MW01 BT 73	73	73		
D	<112	1.1	N	MW01 BV 74	74	74		
D	<112	6.0	N	MW01 BV 75	75	75		
D	<112	5.6	N	MW01 BW 76	76	76		
D	<112	3.4	N	MW01 BX 77	77	77		
D	<112	1.1	N	MW01 BY 78	78	78		
P	243	1.2	N	MW01 BZ 79	79	79		
D	<112	2.4	N	MW01 CA 80	80	80		
B	<112	4.7	N	MW01 CB 81	81	81		
D	<112	3.7	N	MW01 CC 82	82	82		
P	<112	3.7	N	MW01 CD 83	83	83		
					84			





Released to Imaging: 3/11/2024 11:17:01 AM

 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b>	Date: <b>5/23/19</b>					
		Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243					
<b>LITHOLOGIC / SOIL BORING LOG</b>		Logged By: BEN BELILL	Method:					
Lat/Long:	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter:	Total Depth:					
Comment All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	1.4	N	MW01CQ	96	96	CL	silty CLAY, brn/red, low plasticity, no odor.
D	<112	4.2	N	MW01CR	97	97		
D	2112	2.2	N	MW01CS	98	98		
D	<112	1.8	N	MW01CT	99	99		
D	<112	1.1	N	MW01CU	100	100		
D	<112	1.5	N	MW01CV	101	101		
D	2112	0.4	N	MW01CW	102	102		
D	<112	1.1	N	MW01CX	103	103		
D	<112	1.6	N	MW01CY	104	104		
D	<112	0.7	N	MW01CZ	105	105		
	<112	1.3	N	MW01DA	106	106		
	<112	0.6	N	MW01DB	107	107		
					108			




 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b> Date: <b>5/23/19/5/24</b>						
Project Name: JRU 10		RP Number: 2RP-3179, 2RP-3464, 2RP-5243						
<b>LITHOLOGIC / SOIL BORING LOG</b>								
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.						
Logged By: BEN BELILL		Method:						
Hole Diameter:		Total Depth:						
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	1.3	N	MW01 D	72 108	108	CL	SAA
D	<112	0.3	N	MW01 D	73 109	109		
D	<112	0.6	N	MW01 D	74 110	110		
D	<112	0.6	N	MW01 D	75 111	111		
D	<112	0.5	N	MW01 D	76 112	112		
D	<112	3.5	N	MW01 D	77 113	113		
D	<112	5.3	N	MW01 D	78 114	114		
D	<112	1.3	N	MW01 D	79 115	115		
D	<112	3.3	N	MW01 D	80 116	116		
D	<112	2.9	N	MW01 D	81 117	117		
D	<112	3.3	N	MW01 D	82 118	118		
D	<112	4.8	N	MW01 D	83 119	119		
					84			

 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b>	Date: <b>5/29/19 - 6/3/19</b>					
Project Name: JRU 10		RP Number: 2RP-3404, 2RP-3464, 2RP-3179						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By: BEN BELILL	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 6.15"					
Total Depth:								
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	3.8	N	<del>MW01 D0</del>	120	120	CL	SAA
D	<112	3.1	N	<del>MW01 D1</del>	121	121		
D	<112	1.2	N	<del>MW01 D2</del>	122	122		
D	<112	0.4	N	MW01 D3	123	123		
D	<112	0.5	N	MW01 D4	124	124		
D	<112	0.6	N	MW01 D5	125	125		
D	<112	0.8	N	MW01 D6	126	126		
D	<112	0.7	N	MW01 D7	127	127		
D	<112	1.0	N	MW01 D8	128	128		
D	<112	0.4	N	MW01 D9	129	129		
D	<112	0.5	N	MW01 D10	130	130		
D	<112	1.1	N	MW01 D11	131	131		
					132			

 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MV01</b>	Date: <b>6/3/19 - 6/4/19</b>					
		Project Name: JRU 10	RP Number: 2RP-3404, 2RP-3464, 2RP-3179					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By: BEN BELILL	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 6.15"					
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0	<112	0.8	N	MWD1EA	132	132	CL	SAA ↓ CLAY w/ gravel, dry, lt brn/red, low plasticity, no odor. ↓ CLAY silty CLAY, brown/red, low plasticity, no odor
0	<112	0.7	N	MWD1EB	133	133		
0	<112	0.8	N	MWD1EC	134	134		
0	<112	0.9	N	MWD1ED	135	135		
0	<112	0.6	N	MWD1EE	136	136		
1700	<112	0.7	N	MWD1EF	137	137		
64	<112	1.0	N	MWD1EG	138	138	CL	
0900	<112	0.9	N	MWD1EH	139	139		
0905	<112	3.8	N	MWD1EI	140	140	CL	
0910	<112	3.5	N	MWD1EJ	141	141		
0915	<112	3.1	N	MWD1EK	142	142		
0920	<112	1.8	N	MWD1EL	143	143		
0925					144			



 <b>LT Environmental, Inc.</b> 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: <b>MW01</b> Project Name: <b>JRU 10</b>	Date: <b>6/1/19</b> RP Number: <b>2RP-3404, 2RP-3464, 2RP-3179</b>					
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>		Logged By: <b>BEN BELILL</b>	Method:					
Lat/Long:		Field Screening: <b>CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.</b>	Hole Diameter: <b>6.15"</b>					
Total Depth:								
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0930	D	<112	3.5	N	MW01E M	144	CL	Silt
0935	D	<112	3.2	N	MW01E N	145		
0940	D	<112	2.7	N	MW01E O	146		
0945	D	<112	3.1	N	MW01E P	147		
0950	D	<112	3.0	N	MW01E Q	148		
0955	D	<112	1.8	N	MW01E R	149		
1000	D	<112	1.5	N	MW01E S	150		
					7			
					8			
					9			
					10			
					11			
					12			

FOR @ 150'



# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

[www.ose.state.nm.us](http://www.ose.state.nm.us)
STATE ENGINEER OFFICE  
ROSWELL, NM 87603

7012 AUG 13 P 1:13

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) JAMES RANCH UNIT #36 BATTERY SB-1 (POD-1)				OSE FILE NUMBER(S) C-03559			
	WELL OWNER NAME(S) BOPCO OPERATING CO				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 6 DESTA DRIVE SUITE 3700, P.O. BOX 2760				CITY MIDLAND		STATE TX	ZIP 79702
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 20	SECONDS 9.00 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84			
2. OPTIONAL	DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS FROM THE CORNER OF HWY 128 AND WIPP RD GO N FOR 4TH OF MILE TURN L FOLLOW CALICHE RD TO SITE.							
	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) SECTION 1	TOWNSHIP 23	RANGE 30		
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT G	
	HYDROGRAPHIC SURVEY				MAP NUMBER	TRACT NUMBER		
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER MARTIN STRAUB		NAME OF WELL DRILLING COMPANY STRAUB CORPORATION			
	DRILLING STARTED 7-31-12		DRILLING ENDED 7-31-12		DEPTH OF COMPLETED WELL (FT) 0	BORE HOLE DEPTH (FT) 50'	DEPTH WATER FIRST ENCOUNTERED (FT) N/A	
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input checked="" type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A		
	DRILLING FLUID: <input checked="" type="checkbox"/> AIR <input type="checkbox"/> MUD <input type="checkbox"/> ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:							
	DEPTH (FT) FROM TO		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
	0 50'		5"	N/A	N/A	N/A	N/A	N/A
4. WATER BEARING STRATA	DEPTH (FT) FROM TO		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)				YIELD (GPM)
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA						TOTAL ESTIMATED WELL YIELD (GPM)		

FOR OSE INTERNAL USE

WELL RECORD &amp; LOG (Version 6/9/08)

FILE NUMBER C-3559	POD NUMBER 1	TRN NUMBER 507137
LOCATION Expl - Boreholes		23E. 30E. 1. 234

PAGE 1 OF 2

<b>5. SEAL AND PUMP</b>	TYPE OF PUMP: <input type="checkbox"/> SUBMERSIBLE <input type="checkbox"/> JET <input type="checkbox"/> NO PUMP - WELL NOT EQUIPPED <input type="checkbox"/> TURBINE <input type="checkbox"/> CYLINDER <input type="checkbox"/> OTHER - SPECIFY:						
	<b>ANNULAR SEAL AND GRAVEL PACK</b>	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		0	2'				
	2'	50'	5"	11 BAGS OF 3/8 HOLE PLUG		TOPLOAD	
<b>6. GEOLOGIC LOG OF WELL</b>	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?		
	FROM	TO					
	0	2'	2'	TAN FINE SAND - CALICHE	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
	2'	5'	3'	BASIN FINE SAND - CALICHE	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
	5'	8"	3'	TAN FINE SAND - SANDSTONE	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
	8'	13'	5'	RED FINE SAND	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
	13'	15'	2'	TAN FINE SAND	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
	15'	36'	21'	RED FINE SAND (DRK) - SANDSTONE WITH CLAY	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
	36'	50'	14'	RED SILTY SAND - SILTY CLAY	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
	TD	50'			<input type="checkbox"/> YES	<input type="checkbox"/> NO	
					<input type="checkbox"/> YES	<input type="checkbox"/> NO	
					<input type="checkbox"/> YES	<input type="checkbox"/> NO	
					<input type="checkbox"/> YES	<input type="checkbox"/> NO	
					<input type="checkbox"/> YES	<input type="checkbox"/> NO	
					<input type="checkbox"/> YES	<input type="checkbox"/> NO	
					<input type="checkbox"/> YES	<input type="checkbox"/> NO	
					<input type="checkbox"/> YES	<input type="checkbox"/> NO	
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL						
<b>7. TEST &amp; ADDITIONAL INFO</b>	WELL TEST		METHOD: <input type="checkbox"/> BAILER <input type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> OTHER - SPECIFY:				
	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.						
	ADDITIONAL STATEMENTS OR EXPLANATIONS: SOIL BORING WAS PLUGGED AND ABANDONED UPON COMPLETION OF SAMPLING EDDY COUNTY NM EDWARD BRYAN (DRILLING SUPERVISOR)						
<b>8. SIGNATURE</b>	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING: <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="text-align: center;">             SIGNATURE OF DRILLER         </div> <div style="text-align: center;">           8-10-12            DATE         </div> </div>						

FOR OSE INTERNAL USE

WELL RECORD &amp; LOG (Version 6/9/08)

FILE NUMBER <b>C-3559</b>	POD NUMBER <b>1</b>	TRN NUMBER <b>507137</b>	
LOCATION			PAGE 2 OF 2



## APPENDIX B

### Photographic Log

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## Photographic Log

XTO Energy, Inc

James Ranch Unit 108H

Incident Number nAPP2227351943



Photograph 1

Date: 7/26/2022

Description: Site assessment activities, release extent

View: Southwest



Photograph 2

Date: 9/8/2022

Description: Delineation activities, release extent

View: Northwest



Photograph 3

Date: 9/8/2022

Description: Delineation activities, release extent

View: South



Photograph 4

Date: 10/20/2022

Description: Delineation activities, PH01

View: East








## APPENDIX C

### Lithologic Soil Sampling Logs

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 <b>ENSOLUM</b> Environmental, Engineering and Hydrogeologic Consultants		Sample Name: PH01		Date: 10/20/2022				
		Site Name: JRU 108H						
		Incident Number: NAPP2217931599						
		Job Number: 03E1558090						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								
Coordinates: 32.33641,-103.83180			Logged By: BB		Method: Backhoe			
			Hole Diameter: N/A		Total Depth: 7'			
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% correction factor was added to all chloride field screenings.								
Moisture	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0	SP	0-4', SAND, moist, reddish brown, poorly graded, fine grained, some small roots, strong H/C odor, dark brown-grey staining.
M	1,037	3,516	Y	SS01	0.5			
M	470	438	N	PH01	1	1		1'-4', no stain.
M	2,676	565	N	PH01	2	2		
M	11,748	879	N	PH01	3	3		
M	3,365	1,173	N	PH01	4	4	CCHE	4'-7', CALICHE, moist, light brown-light grey, moderately consolidated, some fine-medium grained poorly graded light grey sand, strong H/C odor, no stain.
M	19,297	1,055	N			5		
M	21,151	61	N	PH01	6	6		6'-7', moderately-poorly consolidated, trace H/C odor.
D	7,673	1.8	N	PH01	7	7		@7', no odor.
							TD	Total depth at 7 feet bgs.
						8		
						9		
						10		
						11		
						12		

 <b>ENSOLUM</b> Environmental, Engineering and Hydrogeologic Consultants								Sample Name: PH02		Date: 10/20/2022	
								Site Name: JRU 108H			
								Incident Number: NAPP2217931599			
								Job Number: 03E1558090			
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								Logged By: BB		Method: Backhoe	
Coordinates: 32.33641,-103.83180								Hole Diameter: N/A		Total Depth: 7'	
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% correction factor was added to all chloride field screenings.											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
M	2,615	326	Y	SS02	0.5	0	SP	0-3', SAND, moist, reddish brown, poorly graded, fine grained, some small roots, strong H/C odor, dark brown-grey staining. 0.5'-3', no stain. 1'-2.5', mild H/C odor.			
M	>3600	51	N	PH02	1	1					
M	>3600	8.9	N	PH02	2	2					
M	>3600	1.3	N			3	CCHE	3'-7', CALICHE, moist, light brown-light grey, moderately consolidated, some fine-medium grained poorly graded light grey sand, no stain, no odor.			
M	11,748	1.0	N	PH02	4	4					
D	>3600	0.1	N	PH02	5	5					
D	>3600	0.2	N			6		6'-7', moderately-poorly consolidated.			
D	>3600	0.6	N	PH02	7	7					
						8					
						9		Total depth at 7 feet bgs.			
						10					
						11					
						12					

 <b>ENSOLUM</b> Environmental, Engineering and Hydrogeologic Consultants		Sample Name: BH03		Date: 9/8/2022				
		Site Name: JRU 108H						
		Incident Number: NAPP2217931599						
		Job Number: 03E1558090						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								
Coordinates: 32.33641,-103.83180				Logged By: BB				
				Method: Hand Auger				
				Hole Diameter: N/A				
				Total Depth: 1'				
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% correction factor was added to all chloride field screenings.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	280	630	Y	SS03	0.5	0	SP	0-1', SAND, moist, reddish brown, poorly graded, fine grained, some small roots, mild H/C odor, dark brown staining.
M	<112	8.9	N	BH03	1	1	TD	0.5'-1', no stain, no odor.
						2		Total depth at 1 foot bgs, auger refusal.
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		



## APPENDIX D

### Laboratory Analytical Reports & Chain of Custody Documentation

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Environment Testing  
America

## ANALYTICAL REPORT

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

Laboratory Job ID: 890-2653-1

Laboratory Sample Delivery Group: Eddy County NM  
Client Project/Site: JRU 108H

For:

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Ben Belill

Authorized for release by:

8/4/2022 3:32:46 PM

Jessica Kramer, Project Manager  
(432)704-5440

[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://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: JRU 108H

Laboratory Job ID: 890-2653-1  
SDG: Eddy County NM

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Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

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

HPLC/IC

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

Glossary

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



Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

Job ID: 890-2653-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative  
890-2653-1

Receipt

The samples were received on 7/26/2022 4:02 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

GC VOA

Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-31337 and analytical batch 880-31375 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

Method 8021B: Surrogate recovery for the following sample was outside control limits: SS02 (890-2653-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The matrix spike duplicate (MSD) recoveries for preparation batch 880-31465 and analytical batch 880-31452 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: SS01 (890-2653-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

GC Semi VOA

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.

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

Client Sample ID: SS01

Lab Sample ID: 890-2653-1

Date Collected: 07/26/22 09:00

Matrix: Solid

Date Received: 07/26/22 16:02

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.05		0.200	mg/Kg		08/04/22 08:51	08/04/22 14:19	100
Toluene	11.6		0.200	mg/Kg		08/04/22 08:51	08/04/22 14:19	100
Ethylbenzene	5.96		0.200	mg/Kg		08/04/22 08:51	08/04/22 14:19	100
m-Xylene & p-Xylene	15.6		0.400	mg/Kg		08/04/22 08:51	08/04/22 14:19	100
o-Xylene	7.28		0.200	mg/Kg		08/04/22 08:51	08/04/22 14:19	100
Xylenes, Total	22.9		0.400	mg/Kg		08/04/22 08:51	08/04/22 14:19	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	139	S1+	70 - 130	08/04/22 08:51	08/04/22 14:19	100
1,4-Difluorobenzene (Surr)	110		70 - 130	08/04/22 08:51	08/04/22 14:19	100

## Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	41.5		0.400	mg/Kg			08/04/22 09:41	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	23200		250	mg/Kg			07/31/22 10:38	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	2140		250	mg/Kg		07/29/22 08:50	07/31/22 03:41	5
Diesel Range Organics (Over C10-C28)	16300		250	mg/Kg		07/29/22 08:50	07/31/22 03:41	5
Oil Range Organics (Over C28-C36)	4760		250	mg/Kg		07/29/22 08:50	07/31/22 03:41	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130	07/29/22 08:50	07/31/22 03:41	5
o-Terphenyl	349	S1+	70 - 130	07/29/22 08:50	07/31/22 03:41	5

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4930		50.0	mg/Kg			07/30/22 22:25	10

Client Sample ID: SS02

Lab Sample ID: 890-2653-2

Date Collected: 07/26/22 09:05

Matrix: Solid

Date Received: 07/26/22 16:02

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0499	U *- *1	0.0499	mg/Kg		08/02/22 14:44	08/04/22 00:59	25
Toluene	0.109	*- *1	0.0499	mg/Kg		08/02/22 14:44	08/04/22 00:59	25
Ethylbenzene	0.574	*- *1	0.0499	mg/Kg		08/02/22 14:44	08/04/22 00:59	25
m-Xylene & p-Xylene	0.836	*- *1	0.0998	mg/Kg		08/02/22 14:44	08/04/22 00:59	25
o-Xylene	0.458	*+ *1	0.0499	mg/Kg		08/02/22 14:44	08/04/22 00:59	25
Xylenes, Total	1.29	*1	0.0998	mg/Kg		08/02/22 14:44	08/04/22 00:59	25

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

Client Sample ID: SS02

Lab Sample ID: 890-2653-2

Date Collected: 07/26/22 09:05

Matrix: Solid

Date Received: 07/26/22 16:02

Sample Depth: 0.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	186	S1+	70 - 130	08/02/22 14:44	08/04/22 00:59	25
1,4-Difluorobenzene (Surr)	94		70 - 130	08/02/22 14:44	08/04/22 00:59	25

## Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	1.98		0.0998	mg/Kg			08/04/22 09:41	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	12500		250	mg/Kg			07/31/22 10:38	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	1050		250	mg/Kg		07/29/22 08:50	07/31/22 04:00	5
Diesel Range Organics (Over C10-C28)	9700		250	mg/Kg		07/29/22 08:50	07/31/22 04:00	5
Oil Range Organics (Over C28-C36)	1720		250	mg/Kg		07/29/22 08:50	07/31/22 04:00	5
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	98		70 - 130			07/29/22 08:50	07/31/22 04:00	5
o-Terphenyl	162	S1+	70 - 130			07/29/22 08:50	07/31/22 04:00	5

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1650		25.0	mg/Kg			07/30/22 22:48	5

Client Sample ID: SS03

Lab Sample ID: 890-2653-3

Date Collected: 07/26/22 09:10

Matrix: Solid

Date Received: 07/26/22 16:02

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0497	U *- *1	0.0497	mg/Kg		08/02/22 14:44	08/04/22 01:19	25
Toluene	0.594	*- *1	0.0497	mg/Kg		08/02/22 14:44	08/04/22 01:19	25
Ethylbenzene	3.66	*- *1	0.0497	mg/Kg		08/02/22 14:44	08/04/22 01:19	25
m-Xylene & p-Xylene	8.72	*- *1	0.0994	mg/Kg		08/02/22 14:44	08/04/22 01:19	25
o-Xylene	0.276	*+ *1	0.0497	mg/Kg		08/02/22 14:44	08/04/22 01:19	25
Xylenes, Total	9.00	*1	0.0994	mg/Kg		08/02/22 14:44	08/04/22 01:19	25
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		70 - 130			08/02/22 14:44	08/04/22 01:19	25
1,4-Difluorobenzene (Surr)	90		70 - 130			08/02/22 14:44	08/04/22 01:19	25

## Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	13.3		0.0994	mg/Kg			08/04/22 09:41	1

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Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

Client Sample ID: SS03  
Date Collected: 07/26/22 09:10  
Date Received: 07/26/22 16:02  
Sample Depth: 0.5

Lab Sample ID: 890-2653-3  
Matrix: Solid

Method: 8015 NM - Diesel Range Organics (DRO) (GC)								
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	12400		249	mg/Kg			07/31/22 10:38	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	1000		249	mg/Kg		07/29/22 08:50	07/31/22 04:20	5
Diesel Range Organics (Over C10-C28)	9420		249	mg/Kg		07/29/22 08:50	07/31/22 04:20	5
Oil Range Organics (Over C28-C36)	1960		249	mg/Kg		07/29/22 08:50	07/31/22 04:20	5
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130			07/29/22 08:50	07/31/22 04:20	5
o-Terphenyl	178	S1+	70 - 130			07/29/22 08:50	07/31/22 04:20	5
Method: 300.0 - Anions, Ion Chromatography - Soluble								
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	188		5.05	mg/Kg			07/30/22 22:56	1

## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

## 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)
880-17728-A-1-A MS	Matrix Spike	105	97
880-17728-A-1-B MSD	Matrix Spike Duplicate	102	97
890-2653-1	SS01	139 S1+	110
890-2653-2	SS02	186 S1+	94
890-2653-3	SS03	117	90
890-2656-A-1-F MS	Matrix Spike	104	96
890-2656-A-1-G MSD	Matrix Spike Duplicate	106	93
LCS 880-31337/1-A	Lab Control Sample	113	93
LCS 880-31465/1-A	Lab Control Sample	103	94
LCSD 880-31337/2-A	Lab Control Sample Dup	90	87
LCSD 880-31465/2-A	Lab Control Sample Dup	106	97
MB 880-31323/5-A	Method Blank	106	87
MB 880-31337/5-A	Method Blank	99	87
MB 880-31465/5-A	Method Blank	100	91
<b>Surrogate Legend</b>			
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)
890-2646-A-1-B MS	Matrix Spike	87	84
890-2646-A-1-C MSD	Matrix Spike Duplicate	87	84
890-2653-1	SS01	107	349 S1+
890-2653-2	SS02	98	162 S1+
890-2653-3	SS03	106	178 S1+
LCS 880-30965/2-A	Lab Control Sample	101	102
LCSD 880-30965/3-A	Lab Control Sample Dup	93	93
MB 880-30965/1-A	Method Blank	91	101
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

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

Lab Sample ID: MB 880-31323/5-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31323

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/02/22 13:15	08/03/22 10:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	08/02/22 13:15	08/03/22 10:46	1
1,4-Difluorobenzene (Surr)	87		70 - 130	08/02/22 13:15	08/03/22 10:46	1

Lab Sample ID: MB 880-31337/5-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31337

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/02/22 14:44	08/03/22 21:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	08/02/22 14:44	08/03/22 21:53	1
1,4-Difluorobenzene (Surr)	87		70 - 130	08/02/22 14:44	08/03/22 21:53	1

Lab Sample ID: LCS 880-31337/1-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09999		mg/Kg		100	70 - 130
Toluene	0.100	0.1031		mg/Kg		103	70 - 130
Ethylbenzene	0.100	0.1082		mg/Kg		108	70 - 130
m-Xylene & p-Xylene	0.200	0.2220		mg/Kg		111	70 - 130
o-Xylene	0.100	0.1387	*+	mg/Kg		139	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: LCSD 880-31337/2-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.0998	0.05262	*- *1	mg/Kg		53	70 - 130	62	35

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

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

Lab Sample ID: LCSD 880-31337/2-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.0998	0.06071	*- *1	mg/Kg		61	70 - 130	52	35
Ethylbenzene	0.0998	0.06794	*- *1	mg/Kg		68	70 - 130	46	35
m-Xylene & p-Xylene	0.200	0.1297	*- *1	mg/Kg		65	70 - 130	52	35
o-Xylene	0.0998	0.09111	*1	mg/Kg		91	70 - 130	41	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		70 - 130
1,4-Difluorobenzene (Surr)	87		70 - 130

Lab Sample ID: 890-2656-A-1-F MS

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U *- *1	0.101	0.08722		mg/Kg		87	70 - 130
Toluene	<0.00199	U *- *1	0.101	0.08202		mg/Kg		82	70 - 130
Ethylbenzene	<0.00199	U *- *1	0.101	0.08158		mg/Kg		81	70 - 130
m-Xylene & p-Xylene	<0.00398	U *- *1	0.201	0.1625		mg/Kg		81	70 - 130
o-Xylene	<0.00199	U +* *1	0.101	0.09304		mg/Kg		92	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	96		70 - 130

Lab Sample ID: 890-2656-A-1-G MSD

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U *- *1	0.0998	0.09326		mg/Kg		93	70 - 130	7	35
Toluene	<0.00199	U *- *1	0.0998	0.08591		mg/Kg		86	70 - 130	5	35
Ethylbenzene	<0.00199	U *- *1	0.0998	0.08696		mg/Kg		87	70 - 130	6	35
m-Xylene & p-Xylene	<0.00398	U *- *1	0.200	0.1684		mg/Kg		84	70 - 130	4	35
o-Xylene	<0.00199	U +* *1	0.0998	0.09635		mg/Kg		97	70 - 130	3	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: MB 880-31465/5-A

Matrix: Solid

Analysis Batch: 31452

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31465

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/04/22 08:51	08/04/22 10:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/04/22 08:51	08/04/22 10:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/04/22 08:51	08/04/22 10:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/04/22 08:51	08/04/22 10:53	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

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

Lab Sample ID: MB 880-31465/5-A

Matrix: Solid

Analysis Batch: 31452

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31465

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/04/22 08:51	08/04/22 10:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/04/22 08:51	08/04/22 10:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130	08/04/22 08:51	08/04/22 10:53	1
1,4-Difluorobenzene (Surr)	91		70 - 130	08/04/22 08:51	08/04/22 10:53	1

Lab Sample ID: LCS 880-31465/1-A

Matrix: Solid

Analysis Batch: 31452

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 31465

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09988		mg/Kg		100	70 - 130
Toluene	0.100	0.1006		mg/Kg		101	70 - 130
Ethylbenzene	0.100	0.1038		mg/Kg		104	70 - 130
m-Xylene & p-Xylene	0.200	0.2107		mg/Kg		105	70 - 130
o-Xylene	0.100	0.1145		mg/Kg		114	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: LCSD 880-31465/2-A

Matrix: Solid

Analysis Batch: 31452

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31465

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09085		mg/Kg		91	70 - 130	9	35
Toluene	0.100	0.08782		mg/Kg		88	70 - 130	14	35
Ethylbenzene	0.100	0.09053		mg/Kg		91	70 - 130	14	35
m-Xylene & p-Xylene	0.200	0.1832		mg/Kg		92	70 - 130	14	35
o-Xylene	0.100	0.1004		mg/Kg		100	70 - 130	13	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 880-17728-A-1-A MS

Matrix: Solid

Analysis Batch: 31452

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 31465

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.100	0.08136		mg/Kg		81	70 - 130
Toluene	<0.00200	U	0.100	0.07618		mg/Kg		76	70 - 130
Ethylbenzene	<0.00200	U F1	0.100	0.07372		mg/Kg		74	70 - 130
m-Xylene & p-Xylene	<0.00399	U F1	0.200	0.1469		mg/Kg		73	70 - 130
o-Xylene	<0.00200	U	0.100	0.07974		mg/Kg		80	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

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

Lab Sample ID: 880-17728-A-1-A MS

Matrix: Solid

Analysis Batch: 31452

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 31465

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 880-17728-A-1-B MSD

Matrix: Solid

Analysis Batch: 31452

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 31465

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0998	0.08732		mg/Kg		87	70 - 130	7	35
Toluene	<0.00200	U	0.0998	0.07748		mg/Kg		78	70 - 130	2	35
Ethylbenzene	<0.00200	U F1	0.0998	0.06936	F1	mg/Kg		69	70 - 130	6	35
m-Xylene & p-Xylene	<0.00399	U F1	0.200	0.1380	F1	mg/Kg		69	70 - 130	6	35
o-Xylene	<0.00200	U	0.0998	0.07575		mg/Kg		76	70 - 130	5	35

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

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

Lab Sample ID: MB 880-30965/1-A

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 30965

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		07/29/22 08:50	07/30/22 19:51	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/29/22 08:50	07/30/22 19:51	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/29/22 08:50	07/30/22 19:51	1

	MB	MB						
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
1-Chlorooctane	91		70 - 130	07/29/22 08:50	07/30/22 19:51	1		
o-Terphenyl	101		70 - 130	07/29/22 08:50	07/30/22 19:51	1		

Lab Sample ID: LCS 880-30965/2-A

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 30965

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	1000	1058		mg/Kg		106	70 - 130		
Diesel Range Organics (Over C10-C28)	1000	1040		mg/Kg		104	70 - 130		

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	101		70 - 130
o-Terphenyl	102		70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

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

Lab Sample ID: LCSD 880-30965/3-A

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 30965

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	949.7		mg/Kg		95	70 - 130	11	20
Diesel Range Organics (Over C10-C28)	1000	972.0		mg/Kg		97	70 - 130	7	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	93		70 - 130						
o-Terphenyl	93		70 - 130						

Lab Sample ID: 890-2646-A-1-B MS

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 30965

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	1211		mg/Kg		116	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	999	846.5		mg/Kg		85	70 - 130		
Surrogate	MS %Recovery	MS Qualifier	Limits								
1-Chlorooctane	87		70 - 130								
o-Terphenyl	84		70 - 130								

Lab Sample ID: 890-2646-A-1-C MSD

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 30965

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	1295		mg/Kg		125	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	863.7		mg/Kg		86	70 - 130	2	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	87		70 - 130								
o-Terphenyl	84		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-30913/1-A

Matrix: Solid

Analysis Batch: 31002

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			07/30/22 22:01	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 880-30913/2-A

Matrix: Solid

Analysis Batch: 31002

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	261.9		mg/Kg		105	90 - 110

Lab Sample ID: LCSD 880-30913/3-A

Matrix: Solid

Analysis Batch: 31002

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	267.7		mg/Kg		107	90 - 110	2	20

Lab Sample ID: 890-2653-1 MS

Matrix: Solid

Analysis Batch: 31002

Client Sample ID: SS01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	4930		2500	7650		mg/Kg		109	90 - 110

Lab Sample ID: 890-2653-1 MSD

Matrix: Solid

Analysis Batch: 31002

Client Sample ID: SS01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	4930		2500	7677		mg/Kg		110	90 - 110	0	20

Lab Sample ID: 890-2659-A-1-B MS

Matrix: Solid

Analysis Batch: 31002

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	149		250	378.1		mg/Kg		92	90 - 110

Lab Sample ID: 890-2659-A-1-C MSD

Matrix: Solid

Analysis Batch: 31002

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	149		250	378.6		mg/Kg		92	90 - 110	0	20

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

## GC VOA

## Prep Batch: 31323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-31323/5-A	Method Blank	Total/NA	Solid	5035	

## Prep Batch: 31337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2653-2	SS02	Total/NA	Solid	5035	
890-2653-3	SS03	Total/NA	Solid	5035	
MB 880-31337/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-31337/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-31337/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2656-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	
890-2656-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 31375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2653-2	SS02	Total/NA	Solid	8021B	31337
890-2653-3	SS03	Total/NA	Solid	8021B	31337
MB 880-31323/5-A	Method Blank	Total/NA	Solid	8021B	31323
MB 880-31337/5-A	Method Blank	Total/NA	Solid	8021B	31337
LCS 880-31337/1-A	Lab Control Sample	Total/NA	Solid	8021B	31337
LCSD 880-31337/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	31337
890-2656-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	31337
890-2656-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	31337

## Analysis Batch: 31452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2653-1	SS01	Total/NA	Solid	8021B	31465
MB 880-31465/5-A	Method Blank	Total/NA	Solid	8021B	31465
LCS 880-31465/1-A	Lab Control Sample	Total/NA	Solid	8021B	31465
LCSD 880-31465/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	31465
880-17728-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	31465
880-17728-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	31465

## Prep Batch: 31465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2653-1	SS01	Total/NA	Solid	5035	
MB 880-31465/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-31465/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-31465/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-17728-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
880-17728-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 31483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2653-1	SS01	Total/NA	Solid	Total BTEX	
890-2653-2	SS02	Total/NA	Solid	Total BTEX	
890-2653-3	SS03	Total/NA	Solid	Total BTEX	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

## GC Semi VOA

## Prep Batch: 30965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2653-1	SS01	Total/NA	Solid	8015NM Prep	
890-2653-2	SS02	Total/NA	Solid	8015NM Prep	
890-2653-3	SS03	Total/NA	Solid	8015NM Prep	
MB 880-30965/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-30965/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-30965/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2646-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2646-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 31053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2653-1	SS01	Total/NA	Solid	8015B NM	30965
890-2653-2	SS02	Total/NA	Solid	8015B NM	30965
890-2653-3	SS03	Total/NA	Solid	8015B NM	30965
MB 880-30965/1-A	Method Blank	Total/NA	Solid	8015B NM	30965
LCS 880-30965/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	30965
LCSD 880-30965/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	30965
890-2646-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	30965
890-2646-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	30965

## Analysis Batch: 31125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2653-1	SS01	Total/NA	Solid	8015 NM	
890-2653-2	SS02	Total/NA	Solid	8015 NM	
890-2653-3	SS03	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 30913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2653-1	SS01	Soluble	Solid	DI Leach	
890-2653-2	SS02	Soluble	Solid	DI Leach	
890-2653-3	SS03	Soluble	Solid	DI Leach	
MB 880-30913/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-30913/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-30913/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2653-1 MS	SS01	Soluble	Solid	DI Leach	
890-2653-1 MSD	SS01	Soluble	Solid	DI Leach	
890-2659-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2659-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 31002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2653-1	SS01	Soluble	Solid	300.0	30913
890-2653-2	SS02	Soluble	Solid	300.0	30913
890-2653-3	SS03	Soluble	Solid	300.0	30913
MB 880-30913/1-A	Method Blank	Soluble	Solid	300.0	30913
LCS 880-30913/2-A	Lab Control Sample	Soluble	Solid	300.0	30913
LCSD 880-30913/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	30913
890-2653-1 MS	SS01	Soluble	Solid	300.0	30913
890-2653-1 MSD	SS01	Soluble	Solid	300.0	30913

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QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

HPLC/IC (Continued)

Analysis Batch: 31002 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2659-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	30913
890-2659-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	30913

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

## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

Client Sample ID: SS01

Lab Sample ID: 890-2653-1

Date Collected: 07/26/22 09:00

Matrix: Solid

Date Received: 07/26/22 16:02

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	31465	08/04/22 08:51	MR	EETSC MID
Total/NA	Analysis	8021B		100	5 mL	5 mL	31452	08/04/22 14:19	MR	EETSC MII
Total/NA	Analysis	Total BTEX		1			31483	08/04/22 09:41	SM	EETSC MII
Total/NA	Analysis	8015 NM		1			31125	07/31/22 10:38	AJ	EETSC MII
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	30965	07/29/22 08:50	DM	EETSC MII
Total/NA	Analysis	8015B NM		5			31053	07/31/22 03:41	AJ	EETSC MII
Soluble	Leach	DI Leach			5 g	50 mL	30913	07/28/22 10:42	CH	EETSC MII
Soluble	Analysis	300.0		10			31002	07/30/22 22:25	SMC	EETSC MII

Client Sample ID: SS02

Lab Sample ID: 890-2653-2

Date Collected: 07/26/22 09:05

Matrix: Solid

Date Received: 07/26/22 16:02

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	31337	08/02/22 14:44	MR	EETSC MID
Total/NA	Analysis	8021B		25	5 mL	5 mL	31375	08/04/22 00:59	MR	EETSC MII
Total/NA	Analysis	Total BTEX		1			31483	08/04/22 09:41	SM	EETSC MII
Total/NA	Analysis	8015 NM		1			31125	07/31/22 10:38	AJ	EETSC MII
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	30965	07/29/22 08:50	DM	EETSC MII
Total/NA	Analysis	8015B NM		5			31053	07/31/22 04:00	AJ	EETSC MII
Soluble	Leach	DI Leach			5.01 g	50 mL	30913	07/28/22 10:42	CH	EETSC MII
Soluble	Analysis	300.0		5			31002	07/30/22 22:48	SMC	EETSC MII

Client Sample ID: SS03

Lab Sample ID: 890-2653-3

Date Collected: 07/26/22 09:10

Matrix: Solid

Date Received: 07/26/22 16:02

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	31337	08/02/22 14:44	MR	EETSC MID
Total/NA	Analysis	8021B		25	5 mL	5 mL	31375	08/04/22 01:19	MR	EETSC MII
Total/NA	Analysis	Total BTEX		1			31483	08/04/22 09:41	SM	EETSC MII
Total/NA	Analysis	8015 NM		1			31125	07/31/22 10:38	AJ	EETSC MII
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	30965	07/29/22 08:50	DM	EETSC MII
Total/NA	Analysis	8015B NM		5			31053	07/31/22 04:20	AJ	EETSC MII
Soluble	Leach	DI Leach			4.95 g	50 mL	30913	07/28/22 10:42	CH	EETSC MII
Soluble	Analysis	300.0		1			31002	07/30/22 22:56	SMC	EETSC MII

## Laboratory References:

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

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Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

1
2
3
4
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11
12
13
14

## Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

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

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

Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2653-1  
SDG: Eddy County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2653-1	SS01	Solid	07/26/22 09:00	07/26/22 16:02	0.5
890-2653-2	SS02	Solid	07/26/22 09:05	07/26/22 16:02	0.5
890-2653-3	SS03	Solid	07/26/22 09:10	07/26/22 16:02	0.5

- 1
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Environment Testing  
Xenco

Chain of Custody

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

Work Order No: \_\_\_\_\_

www.xenco.com Page 1 of 1

Project Manager:	Ben Bellill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum	Company Name:	XTO Energy, Inc.
Address:	3122 National Parks Hwy.	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	bbellill@ensolum.com

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

Project Name:	JRU 108H	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code	ANALYSIS REQUEST																Preservative Codes			
Project Number:	03E1558090	Due Date:	5 day TAT																None: NO	DI Water: H <sub>2</sub> O				
Project Location:	Eddy County, NM	TAT starts the day received by the lab, if received by 4:30pm																	Cool: Cool	MeOH: Me				
Sampler's Name:	Liz Cheil																		HCL: HC	HNO <sub>3</sub> : HN				
PO #:	N/A																		H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub>	NaOH: Na				
SAMPLE RECEIPT	Temp Blank:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wet Ice:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>															H <sub>3</sub> PO <sub>4</sub> : HP					
Samples Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Thermometer ID:	-T.M.M.003																NaHSO <sub>4</sub> : NABIS					
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:	-0.0																Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>					
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Temperature Reading:	4.4																Zn Acetate+NaOH: Zn					
Total Containers:		Corrected Temperature:	4.2																NaOH+Ascorbic Acid: SAPC					
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	CHLORIDES (EPA: 300.0)																Sample Comments	
SS01	S	7/26/2022	900	0.5 Comp	1	1	X	X	X											Incident ID: nAPP2217931599				
SS02	S	7/26/2022	905	0.5 Comp	1	1	X	X	X															
SS03	S	7/26/2022	910	0.5 Comp	1	1	X	X	X											Cost Center: 1139071001				



890-2653 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO<sub>2</sub> Na Sr Ti Sn U V Zn

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		7-26-22 16:00			



## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2653-1

SDG Number: Eddy County NM

Login Number: 2653

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: 890-2653-1

SDG Number: Eddy County NM

Login Number: 2653

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 07/28/22 10:13 AM

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



Environment Testing  
America

## ANALYTICAL REPORT

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

Laboratory Job ID: 890-2655-1

Laboratory Sample Delivery Group: Eddy County NM  
Client Project/Site: JRU 108H

For:

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Ben Belill

Authorized for release by:

8/5/2022 12:32:51 PM

Jessica Kramer, Project Manager  
(432)704-5440

[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



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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: JRU 108H

Laboratory Job ID: 890-2655-1  
SDG: Eddy County NM

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

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

## HPLC/IC

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

## Glossary

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

Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

Job ID: 890-2655-1

Laboratory: Eurofins Carlsbad

Narrative	Job Narrative 890-2655-1
-----------	-----------------------------

Receipt

The sample was received on 7/26/2022 4:02 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-31414 and analytical batch 880-31453 was outside control limits. Sample matrix interference is suspected.

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

GC Semi VOA

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

HPLC/IC

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

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

Client Sample ID: SS04

Lab Sample ID: 890-2655-1

Date Collected: 07/26/22 09:30

Matrix: Solid

Date Received: 07/26/22 16:02

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U *1 F1 F2	0.00200	mg/Kg		08/03/22 11:41	08/04/22 23:29	1
Toluene	<0.00200	U F1 F2	0.00200	mg/Kg		08/03/22 11:41	08/04/22 23:29	1
Ethylbenzene	<0.00200	U F1 F2	0.00200	mg/Kg		08/03/22 11:41	08/04/22 23:29	1
m-Xylene & p-Xylene	<0.00401	U *- F1 F2	0.00401	mg/Kg		08/03/22 11:41	08/04/22 23:29	1
o-Xylene	<0.00200	U F1	0.00200	mg/Kg		08/03/22 11:41	08/04/22 23:29	1
Xylenes, Total	<0.00401	U *- F1 F2	0.00401	mg/Kg		08/03/22 11:41	08/04/22 23:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	123		70 - 130	08/03/22 11:41	08/04/22 23:29	1
1,4-Difluorobenzene (Surr)	108		70 - 130	08/03/22 11:41	08/04/22 23:29	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			08/05/22 13:19	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			07/31/22 10:38	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		07/29/22 08:50	07/31/22 03:21	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/29/22 08:50	07/31/22 03:21	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/29/22 08:50	07/31/22 03:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	84		70 - 130	07/29/22 08:50	07/31/22 03:21	1
o-Terphenyl	92		70 - 130	07/29/22 08:50	07/31/22 03:21	1

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	131		5.00	mg/Kg			07/30/22 23:43	1

Eurofins Carlsbad

## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-2655-1	SS04	123	108
890-2655-1 MS	SS04	98	102
890-2655-1 MSD	SS04	111	102
LCS 880-31414/1-A	Lab Control Sample	80	120
LCSD 880-31414/2-A	Lab Control Sample Dup	81	107
MB 880-31200/5-A	Method Blank	82	106
MB 880-31414/5-A	Method Blank	83	105
<b>Surrogate Legend</b>			
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)
890-2646-A-1-B MS	Matrix Spike	87	84
890-2646-A-1-C MSD	Matrix Spike Duplicate	87	84
890-2655-1	SS04	84	92
LCS 880-30965/2-A	Lab Control Sample	101	102
LCSD 880-30965/3-A	Lab Control Sample Dup	93	93
MB 880-30965/1-A	Method Blank	91	101
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

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

Lab Sample ID: MB 880-31200/5-A

Matrix: Solid

Analysis Batch: 31453

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31200

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/01/22 14:58	08/04/22 10:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/01/22 14:58	08/04/22 10:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/01/22 14:58	08/04/22 10:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/01/22 14:58	08/04/22 10:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/01/22 14:58	08/04/22 10:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/01/22 14:58	08/04/22 10:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		70 - 130	08/01/22 14:58	08/04/22 10:53	1
1,4-Difluorobenzene (Surr)	106		70 - 130	08/01/22 14:58	08/04/22 10:53	1

Lab Sample ID: MB 880-31414/5-A

Matrix: Solid

Analysis Batch: 31453

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31414

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/03/22 11:41	08/04/22 23:07	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/03/22 11:41	08/04/22 23:07	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/03/22 11:41	08/04/22 23:07	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/03/22 11:41	08/04/22 23:07	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/03/22 11:41	08/04/22 23:07	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/03/22 11:41	08/04/22 23:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130	08/03/22 11:41	08/04/22 23:07	1
1,4-Difluorobenzene (Surr)	105		70 - 130	08/03/22 11:41	08/04/22 23:07	1

Lab Sample ID: LCS 880-31414/1-A

Matrix: Solid

Analysis Batch: 31453

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 31414

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1214		mg/Kg		121	70 - 130
Toluene	0.100	0.09865		mg/Kg		99	70 - 130
Ethylbenzene	0.100	0.09199		mg/Kg		92	70 - 130
m-Xylene & p-Xylene	0.200	0.07945	*-	mg/Kg		40	70 - 130
o-Xylene	0.100	0.08730		mg/Kg		87	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	80		70 - 130
1,4-Difluorobenzene (Surr)	120		70 - 130

Lab Sample ID: LCSD 880-31414/2-A

Matrix: Solid

Analysis Batch: 31453

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31414

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.07448	*1	mg/Kg		74	70 - 130	48	35

Eurofins Carlsbad

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

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

Lab Sample ID: LCSD 880-31414/2-A

Matrix: Solid

Analysis Batch: 31453

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31414

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.07311		mg/Kg		73	70 - 130	30	35
Ethylbenzene	0.100	0.07141		mg/Kg		71	70 - 130	25	35
m-Xylene & p-Xylene	0.200	0.06955	-	mg/Kg		35	70 - 130	13	35
o-Xylene	0.100	0.07107		mg/Kg		71	70 - 130	21	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	81		70 - 130
1,4-Difluorobenzene (Surr)	107		70 - 130

Lab Sample ID: 890-2655-1 MS

Matrix: Solid

Analysis Batch: 31453

Client Sample ID: SS04

Prep Type: Total/NA

Prep Batch: 31414

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U *1 F1 F2	0.101	0.05843	F1	mg/Kg		58	70 - 130
Toluene	<0.00200	U F1 F2	0.101	0.05184	F1	mg/Kg		52	70 - 130
Ethylbenzene	<0.00200	U F1 F2	0.101	0.05405	F1	mg/Kg		54	70 - 130
m-Xylene & p-Xylene	<0.00401	U *- F1 F2	0.201	0.1046	F1	mg/Kg		52	70 - 130
o-Xylene	<0.00200	U F1	0.101	0.05325	F1	mg/Kg		53	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: 890-2655-1 MSD

Matrix: Solid

Analysis Batch: 31453

Client Sample ID: SS04

Prep Type: Total/NA

Prep Batch: 31414

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U *1 F1 F2	0.0990	0.03449	F1 F2	mg/Kg		35	70 - 130	52	35
Toluene	<0.00200	U F1 F2	0.0990	0.03593	F1 F2	mg/Kg		36	70 - 130	36	35
Ethylbenzene	<0.00200	U F1 F2	0.0990	0.03345	F1 F2	mg/Kg		34	70 - 130	47	35
m-Xylene & p-Xylene	<0.00401	U *- F1 F2	0.198	0.07182	F1 F2	mg/Kg		36	70 - 130	37	35
o-Xylene	<0.00200	U F1	0.0990	0.03786	F1	mg/Kg		38	70 - 130	34	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Eurofins Carlsbad

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

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

Lab Sample ID: MB 880-30965/1-A

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 30965

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		07/29/22 08:50	07/30/22 19:51	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/29/22 08:50	07/30/22 19:51	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/29/22 08:50	07/30/22 19:51	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	91		70 - 130			07/29/22 08:50	07/30/22 19:51	1
o-Terphenyl	101		70 - 130			07/29/22 08:50	07/30/22 19:51	1

Lab Sample ID: LCS 880-30965/2-A

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 30965

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1058		mg/Kg		106	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1040		mg/Kg		104	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	101		70 - 130				
o-Terphenyl	102		70 - 130				

Lab Sample ID: LCSD 880-30965/3-A

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 30965

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	949.7		mg/Kg		95	70 - 130	11	20
Diesel Range Organics (Over C10-C28)	1000	972.0		mg/Kg		97	70 - 130	7	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	93		70 - 130						
o-Terphenyl	93		70 - 130						

Lab Sample ID: 890-2646-A-1-B MS

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 30965

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	1211		mg/Kg		116	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	999	846.5		mg/Kg		85	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

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

Lab Sample ID: 890-2646-A-1-B MS

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 30965

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	87		70 - 130
o-Terphenyl	84		70 - 130

Lab Sample ID: 890-2646-A-1-C MSD

Matrix: Solid

Analysis Batch: 31053

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 30965

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	1295		mg/Kg		125	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	863.7		mg/Kg		86	70 - 130	2	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	87		70 - 130
o-Terphenyl	84		70 - 130

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-30913/1-A

Matrix: Solid

Analysis Batch: 31002

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			07/30/22 22:01	1

Lab Sample ID: LCS 880-30913/2-A

Matrix: Solid

Analysis Batch: 31002

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	261.9		mg/Kg		105	90 - 110

Lab Sample ID: LCSD 880-30913/3-A

Matrix: Solid

Analysis Batch: 31002

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	267.7		mg/Kg		107	90 - 110	2	20

Lab Sample ID: 890-2653-A-1-B MS

Matrix: Solid

Analysis Batch: 31002

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	4930		2500	7650		mg/Kg		109	90 - 110

Eurofins Carlsbad



QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-2653-A-1-C MSD				Client Sample ID: Matrix Spike Duplicate								
Matrix: Solid				Prep Type: Soluble								
Analysis Batch: 31002												
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit	
Chloride	4930		2500	7677		mg/Kg		110	90 - 110	0	20	

Lab Sample ID: 890-2659-A-1-B MS				Client Sample ID: Matrix Spike								
Matrix: Solid				Prep Type: Soluble								
Analysis Batch: 31002												
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits			
Chloride	149		250	378.1		mg/Kg		92	90 - 110			

Lab Sample ID: 890-2659-A-1-C MSD				Client Sample ID: Matrix Spike Duplicate								
Matrix: Solid				Prep Type: Soluble								
Analysis Batch: 31002												
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit	
Chloride	149		250	378.6		mg/Kg		92	90 - 110	0	20	

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

## GC VOA

## Prep Batch: 31200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-31200/5-A	Method Blank	Total/NA	Solid	5035	

## Prep Batch: 31414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2655-1	SS04	Total/NA	Solid	5035	
MB 880-31414/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-31414/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-31414/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2655-1 MS	SS04	Total/NA	Solid	5035	
890-2655-1 MSD	SS04	Total/NA	Solid	5035	

## Analysis Batch: 31453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2655-1	SS04	Total/NA	Solid	8021B	31414
MB 880-31200/5-A	Method Blank	Total/NA	Solid	8021B	31200
MB 880-31414/5-A	Method Blank	Total/NA	Solid	8021B	31414
LCS 880-31414/1-A	Lab Control Sample	Total/NA	Solid	8021B	31414
LCSD 880-31414/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	31414
890-2655-1 MS	SS04	Total/NA	Solid	8021B	31414
890-2655-1 MSD	SS04	Total/NA	Solid	8021B	31414

## Analysis Batch: 31592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2655-1	SS04	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Prep Batch: 30965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2655-1	SS04	Total/NA	Solid	8015NM Prep	
MB 880-30965/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-30965/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-30965/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2646-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2646-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 31053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2655-1	SS04	Total/NA	Solid	8015B NM	30965
MB 880-30965/1-A	Method Blank	Total/NA	Solid	8015B NM	30965
LCS 880-30965/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	30965
LCSD 880-30965/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	30965
890-2646-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	30965
890-2646-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	30965

## Analysis Batch: 31124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2655-1	SS04	Total/NA	Solid	8015 NM	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

## HPLC/IC

## Leach Batch: 30913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2655-1	SS04	Soluble	Solid	DI Leach	
MB 880-30913/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-30913/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-30913/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2653-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2653-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-2659-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2659-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 31002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2655-1	SS04	Soluble	Solid	300.0	30913
MB 880-30913/1-A	Method Blank	Soluble	Solid	300.0	30913
LCS 880-30913/2-A	Lab Control Sample	Soluble	Solid	300.0	30913
LCSD 880-30913/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	30913
890-2653-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	30913
890-2653-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	30913
890-2659-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	30913
890-2659-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	30913

Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

Client Sample ID: SS04  
Date Collected: 07/26/22 09:30  
Date Received: 07/26/22 16:02

Lab Sample ID: 890-2655-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	31414	08/03/22 11:41	MR	EETSC MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	31453	08/04/22 23:29	MR	EETSC MIL
Total/NA	Analysis	Total BTEX		1			31592	08/05/22 13:19	AJ	EETSC MIL
Total/NA	Analysis	8015 NM		1			31124	07/31/22 10:38	AJ	EETSC MIL
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	30965	07/29/22 08:50	DM	EETSC MIL
Total/NA	Analysis	8015B NM		1			31053	07/31/22 03:21	AJ	EETSC MIL
Soluble	Leach	DI Leach			5 g	50 mL	30913	07/28/22 10:42	CH	EETSC MIL
Soluble	Analysis	300.0		1			31002	07/30/22 23:43	SMC	EETSC MIL

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

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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

Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

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

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



Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2655-1  
SDG: Eddy County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2655-1	SS04	Solid	07/26/22 09:30	07/26/22 16:02	0.5

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



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) 986-3199

## Chain of Custody

**Work Order No:**

Page 1 of 1

Project Manager:	Ben Bellill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum	Company Name:	XTO Energy, Inc.
Address:	3122 National Parks Hwy.	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	bbellill@ensolum.com



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:	

<b>Project Name:</b>	JRU 108H	<b>Turn Around</b>						
<b>Project Number:</b>	03E1558090	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush						<b>Pres. Code</b>
<b>Project Location:</b>	Eddy County, NM	<b>Due Date:</b> 5 day TAT						
<b>Sampler's Name:</b>	Liz Chell	TAT starts the day received by the lab, if received by 4:30pm						
<b>PO #:</b>	N/A							
<b>SAMPLE RECEIPT</b>		<b>Tamp Blank:</b>	(Yes) No	<b>Wet Ice:</b>	(Yes) No			
<b>Samples Received Intact:</b>	(Yes) No	<b>Thermometer ID:</b>	MN-007					
<b>Cooler Custody Seals:</b>	Yes No	<b>Correction Factor:</b>	-0.2					
<b>Sample Custody Seals:</b>	Yes No	<b>Temperature Reading:</b>	4.4					
<b>Total Containers:</b>		<b>Corrected Temperature:</b>	4.2					
<b>Parameters</b>								
<b>RIDES (EPA: 300.0)</b>								
(015)								
(8021)								
<b>ANALYSIS REQUEST</b>								
880-2655 Chain of Custody								
<b>Preservative Codes</b>								
None; NO								Dl Water: H <sub>2</sub> O
Cool: Cool								MeOH; Me
HCL: HC								HNO <sub>3</sub> ; HN
H <sub>2</sub> SO <sub>4</sub> : h <sub>2</sub>								NaOH; Na
H <sub>3</sub> PO <sub>4</sub> : HP								
NaNHSO <sub>4</sub> : NABIS								
Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSC <sub>3</sub>								
Zn Acetate+NaOH: Zn								
NaOH+Ascorbic Acid: SACP								

[illegible]

Total	200.7 / 6010	200.8 / 6020:
8RCRA	13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO <sub>2</sub> Na Sr Ti Sn U V Zr	
TCLP / SPLP 6010: 8RCRA	Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	Hg: 163.1 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xeno, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xeno 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 Xeno. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xeno, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		7-26-22 16:08			

Printed Date: 08/25/2020 BAW 2020

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2655-1

SDG Number: Eddy County NM

Login Number: 2655

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: 890-2655-1

SDG Number: Eddy County NM

Login Number: 2655

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 07/28/22 10:13 AM

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



Environment Testing  
America

## ANALYTICAL REPORT

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

Laboratory Job ID: 890-2656-1

Laboratory Sample Delivery Group: 03E1558090

Client Project/Site: JRU 108H

For:

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Ben Belill

Authorized for release by:

8/4/2022 10:57:48 AM

Jessica Kramer, Project Manager  
(432)704-5440

[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



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[www.eurofinsus.com/Env](http://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: JRU 108H

Laboratory Job ID: 890-2656-1  
SDG: 03E1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

## Qualifiers

## GC VOA

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

## GC Semi VOA

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

## HPLC/IC

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

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

Job ID: 890-2656-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative  
890-2656-1

Receipt

The sample was received on 7/26/2022 4:02 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

GC VOA

Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-31337 and analytical batch 880-31375 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

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

GC Semi VOA

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-30966 and analytical batch 880-31081 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: (LCS 880-30966/2-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.

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

Client Sample ID: SS05

Lab Sample ID: 890-2656-1

Date Collected: 07/26/22 09:25

Matrix: Solid

Date Received: 07/26/22 16:02

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *- *1	0.00199	mg/Kg		08/02/22 14:44	08/03/22 22:15	1
Toluene	<0.00199	U *- *1	0.00199	mg/Kg		08/02/22 14:44	08/03/22 22:15	1
Ethylbenzene	<0.00199	U *- *1	0.00199	mg/Kg		08/02/22 14:44	08/03/22 22:15	1
m-Xylene & p-Xylene	<0.00398	U *- *1	0.00398	mg/Kg		08/02/22 14:44	08/03/22 22:15	1
o-Xylene	<0.00199	U *+ *1	0.00199	mg/Kg		08/02/22 14:44	08/03/22 22:15	1
Xylenes, Total	<0.00398	U *1	0.00398	mg/Kg		08/02/22 14:44	08/03/22 22:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	08/02/22 14:44	08/03/22 22:15	1
1,4-Difluorobenzene (Surr)	96		70 - 130	08/02/22 14:44	08/03/22 22:15	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			08/04/22 09:41	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	62.8		49.8	mg/Kg			08/01/22 15:09	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	<49.8	U	49.8	mg/Kg		07/29/22 08:55	07/31/22 13:23	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		07/29/22 08:55	07/31/22 13:23	1
Oil Range Organics (Over C28-C36)	62.8		49.8	mg/Kg		07/29/22 08:55	07/31/22 13:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130	07/29/22 08:55	07/31/22 13:23	1
o-Terphenyl	121		70 - 130	07/29/22 08:55	07/31/22 13:23	1

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13.6		4.95	mg/Kg			07/30/22 23:51	1

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## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-2656-1	SS05	106	96
890-2656-1 MS	SS05	104	96
890-2656-1 MSD	SS05	106	93
LCS 880-31337/1-A	Lab Control Sample	113	93
LCSD 880-31337/2-A	Lab Control Sample Dup	90	87
MB 880-31323/5-A	Method Blank	106	87
MB 880-31337/5-A	Method Blank	99	87
<b>Surrogate Legend</b>			
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)
890-2654-A-1-C MS	Matrix Spike	102	110
890-2654-A-1-D MSD	Matrix Spike Duplicate	99	106
890-2656-1	SS05	97	121
LCS 880-30966/2-A	Lab Control Sample	123	137 S1+
LCSD 880-30966/3-A	Lab Control Sample Dup	107	121
MB 880-30966/1-A	Method Blank	106	138 S1+
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-31323/5-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31323

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/02/22 13:15	08/03/22 10:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	08/02/22 13:15	08/03/22 10:46	1
1,4-Difluorobenzene (Surr)	87		70 - 130	08/02/22 13:15	08/03/22 10:46	1

Lab Sample ID: MB 880-31337/5-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31337

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/02/22 14:44	08/03/22 21:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	08/02/22 14:44	08/03/22 21:53	1
1,4-Difluorobenzene (Surr)	87		70 - 130	08/02/22 14:44	08/03/22 21:53	1

Lab Sample ID: LCS 880-31337/1-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09999		mg/Kg		100	70 - 130
Toluene	0.100	0.1031		mg/Kg		103	70 - 130
Ethylbenzene	0.100	0.1082		mg/Kg		108	70 - 130
m-Xylene & p-Xylene	0.200	0.2220		mg/Kg		111	70 - 130
o-Xylene	0.100	0.1387	*+	mg/Kg		139	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: LCSD 880-31337/2-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.0998	0.05262	*- *1	mg/Kg		53	70 - 130	62	35

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

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

Lab Sample ID: LCSD 880-31337/2-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.0998	0.06071	*- *1	mg/Kg		61	70 - 130	52	35
Ethylbenzene	0.0998	0.06794	*- *1	mg/Kg		68	70 - 130	46	35
m-Xylene & p-Xylene	0.200	0.1297	*- *1	mg/Kg		65	70 - 130	52	35
o-Xylene	0.0998	0.09111	*1	mg/Kg		91	70 - 130	41	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		70 - 130
1,4-Difluorobenzene (Surr)	87		70 - 130

Lab Sample ID: 890-2656-1 MS

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: SS05

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U *- *1	0.101	0.08722		mg/Kg		87	70 - 130
Toluene	<0.00199	U *- *1	0.101	0.08202		mg/Kg		82	70 - 130
Ethylbenzene	<0.00199	U *- *1	0.101	0.08158		mg/Kg		81	70 - 130
m-Xylene & p-Xylene	<0.00398	U *- *1	0.201	0.1625		mg/Kg		81	70 - 130
o-Xylene	<0.00199	U +* *1	0.101	0.09304		mg/Kg		92	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	96		70 - 130

Lab Sample ID: 890-2656-1 MSD

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: SS05

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U *- *1	0.0998	0.09326		mg/Kg		93	70 - 130	7	35
Toluene	<0.00199	U *- *1	0.0998	0.08591		mg/Kg		86	70 - 130	5	35
Ethylbenzene	<0.00199	U *- *1	0.0998	0.08696		mg/Kg		87	70 - 130	6	35
m-Xylene & p-Xylene	<0.00398	U *- *1	0.200	0.1684		mg/Kg		84	70 - 130	4	35
o-Xylene	<0.00199	U +* *1	0.0998	0.09635		mg/Kg		97	70 - 130	3	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

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

Lab Sample ID: MB 880-30966/1-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 30966

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		07/29/22 08:55	07/31/22 10:35	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-30966/1-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 30966

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		07/29/22 08:55	07/31/22 10:35	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/29/22 08:55	07/31/22 10:35	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130			07/29/22 08:55	07/31/22 10:35	1
o-Terphenyl	138	S1+	70 - 130			07/29/22 08:55	07/31/22 10:35	1

Lab Sample ID: LCS 880-30966/2-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 30966

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1127		mg/Kg		113	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1195		mg/Kg		120	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	123		70 - 130				
o-Terphenyl	137	S1+	70 - 130				

Lab Sample ID: LCSD 880-30966/3-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 30966

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1048		mg/Kg		105	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	1000	1111		mg/Kg		111	70 - 130	7	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	107		70 - 130						
o-Terphenyl	121		70 - 130						

Lab Sample ID: 890-2654-A-1-C MS

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 30966

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	1120		mg/Kg		108	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	999	993.9		mg/Kg		96	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	102		70 - 130						
o-Terphenyl	110		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

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

Lab Sample ID: 890-2654-A-1-D MSD

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 30966

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	1143		mg/Kg		111	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	989.3		mg/Kg		96	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	99		70 - 130								
o-Terphenyl	106		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-30913/1-A

Matrix: Solid

Analysis Batch: 31002

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			07/30/22 22:01	1

Lab Sample ID: LCS 880-30913/2-A

Matrix: Solid

Analysis Batch: 31002

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	261.9		mg/Kg		105	90 - 110

Lab Sample ID: LCSD 880-30913/3-A

Matrix: Solid

Analysis Batch: 31002

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	267.7		mg/Kg		107	90 - 110	2	20

Lab Sample ID: 890-2653-A-1-B MS

Matrix: Solid

Analysis Batch: 31002

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	4930		2500	7650		mg/Kg		109	90 - 110

Lab Sample ID: 890-2653-A-1-C MSD

Matrix: Solid

Analysis Batch: 31002

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	4930		2500	7677		mg/Kg		110	90 - 110	0	20

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QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-2659-A-1-B MS

Matrix: Solid

Analysis Batch: 31002

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	149		250	378.1		mg/Kg		92	90 - 110

Lab Sample ID: 890-2659-A-1-C MSD

Matrix: Solid

Analysis Batch: 31002

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	149		250	378.6		mg/Kg		92	90 - 110	0	20

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

## GC VOA

## Prep Batch: 31323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-31323/5-A	Method Blank	Total/NA	Solid	5035	

## Prep Batch: 31337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2656-1	SS05	Total/NA	Solid	5035	
MB 880-31337/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-31337/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-31337/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2656-1 MS	SS05	Total/NA	Solid	5035	
890-2656-1 MSD	SS05	Total/NA	Solid	5035	

## Analysis Batch: 31375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2656-1	SS05	Total/NA	Solid	8021B	31337
MB 880-31323/5-A	Method Blank	Total/NA	Solid	8021B	31323
MB 880-31337/5-A	Method Blank	Total/NA	Solid	8021B	31337
LCS 880-31337/1-A	Lab Control Sample	Total/NA	Solid	8021B	31337
LCSD 880-31337/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	31337
890-2656-1 MS	SS05	Total/NA	Solid	8021B	31337
890-2656-1 MSD	SS05	Total/NA	Solid	8021B	31337

## Analysis Batch: 31477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2656-1	SS05	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Prep Batch: 30966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2656-1	SS05	Total/NA	Solid	8015NM Prep	
MB 880-30966/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-30966/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-30966/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2654-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2654-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 31081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2656-1	SS05	Total/NA	Solid	8015B NM	30966
MB 880-30966/1-A	Method Blank	Total/NA	Solid	8015B NM	30966
LCS 880-30966/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	30966
LCSD 880-30966/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	30966
890-2654-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	30966
890-2654-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	30966

## Analysis Batch: 31203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2656-1	SS05	Total/NA	Solid	8015 NM	

Eurofins Carlsbad

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

## HPLC/IC

## Leach Batch: 30913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2656-1	SS05	Soluble	Solid	DI Leach	
MB 880-30913/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-30913/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-30913/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2653-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2653-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-2659-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2659-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 31002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2656-1	SS05	Soluble	Solid	300.0	30913
MB 880-30913/1-A	Method Blank	Soluble	Solid	300.0	30913
LCS 880-30913/2-A	Lab Control Sample	Soluble	Solid	300.0	30913
LCSD 880-30913/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	30913
890-2653-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	30913
890-2653-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	30913
890-2659-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	30913
890-2659-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	30913

Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

Client Sample ID: SS05  
Date Collected: 07/26/22 09:25  
Date Received: 07/26/22 16:02

Lab Sample ID: 890-2656-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	31337	08/02/22 14:44	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	31375	08/03/22 22:15	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			31477	08/04/22 09:41	SM	XEN MID
Total/NA	Analysis	8015 NM		1			31203	08/01/22 15:09	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	30966	07/29/22 08:55	DM	XEN MID
Total/NA	Analysis	8015B NM		1			31081	07/31/22 13:23	SM	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	30913	07/28/22 10:42	CH	XEN MID
Soluble	Analysis	300.0		1			31002	07/30/22 23:51	SMC	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: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX



Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

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: JRU 108H

Job ID: 890-2656-1  
SDG: 03E1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2656-1	SS05	Solid	07/26/22 09:25	07/26/22 16:02	0.5

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



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) 794-1286  
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Chain of Custody

Work Order No: \_\_\_\_\_

www.xenco.com Page 1 of 1

Project Manager:	Ben Beilli	Bill to: (if different)	Garrett Green
Company Name:	Ensolum	Company Name:	XTO Energy, Inc.
Address:	3122 National Parks Hwy.	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	bbeilli@ensolum.com

Work Order Comments	
Program: UST/PST	<input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund
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
Deliverables: EDD	<input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:	JRU 108H	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code		ANALYSIS REQUEST		Preservative Codes
Project Number:	03E1558090	Due Date:	5 day TAT					None: NO DI Water: H <sub>2</sub> O
Project Location:	Eddy County, NM	TAT starts the day received by the lab, if received by 4:30pm						Cool: Cool MeOH: Me
Sampler's Name:	Liz Chell							HCL: HC HNO <sub>3</sub> : HN
PO #:	N/A							H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na
SAMPLE RECEIPT	Temp Blank: Yes No	Thermometer ID: 11111111	Wet Ice: Yes No					H <sub>3</sub> PO <sub>4</sub> : HP
Samples Received Inact:	Yes No	Correction Factor: 1.00						NaHSO <sub>4</sub> : NABIS
Cooler Custody Seals:	Yes No	Temperature Reading: 4.4						Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>
Sample Custody Seals:	Yes No	Corrected Temperature: 4.4						Zn Acetate+NaOH: Zn
Total Containers:								NaOH+Ascorbic Acid: SAPC
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont		Sample Comments
	SS05	7/26/2022	925	0.5	Comp	1		Incident ID: NAPP2217931599
								Cost Center: 1139071001



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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		7.26.22 (LCC)			

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2656-1

SDG Number: 03E1558090

Login Number: 2656

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: 890-2656-1

SDG Number: 03E1558090

Login Number: 2656

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 07/28/22 10:13 AM

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



## Environment Testing America

### ANALYTICAL REPORT

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

Laboratory Job ID: 890-2657-1

Laboratory Sample Delivery Group: Eddy County NM  
Client Project/Site: JRU 108H

**For:**

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Ben Belill

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

Authorized for release by:

8/4/2022 10:57:48 AM

Jessica Kramer, Project Manager  
(432)704-5440

[Jessica.Kramer@et.eurofinsus.com](mailto: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: JRU 108H

Laboratory Job ID: 890-2657-1  
SDG: Eddy County NM

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

## Qualifiers

## GC VOA

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

## GC Semi VOA

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

## HPLC/IC

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

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

**Job ID: 890-2657-1**

**Laboratory: Eurofins Carlsbad**

### Narrative

#### Job Narrative 890-2657-1

#### Receipt

The sample was received on 7/26/2022 4:02 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

#### GC VOA

Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-31337 and analytical batch 880-31375 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

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

#### GC Semi VOA

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-30966 and analytical batch 880-31081 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: (LCS 880-30966/2-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: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

Client Sample ID: SS06

Lab Sample ID: 890-2657-1

Date Collected: 07/26/22 09:32

Matrix: Solid

Date Received: 07/26/22 16:02

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *- *1	0.00199	mg/Kg		08/02/22 14:44	08/03/22 22:56	1
Toluene	<0.00199	U *- *1	0.00199	mg/Kg		08/02/22 14:44	08/03/22 22:56	1
Ethylbenzene	<0.00199	U *- *1	0.00199	mg/Kg		08/02/22 14:44	08/03/22 22:56	1
m-Xylene & p-Xylene	<0.00398	U *- *1	0.00398	mg/Kg		08/02/22 14:44	08/03/22 22:56	1
o-Xylene	<0.00199	U *+ *1	0.00199	mg/Kg		08/02/22 14:44	08/03/22 22:56	1
Xylenes, Total	<0.00398	U *1	0.00398	mg/Kg		08/02/22 14:44	08/03/22 22:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		70 - 130	08/02/22 14:44	08/03/22 22:56	1
1,4-Difluorobenzene (Surr)	92		70 - 130	08/02/22 14:44	08/03/22 22:56	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			08/04/22 09:41	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			08/01/22 15:09	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		07/29/22 08:55	07/31/22 13:44	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/29/22 08:55	07/31/22 13:44	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/29/22 08:55	07/31/22 13:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	95		70 - 130	07/29/22 08:55	07/31/22 13:44	1
o-Terphenyl	117		70 - 130	07/29/22 08:55	07/31/22 13:44	1

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.9		5.05	mg/Kg			07/30/22 23:59	1

Eurofins Carlsbad

## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-2656-A-1-F MS	Matrix Spike	104	96
890-2656-A-1-G MSD	Matrix Spike Duplicate	106	93
890-2657-1	SS06	107	92
LCS 880-31337/1-A	Lab Control Sample	113	93
LCSD 880-31337/2-A	Lab Control Sample Dup	90	87
MB 880-31323/5-A	Method Blank	106	87
MB 880-31337/5-A	Method Blank	99	87
<b>Surrogate Legend</b>			
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)
890-2654-A-1-C MS	Matrix Spike	102	110
890-2654-A-1-D MSD	Matrix Spike Duplicate	99	106
890-2657-1	SS06	95	117
LCS 880-30966/2-A	Lab Control Sample	123	137 S1+
LCSD 880-30966/3-A	Lab Control Sample Dup	107	121
MB 880-30966/1-A	Method Blank	106	138 S1+
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

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

Lab Sample ID: MB 880-31323/5-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31323

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/02/22 13:15	08/03/22 10:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	08/02/22 13:15	08/03/22 10:46	1
1,4-Difluorobenzene (Surr)	87		70 - 130	08/02/22 13:15	08/03/22 10:46	1

Lab Sample ID: MB 880-31337/5-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31337

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/02/22 14:44	08/03/22 21:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	08/02/22 14:44	08/03/22 21:53	1
1,4-Difluorobenzene (Surr)	87		70 - 130	08/02/22 14:44	08/03/22 21:53	1

Lab Sample ID: LCS 880-31337/1-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09999		mg/Kg		100	70 - 130
Toluene	0.100	0.1031		mg/Kg		103	70 - 130
Ethylbenzene	0.100	0.1082		mg/Kg		108	70 - 130
m-Xylene & p-Xylene	0.200	0.2220		mg/Kg		111	70 - 130
o-Xylene	0.100	0.1387	*+	mg/Kg		139	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: LCSD 880-31337/2-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.0998	0.05262	*- *1	mg/Kg		53	70 - 130	62	35

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

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

Lab Sample ID: LCSD 880-31337/2-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.0998	0.06071	*- *1	mg/Kg		61	70 - 130	52	35
Ethylbenzene	0.0998	0.06794	*- *1	mg/Kg		68	70 - 130	46	35
m-Xylene & p-Xylene	0.200	0.1297	*- *1	mg/Kg		65	70 - 130	52	35
o-Xylene	0.0998	0.09111	*1	mg/Kg		91	70 - 130	41	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		70 - 130
1,4-Difluorobenzene (Surr)	87		70 - 130

Lab Sample ID: 890-2656-A-1-F MS

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U *- *1	0.101	0.08722		mg/Kg		87	70 - 130
Toluene	<0.00199	U *- *1	0.101	0.08202		mg/Kg		82	70 - 130
Ethylbenzene	<0.00199	U *- *1	0.101	0.08158		mg/Kg		81	70 - 130
m-Xylene & p-Xylene	<0.00398	U *- *1	0.201	0.1625		mg/Kg		81	70 - 130
o-Xylene	<0.00199	U +* *1	0.101	0.09304		mg/Kg		92	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	96		70 - 130

Lab Sample ID: 890-2656-A-1-G MSD

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U *- *1	0.0998	0.09326		mg/Kg		93	70 - 130	7	35
Toluene	<0.00199	U *- *1	0.0998	0.08591		mg/Kg		86	70 - 130	5	35
Ethylbenzene	<0.00199	U *- *1	0.0998	0.08696		mg/Kg		87	70 - 130	6	35
m-Xylene & p-Xylene	<0.00398	U *- *1	0.200	0.1684		mg/Kg		84	70 - 130	4	35
o-Xylene	<0.00199	U +* *1	0.0998	0.09635		mg/Kg		97	70 - 130	3	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

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

Lab Sample ID: MB 880-30966/1-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 30966

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		07/29/22 08:55	07/31/22 10:35	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

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

Lab Sample ID: MB 880-30966/1-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 30966

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		07/29/22 08:55	07/31/22 10:35	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/29/22 08:55	07/31/22 10:35	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130			07/29/22 08:55	07/31/22 10:35	1
o-Terphenyl	138	S1+	70 - 130			07/29/22 08:55	07/31/22 10:35	1

Lab Sample ID: LCS 880-30966/2-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 30966

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1127		mg/Kg		113	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1195		mg/Kg		120	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	123		70 - 130				
o-Terphenyl	137	S1+	70 - 130				

Lab Sample ID: LCSD 880-30966/3-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 30966

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1048		mg/Kg		105	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	1000	1111		mg/Kg		111	70 - 130	7	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	107		70 - 130						
o-Terphenyl	121		70 - 130						

Lab Sample ID: 890-2654-A-1-C MS

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 30966

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	1120		mg/Kg		108	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	999	993.9		mg/Kg		96	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	102		70 - 130						
o-Terphenyl	110		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

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

Lab Sample ID: 890-2654-A-1-D MSD

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 30966

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	1143		mg/Kg		111	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	989.3		mg/Kg		96	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	99		70 - 130								
o-Terphenyl	106		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-30913/1-A

Matrix: Solid

Analysis Batch: 31002

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			07/30/22 22:01	1

Lab Sample ID: LCS 880-30913/2-A

Matrix: Solid

Analysis Batch: 31002

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	261.9		mg/Kg		105	90 - 110

Lab Sample ID: LCSD 880-30913/3-A

Matrix: Solid

Analysis Batch: 31002

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	267.7		mg/Kg		107	90 - 110	2	20

Lab Sample ID: 890-2653-A-1-B MS

Matrix: Solid

Analysis Batch: 31002

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	4930		2500	7650		mg/Kg		109	90 - 110

Lab Sample ID: 890-2653-A-1-C MSD

Matrix: Solid

Analysis Batch: 31002

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	4930		2500	7677		mg/Kg		110	90 - 110	0	20

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QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-2659-A-1-B MS

Matrix: Solid

Analysis Batch: 31002

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	149		250	378.1		mg/Kg		92	90 - 110

Lab Sample ID: 890-2659-A-1-C MSD

Matrix: Solid

Analysis Batch: 31002

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	149		250	378.6		mg/Kg		92	90 - 110	0	20

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

## GC VOA

## Prep Batch: 31323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-31323/5-A	Method Blank	Total/NA	Solid	5035	

## Prep Batch: 31337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2657-1	SS06	Total/NA	Solid	5035	
MB 880-31337/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-31337/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-31337/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2656-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	
890-2656-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 31375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2657-1	SS06	Total/NA	Solid	8021B	31337
MB 880-31323/5-A	Method Blank	Total/NA	Solid	8021B	31323
MB 880-31337/5-A	Method Blank	Total/NA	Solid	8021B	31337
LCS 880-31337/1-A	Lab Control Sample	Total/NA	Solid	8021B	31337
LCSD 880-31337/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	31337
890-2656-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	31337
890-2656-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	31337

## Analysis Batch: 31479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2657-1	SS06	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Prep Batch: 30966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2657-1	SS06	Total/NA	Solid	8015NM Prep	
MB 880-30966/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-30966/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-30966/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2654-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2654-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 31081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2657-1	SS06	Total/NA	Solid	8015B NM	30966
MB 880-30966/1-A	Method Blank	Total/NA	Solid	8015B NM	30966
LCS 880-30966/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	30966
LCSD 880-30966/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	30966
890-2654-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	30966
890-2654-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	30966

## Analysis Batch: 31204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2657-1	SS06	Total/NA	Solid	8015 NM	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

## HPLC/IC

## Leach Batch: 30913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2657-1	SS06	Soluble	Solid	DI Leach	
MB 880-30913/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-30913/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-30913/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2653-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2653-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-2659-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2659-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 31002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2657-1	SS06	Soluble	Solid	300.0	30913
MB 880-30913/1-A	Method Blank	Soluble	Solid	300.0	30913
LCS 880-30913/2-A	Lab Control Sample	Soluble	Solid	300.0	30913
LCSD 880-30913/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	30913
890-2653-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	30913
890-2653-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	30913
890-2659-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	30913
890-2659-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	30913

Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

Client Sample ID: SS06  
Date Collected: 07/26/22 09:32  
Date Received: 07/26/22 16:02

Lab Sample ID: 890-2657-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	31337	08/02/22 14:44	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	31375	08/03/22 22:56	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			31479	08/04/22 09:41	SM	XEN MID
Total/NA	Analysis	8015 NM		1			31204	08/01/22 15:09	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	30966	07/29/22 08:55	DM	XEN MID
Total/NA	Analysis	8015B NM		1			31081	07/31/22 13:44	SM	XEN MID
Soluble	Leach	DI Leach			4.95 g	50 mL	30913	07/28/22 10:42	CH	XEN MID
Soluble	Analysis	300.0		1			31002	07/30/22 23:59	SMC	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: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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

Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

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: JRU 108H

Job ID: 890-2657-1  
SDG: Eddy County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2657-1	SS06	Solid	07/26/22 09:32	07/26/22 16:02	0.5

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





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

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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:

Total	200.7 / 6010	200.8 / 6020:	
8RCRA	13PPM	Texas 11	Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO <sub>2</sub> Na Sr Ti Sn U V Zn
TCPL / SPLP	6010:	8RCRA	Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U
			Hg: 1631 / 245, 1 / 7470 / 7471

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		7.26.22 16:32			

Printed Date: 08/25/2023 5:00 PM

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2657-1

SDG Number: Eddy County NM

Login Number: 2657

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: 890-2657-1

SDG Number: Eddy County NM

Login Number: 2657

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 07/28/22 10:13 AM

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



Environment Testing  
America

## ANALYTICAL REPORT

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

Laboratory Job ID: 890-2658-1

Laboratory Sample Delivery Group: Eddy County NM  
Client Project/Site: JRU 108H

For:

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Ben Belill

Authorized for release by:

8/4/2022 11:03:25 AM

Jessica Kramer, Project Manager  
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### LINKS

Review your project  
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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: JRU 108H

Laboratory Job ID: 890-2658-1  
SDG: Eddy County NM

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

## Qualifiers

## GC VOA

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

## GC Semi VOA

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

## HPLC/IC

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

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

**Job ID: 890-2658-1**

**Laboratory: Eurofins Carlsbad**

### Narrative

#### Job Narrative 890-2658-1

#### Receipt

The sample was received on 7/26/2022 4:02 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

#### GC VOA

Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-31337 and analytical batch 880-31375 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

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

#### GC Semi VOA

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-30966 and analytical batch 880-31081 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: (LCS 880-30966/2-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: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

Client Sample ID: SS07

Lab Sample ID: 890-2658-1

Date Collected: 07/26/22 09:35

Matrix: Solid

Date Received: 07/26/22 16:02

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U *- *1	0.00200	mg/Kg		08/02/22 14:44	08/03/22 23:16	1
Toluene	<0.00200	U *- *1	0.00200	mg/Kg		08/02/22 14:44	08/03/22 23:16	1
Ethylbenzene	<0.00200	U *- *1	0.00200	mg/Kg		08/02/22 14:44	08/03/22 23:16	1
m-Xylene & p-Xylene	<0.00401	U *- *1	0.00401	mg/Kg		08/02/22 14:44	08/03/22 23:16	1
o-Xylene	<0.00200	U *+ *1	0.00200	mg/Kg		08/02/22 14:44	08/03/22 23:16	1
Xylenes, Total	<0.00401	U *1	0.00401	mg/Kg		08/02/22 14:44	08/03/22 23:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	08/02/22 14:44	08/03/22 23:16	1
1,4-Difluorobenzene (Surr)	96		70 - 130	08/02/22 14:44	08/03/22 23:16	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			08/04/22 09:41	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			08/01/22 15:09	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		07/29/22 08:55	07/31/22 19:22	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/29/22 08:55	07/31/22 19:22	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/29/22 08:55	07/31/22 19:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	85		70 - 130	07/29/22 08:55	07/31/22 19:22	1
o-Terphenyl	108		70 - 130	07/29/22 08:55	07/31/22 19:22	1

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.70		5.00	mg/Kg			07/31/22 00:07	1

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## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-2656-A-1-F MS	Matrix Spike	104	96
890-2656-A-1-G MSD	Matrix Spike Duplicate	106	93
890-2658-1	SS07	110	96
LCS 880-31337/1-A	Lab Control Sample	113	93
LCSD 880-31337/2-A	Lab Control Sample Dup	90	87
MB 880-31323/5-A	Method Blank	106	87
MB 880-31337/5-A	Method Blank	99	87
<b>Surrogate Legend</b>			
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)
890-2654-A-1-C MS	Matrix Spike	102	110
890-2654-A-1-D MSD	Matrix Spike Duplicate	99	106
890-2658-1	SS07	85	108
LCS 880-30966/2-A	Lab Control Sample	123	137 S1+
LCSD 880-30966/3-A	Lab Control Sample Dup	107	121
MB 880-30966/1-A	Method Blank	106	138 S1+
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

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

Lab Sample ID: MB 880-31323/5-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31323

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/02/22 13:15	08/03/22 10:46	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/02/22 13:15	08/03/22 10:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	08/02/22 13:15	08/03/22 10:46	1
1,4-Difluorobenzene (Surr)	87		70 - 130	08/02/22 13:15	08/03/22 10:46	1

Lab Sample ID: MB 880-31337/5-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31337

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:44	08/03/22 21:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/02/22 14:44	08/03/22 21:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	08/02/22 14:44	08/03/22 21:53	1
1,4-Difluorobenzene (Surr)	87		70 - 130	08/02/22 14:44	08/03/22 21:53	1

Lab Sample ID: LCS 880-31337/1-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09999		mg/Kg		100	70 - 130
Toluene	0.100	0.1031		mg/Kg		103	70 - 130
Ethylbenzene	0.100	0.1082		mg/Kg		108	70 - 130
m-Xylene & p-Xylene	0.200	0.2220		mg/Kg		111	70 - 130
o-Xylene	0.100	0.1387	*+	mg/Kg		139	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: LCSD 880-31337/2-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.0998	0.05262	*- *1	mg/Kg		53	70 - 130	62	35

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

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

Lab Sample ID: LCSD 880-31337/2-A

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.0998	0.06071	*- *1	mg/Kg		61	70 - 130	52	35
Ethylbenzene	0.0998	0.06794	*- *1	mg/Kg		68	70 - 130	46	35
m-Xylene & p-Xylene	0.200	0.1297	*- *1	mg/Kg		65	70 - 130	52	35
o-Xylene	0.0998	0.09111	*1	mg/Kg		91	70 - 130	41	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		70 - 130
1,4-Difluorobenzene (Surr)	87		70 - 130

Lab Sample ID: 890-2656-A-1-F MS

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U *- *1	0.101	0.08722		mg/Kg		87	70 - 130
Toluene	<0.00199	U *- *1	0.101	0.08202		mg/Kg		82	70 - 130
Ethylbenzene	<0.00199	U *- *1	0.101	0.08158		mg/Kg		81	70 - 130
m-Xylene & p-Xylene	<0.00398	U *- *1	0.201	0.1625		mg/Kg		81	70 - 130
o-Xylene	<0.00199	U +* *1	0.101	0.09304		mg/Kg		92	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	96		70 - 130

Lab Sample ID: 890-2656-A-1-G MSD

Matrix: Solid

Analysis Batch: 31375

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 31337

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U *- *1	0.0998	0.09326		mg/Kg		93	70 - 130	7	35
Toluene	<0.00199	U *- *1	0.0998	0.08591		mg/Kg		86	70 - 130	5	35
Ethylbenzene	<0.00199	U *- *1	0.0998	0.08696		mg/Kg		87	70 - 130	6	35
m-Xylene & p-Xylene	<0.00398	U *- *1	0.200	0.1684		mg/Kg		84	70 - 130	4	35
o-Xylene	<0.00199	U +* *1	0.0998	0.09635		mg/Kg		97	70 - 130	3	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

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

Lab Sample ID: MB 880-30966/1-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 30966

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		07/29/22 08:55	07/31/22 10:35	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

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

Lab Sample ID: MB 880-30966/1-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 30966

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		07/29/22 08:55	07/31/22 10:35	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/29/22 08:55	07/31/22 10:35	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130			07/29/22 08:55	07/31/22 10:35	1
o-Terphenyl	138	S1+	70 - 130			07/29/22 08:55	07/31/22 10:35	1

Lab Sample ID: LCS 880-30966/2-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 30966

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1127		mg/Kg		113	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1195		mg/Kg		120	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	123		70 - 130				
o-Terphenyl	137	S1+	70 - 130				

Lab Sample ID: LCSD 880-30966/3-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 30966

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1048		mg/Kg		105	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	1000	1111		mg/Kg		111	70 - 130	7	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	107		70 - 130						
o-Terphenyl	121		70 - 130						

Lab Sample ID: 890-2654-A-1-C MS

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 30966

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	1120		mg/Kg		108	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	999	993.9		mg/Kg		96	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	102		70 - 130						
o-Terphenyl	110		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

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

Lab Sample ID: 890-2654-A-1-D MSD

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 30966

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	1143		mg/Kg		111	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	989.3		mg/Kg		96	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	99		70 - 130								
o-Terphenyl	106		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-30913/1-A

Matrix: Solid

Analysis Batch: 31002

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			07/30/22 22:01	1

Lab Sample ID: LCS 880-30913/2-A

Matrix: Solid

Analysis Batch: 31002

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	261.9		mg/Kg		105	90 - 110

Lab Sample ID: LCSD 880-30913/3-A

Matrix: Solid

Analysis Batch: 31002

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	267.7		mg/Kg		107	90 - 110	2	20

Lab Sample ID: 890-2653-A-1-B MS

Matrix: Solid

Analysis Batch: 31002

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	4930		2500	7650		mg/Kg		109	90 - 110

Lab Sample ID: 890-2653-A-1-C MSD

Matrix: Solid

Analysis Batch: 31002

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	4930		2500	7677		mg/Kg		110	90 - 110	0	20

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QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-2659-A-1-B MS

Matrix: Solid

Analysis Batch: 31002

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	149		250	378.1		mg/Kg		92	90 - 110

Lab Sample ID: 890-2659-A-1-C MSD

Matrix: Solid

Analysis Batch: 31002

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	149		250	378.6		mg/Kg		92	90 - 110	0	20

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

## GC VOA

## Prep Batch: 31323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-31323/5-A	Method Blank	Total/NA	Solid	5035	

## Prep Batch: 31337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2658-1	SS07	Total/NA	Solid	5035	
MB 880-31337/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-31337/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-31337/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2656-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	
890-2656-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 31375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2658-1	SS07	Total/NA	Solid	8021B	31337
MB 880-31323/5-A	Method Blank	Total/NA	Solid	8021B	31323
MB 880-31337/5-A	Method Blank	Total/NA	Solid	8021B	31337
LCS 880-31337/1-A	Lab Control Sample	Total/NA	Solid	8021B	31337
LCSD 880-31337/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	31337
890-2656-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	31337
890-2656-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	31337

## Analysis Batch: 31480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2658-1	SS07	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Prep Batch: 30966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2658-1	SS07	Total/NA	Solid	8015NM Prep	
MB 880-30966/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-30966/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-30966/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2654-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2654-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 31081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2658-1	SS07	Total/NA	Solid	8015B NM	30966
MB 880-30966/1-A	Method Blank	Total/NA	Solid	8015B NM	30966
LCS 880-30966/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	30966
LCSD 880-30966/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	30966
890-2654-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	30966
890-2654-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	30966

## Analysis Batch: 31206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2658-1	SS07	Total/NA	Solid	8015 NM	

Eurofins Carlsbad

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

## HPLC/IC

## Leach Batch: 30913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2658-1	SS07	Soluble	Solid	DI Leach	
MB 880-30913/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-30913/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-30913/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2653-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2653-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-2659-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2659-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 31002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2658-1	SS07	Soluble	Solid	300.0	30913
MB 880-30913/1-A	Method Blank	Soluble	Solid	300.0	30913
LCS 880-30913/2-A	Lab Control Sample	Soluble	Solid	300.0	30913
LCSD 880-30913/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	30913
890-2653-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	30913
890-2653-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	30913
890-2659-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	30913
890-2659-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	30913

Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

Client Sample ID: SS07  
Date Collected: 07/26/22 09:35  
Date Received: 07/26/22 16:02

Lab Sample ID: 890-2658-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	31337	08/02/22 14:44	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	31375	08/03/22 23:16	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			31480	08/04/22 09:41	SM	XEN MID
Total/NA	Analysis	8015 NM		1			31206	08/01/22 15:09	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	30966	07/29/22 08:55	DM	XEN MID
Total/NA	Analysis	8015B NM		1			31081	07/31/22 19:22	SM	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	30913	07/28/22 10:42	CH	XEN MID
Soluble	Analysis	300.0		1			31002	07/31/22 00:07	SMC	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: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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

## Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

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: JRU 108H

Job ID: 890-2658-1  
SDG: Eddy County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2658-1	SS07	Solid	07/26/22 09:35	07/26/22 16:02	0.5

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





Environment Testing  
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Chain of Custody

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

Work Order No: \_\_\_\_\_

www.xenco.com Page 1 of 1

Project Manager:	Ben Beill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum	Company Name:	XTO Energy, Inc.
Address:	3122 National Parks Hwy.	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	bbeill@ensolum.com

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

Project Name:	JRU 108H	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code	ANALYSIS REQUEST																Preservative Codes						
Project Number:	03E1558090	Due Date:	5 day TAT																		None: NO	DI Water: H <sub>2</sub> O					
Project Location:	Eddy County, NM																				Cool: Cool	MeOH: Me					
Sampler's Name:	Liz Chell																				HCL: HC	HNO <sub>3</sub> : HN					
PO #:	N/A																				H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub>	NaOH: Na					
SAMPLE RECEIPT		Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																	H <sub>3</sub> PO <sub>4</sub> : HP					
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID:	100-007																		NaHSO <sub>4</sub> : NABIS						
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.0																		Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NASO <sub>3</sub>						
Sample Custody Seals:	Yes No N/A	Temperature Reading:	4.4																		Zn Acetate+NaOH: Zn						
Total Containers:		Corrected Temperature:	4.2																		NaOH+Ascorbic Acid: SAPC						
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont																	Sample Comments				
SS07	S	7/26/2022	935	0.5	Comp	1	X	X	X																	Incident ID: NAPP2217931596	
																							Cost Center: 1139071001				

Total 200.7 / 6010		200.8 / 6020:		8RCRA 13PPM Texas 11		Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO <sub>2</sub> 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 \$65.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.							
Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time		
		7-26-22 1609					

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2658-1

SDG Number: Eddy County NM

Login Number: 2658

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: 890-2658-1

SDG Number: Eddy County NM

Login Number: 2658

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 07/28/22 10:13 AM

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



Environment Testing  
America

## ANALYTICAL REPORT

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

Laboratory Job ID: 890-2917-1

Laboratory Sample Delivery Group: 03E1558090

Client Project/Site: JRU 108H

For:

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Tacoma Morrissey

A handwritten signature in black ink, appearing to read "Jessica Kramer".

Authorized for release by:

9/22/2022 9:09:12 AM

Jessica Kramer, Project Manager  
(432)704-5440

[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)

### LINKS

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results through



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[www.eurofinsus.com/Env](http://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: JRU 108H

Laboratory Job ID: 890-2917-1  
SDG: 03E1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

## Qualifiers

## GC VOA

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

## GC Semi VOA

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

## Glossary

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



## Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

**Job ID: 890-2917-1****Laboratory: Eurofins Carlsbad****Narrative****Job Narrative  
890-2917-1****Receipt**

The samples were received on 9/9/2022 9:22 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

**GC VOA**

Method 8021B: Surrogate recovery for the following samples were outside control limits: BH01 (890-2917-1), BH01A (890-2917-2) and BH02 (890-2917-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

**GC Semi VOA**

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: (LCS 880-34181/2-A). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-34181 and analytical batch 880-34171 recovered outside control limits for the following analytes: Gasoline Range Organics (GRO)-C6-C10.

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-34181 and analytical batch 880-34171 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**

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-34288 and analytical batch 880-34499 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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



## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

Client Sample ID: BH01

Lab Sample ID: 890-2917-1

Date Collected: 09/08/22 10:45

Matrix: Solid

Date Received: 09/09/22 09:22

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/19/22 14:33	09/22/22 01:28	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/19/22 14:33	09/22/22 01:28	1
Ethylbenzene	0.0140		0.00200		mg/Kg		09/19/22 14:33	09/22/22 01:28	1
m-Xylene & p-Xylene	0.0377		0.00399		mg/Kg		09/19/22 14:33	09/22/22 01:28	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/19/22 14:33	09/22/22 01:28	1
Xylenes, Total	0.0377		0.00399		mg/Kg		09/19/22 14:33	09/22/22 01:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	228	S1+	70 - 130	09/19/22 14:33	09/22/22 01:28	1
1,4-Difluorobenzene (Surr)	99		70 - 130	09/19/22 14:33	09/22/22 01:28	1

## Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.0517		0.00399		mg/Kg			09/22/22 09:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	6870		250		mg/Kg			09/13/22 10:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	267	*1	250		mg/Kg		09/12/22 08:48	09/12/22 18:54	5
Diesel Range Organics (Over C10-C28)	5760		250		mg/Kg		09/12/22 08:48	09/12/22 18:54	5
Oil Range Organics (Over C28-C36)	841		250		mg/Kg		09/12/22 08:48	09/12/22 18:54	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	93		70 - 130	09/12/22 08:48	09/12/22 18:54	5
o-Terphenyl	107		70 - 130	09/12/22 08:48	09/12/22 18:54	5

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2130		25.2		mg/Kg			09/15/22 11:18	5

Client Sample ID: BH01A

Lab Sample ID: 890-2917-2

Date Collected: 09/08/22 10:55

Matrix: Solid

Date Received: 09/09/22 09:22

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		09/19/22 14:33	09/22/22 01:48	1
Toluene	<0.00198	U	0.00198		mg/Kg		09/19/22 14:33	09/22/22 01:48	1
Ethylbenzene	0.00502		0.00198		mg/Kg		09/19/22 14:33	09/22/22 01:48	1
m-Xylene & p-Xylene	0.0113		0.00397		mg/Kg		09/19/22 14:33	09/22/22 01:48	1
o-Xylene	0.0114		0.00198		mg/Kg		09/19/22 14:33	09/22/22 01:48	1
Xylenes, Total	0.0227		0.00397		mg/Kg		09/19/22 14:33	09/22/22 01:48	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

Client Sample ID: BH01A

Lab Sample ID: 890-2917-2

Date Collected: 09/08/22 10:55

Matrix: Solid

Date Received: 09/09/22 09:22

Sample Depth: 4

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	154	S1+	70 - 130				09/19/22 14:33	09/22/22 01:48	1
1,4-Difluorobenzene (Surr)	88		70 - 130				09/19/22 14:33	09/22/22 01:48	1
<b>Method: Total BTEX - Total BTEX Calculation</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.0277		0.00397		mg/Kg			09/22/22 09:55	1
<b>Method: 8015 NM - Diesel Range Organics (DRO) (GC)</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	2550		49.9		mg/Kg			09/13/22 10:25	1
<b>Method: 8015B NM - Diesel Range Organics (DRO) (GC)</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	75.9	*1	49.9		mg/Kg		09/12/22 08:48	09/12/22 19:37	1
Diesel Range Organics (Over C10-C28)	2140		49.9		mg/Kg		09/12/22 08:48	09/12/22 19:37	1
Oil Range Organics (Over C28-C36)	331		49.9		mg/Kg		09/12/22 08:48	09/12/22 19:37	1
<b>Method: 300.0 - Anions, Ion Chromatography - Soluble</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3980		25.0		mg/Kg			09/15/22 11:23	5

Client Sample ID: BH02

Lab Sample ID: 890-2917-3

Date Collected: 09/08/22 12:20

Matrix: Solid

Date Received: 09/09/22 09:22

Sample Depth: 2

<b>Method: 8021B - Volatile Organic Compounds (GC)</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		09/19/22 14:33	09/22/22 02:09	1
Toluene	0.00433		0.00201		mg/Kg		09/19/22 14:33	09/22/22 02:09	1
Ethylbenzene	0.0947		0.00201		mg/Kg		09/19/22 14:33	09/22/22 02:09	1
m-Xylene & p-Xylene	0.353		0.00402		mg/Kg		09/19/22 14:33	09/22/22 02:09	1
o-Xylene	0.379		0.00201		mg/Kg		09/19/22 14:33	09/22/22 02:09	1
Xylenes, Total	0.732		0.00402		mg/Kg		09/19/22 14:33	09/22/22 02:09	1
<b>Method: Total BTEX - Total BTEX Calculation</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.831		0.00402		mg/Kg			09/22/22 09:55	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

Client Sample ID: BH02

Lab Sample ID: 890-2917-3

Date Collected: 09/08/22 12:20

Matrix: Solid

Date Received: 09/09/22 09:22

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	3990		49.8		mg/Kg			09/13/22 10:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	406	*1	49.8		mg/Kg		09/12/22 08:48	09/12/22 19:15	1
Diesel Range Organics (Over C10-C28)	3090		49.8		mg/Kg		09/12/22 08:48	09/12/22 19:15	1
Oil Range Organics (Over C28-C36)	497		49.8		mg/Kg		09/12/22 08:48	09/12/22 19:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130				09/12/22 08:48	09/12/22 19:15	1
o-Terphenyl	84		70 - 130				09/12/22 08:48	09/12/22 19:15	1

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7530		49.9		mg/Kg			09/15/22 11:27	10

Client Sample ID: BH03

Lab Sample ID: 890-2917-4

Date Collected: 09/08/22 13:00

Matrix: Solid

Date Received: 09/09/22 09:22

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		09/19/22 14:33	09/22/22 02:29	1
Toluene	<0.00199	U	0.00199		mg/Kg		09/19/22 14:33	09/22/22 02:29	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		09/19/22 14:33	09/22/22 02:29	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		09/19/22 14:33	09/22/22 02:29	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		09/19/22 14:33	09/22/22 02:29	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		09/19/22 14:33	09/22/22 02:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130				09/19/22 14:33	09/22/22 02:29	1
1,4-Difluorobenzene (Surr)	88		70 - 130				09/19/22 14:33	09/22/22 02:29	1

## Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			09/22/22 09:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	75.6		49.9		mg/Kg			09/13/22 10:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *1	49.9		mg/Kg		09/12/22 08:48	09/12/22 19:58	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		09/12/22 08:48	09/12/22 19:58	1

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Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

Client Sample ID: BH03  
Date Collected: 09/08/22 13:00  
Date Received: 09/09/22 09:22  
Sample Depth: 1

Lab Sample ID: 890-2917-4  
Matrix: Solid

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Oil Range Organics (Over C28-C36)	75.6		49.9		mg/Kg		09/12/22 08:48	09/12/22 19:58	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1-Chlorooctane	95		70 - 130				09/12/22 08:48	09/12/22 19:58	1	
o-Terphenyl	95		70 - 130				09/12/22 08:48	09/12/22 19:58	1	
Method: 300.0 - Anions, Ion Chromatography - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	54.1		5.00		mg/Kg			09/14/22 23:30	1	

## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-2915-A-1-C MS	Matrix Spike	115	109
890-2915-A-1-D MSD	Matrix Spike Duplicate	117	102
890-2917-1	BH01	228 S1+	99
890-2917-2	BH01A	154 S1+	88
890-2917-3	BH02	162 S1+	97
890-2917-4	BH03	118	88
LCS 880-34851/1-A	Lab Control Sample	114	106
LCSD 880-34851/2-A	Lab Control Sample Dup	115	108
MB 880-34851/5-A	Method Blank	88	77
MB 880-34941/5-A	Method Blank	100	93

## 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)
890-2907-A-1-C MS	Matrix Spike	98	93
890-2907-A-1-D MSD	Matrix Spike Duplicate	99	93
890-2917-1	BH01	93	107
890-2917-2	BH01A	93	89
890-2917-3	BH02	100	84
890-2917-4	BH03	95	95
LCS 880-34181/2-A	Lab Control Sample	144 S1+	151 S1+
LCSD 880-34181/3-A	Lab Control Sample Dup	122	130
MB 880-34181/1-A	Method Blank	105	109

## Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-34851/5-A

Matrix: Solid

Analysis Batch: 35013

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 34851

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/19/22 14:33	09/21/22 20:40	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/19/22 14:33	09/21/22 20:40	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/19/22 14:33	09/21/22 20:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/19/22 14:33	09/21/22 20:40	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/19/22 14:33	09/21/22 20:40	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/19/22 14:33	09/21/22 20:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		70 - 130	09/19/22 14:33	09/21/22 20:40	1
1,4-Difluorobenzene (Surr)	77		70 - 130	09/19/22 14:33	09/21/22 20:40	1

Lab Sample ID: LCS 880-34851/1-A

Matrix: Solid

Analysis Batch: 35013

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 34851

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09662		mg/Kg		97	70 - 130
Toluene	0.100	0.08888		mg/Kg		89	70 - 130
Ethylbenzene	0.100	0.09395		mg/Kg		94	70 - 130
m-Xylene & p-Xylene	0.200	0.1964		mg/Kg		98	70 - 130
o-Xylene	0.100	0.1106		mg/Kg		111	70 - 130

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

Lab Sample ID: LCSD 880-34851/2-A

Matrix: Solid

Analysis Batch: 35013

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 34851

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.09096		mg/Kg		91	70 - 130	6	35
Toluene	0.100	0.08531		mg/Kg		85	70 - 130	4	35
Ethylbenzene	0.100	0.08835		mg/Kg		88	70 - 130	6	35
m-Xylene & p-Xylene	0.200	0.1845		mg/Kg		92	70 - 130	6	35
o-Xylene	0.100	0.1080		mg/Kg		108	70 - 130	2	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	115		70 - 130
1,4-Difluorobenzene (Surr)	108		70 - 130

Lab Sample ID: 890-2915-A-1-C MS

Matrix: Solid

Analysis Batch: 35013

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 34851

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U	0.101	0.09155		mg/Kg		91	70 - 130
Toluene	<0.00202	U	0.101	0.08263		mg/Kg		82	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

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

Lab Sample ID: 890-2915-A-1-C MS

Matrix: Solid

Analysis Batch: 35013

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 34851

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00202	U	0.101	0.08658		mg/Kg		86	70 - 130
m-Xylene & p-Xylene	<0.00403	U	0.202	0.1775		mg/Kg		88	70 - 130
o-Xylene	<0.00202	U	0.101	0.1042		mg/Kg		103	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	115		70 - 130
1,4-Difluorobenzene (Surr)	109		70 - 130

Lab Sample ID: 890-2915-A-1-D MSD

Matrix: Solid

Analysis Batch: 35013

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 34851

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U	0.0996	0.08776		mg/Kg		88	70 - 130	4	35
Toluene	<0.00202	U	0.0996	0.08175		mg/Kg		82	70 - 130	1	35
Ethylbenzene	<0.00202	U	0.0996	0.08872		mg/Kg		89	70 - 130	2	35
m-Xylene & p-Xylene	<0.00403	U	0.199	0.1777		mg/Kg		89	70 - 130	0	35
o-Xylene	<0.00202	U	0.0996	0.1037		mg/Kg		104	70 - 130	1	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	117		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: MB 880-34941/5-A

Matrix: Solid

Analysis Batch: 35013

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 34941

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/20/22 12:51	09/21/22 10:04	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/20/22 12:51	09/21/22 10:04	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/20/22 12:51	09/21/22 10:04	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/20/22 12:51	09/21/22 10:04	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/20/22 12:51	09/21/22 10:04	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/20/22 12:51	09/21/22 10:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130	09/20/22 12:51	09/21/22 10:04	1
1,4-Difluorobenzene (Surr)	93		70 - 130	09/20/22 12:51	09/21/22 10:04	1

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

Lab Sample ID: MB 880-34181/1-A

Matrix: Solid

Analysis Batch: 34171

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 34181

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		09/12/22 08:48	09/12/22 10:56	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-34181/1-A

Matrix: Solid

Analysis Batch: 34171

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 34181

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		09/12/22 08:48	09/12/22 10:56	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/12/22 08:48	09/12/22 10:56	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130				09/12/22 08:48	09/12/22 10:56	1
o-Terphenyl	109		70 - 130				09/12/22 08:48	09/12/22 10:56	1

Lab Sample ID: LCS 880-34181/2-A

Matrix: Solid

Analysis Batch: 34171

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 34181

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	984.6		mg/Kg		98	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1000		mg/Kg		100	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	144	S1+	70 - 130				
o-Terphenyl	151	S1+	70 - 130				

Lab Sample ID: LCSD 880-34181/3-A

Matrix: Solid

Analysis Batch: 34171

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 34181

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	765.3	*1	mg/Kg		77	70 - 130	25	20
Diesel Range Organics (Over C10-C28)	1000	859.3		mg/Kg		86	70 - 130	15	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	122		70 - 130						
o-Terphenyl	130		70 - 130						

Lab Sample ID: 890-2907-A-1-C MS

Matrix: Solid

Analysis Batch: 34171

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 34181

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.8	U F1 *1	998	611.1	F1	mg/Kg		59	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	998	859.4		mg/Kg		83	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	98		70 - 130						
o-Terphenyl	93		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

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

Lab Sample ID: 890-2907-A-1-D MSD

Matrix: Solid

Analysis Batch: 34171

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 34181

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.8	U F1 *1	995	585.4	F1	mg/Kg		57	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<49.8	U	995	865.7		mg/Kg		84	70 - 130	1	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	99		70 - 130								
o-Terphenyl	93		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-34288/1-A

Matrix: Solid

Analysis Batch: 34499

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			09/14/22 22:32	1

Lab Sample ID: LCS 880-34288/2-A

Matrix: Solid

Analysis Batch: 34499

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	241.4		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-34288/3-A

Matrix: Solid

Analysis Batch: 34499

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	242.0		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 880-19037-A-2-D MS

Matrix: Solid

Analysis Batch: 34499

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	29800	F1	12600	54900	F1	mg/Kg		200	90 - 110

Lab Sample ID: 880-19037-A-2-E MSD

Matrix: Solid

Analysis Batch: 34499

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	29800	F1	12600	53580	F1	mg/Kg		190	90 - 110	2	20

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QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-2913-A-1-C MS										Client Sample ID: Matrix Spike			
Matrix: Solid										Prep Type: Soluble			
Analysis Batch: 34499													
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits				
Chloride	22.1		250	276.5		mg/Kg		102	90 - 110				

Lab Sample ID: 890-2913-A-1-D MSD										Client Sample ID: Matrix Spike Duplicate			
Matrix: Solid										Prep Type: Soluble			
Analysis Batch: 34499													
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit		
Chloride	22.1		250	277.5		mg/Kg		102	90 - 110	0	20		

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

## GC VOA

## Prep Batch: 34851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2917-1	BH01	Total/NA	Solid	5035	
890-2917-2	BH01A	Total/NA	Solid	5035	
890-2917-3	BH02	Total/NA	Solid	5035	
890-2917-4	BH03	Total/NA	Solid	5035	
MB 880-34851/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-34851/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-34851/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2915-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-2915-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Prep Batch: 34941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-34941/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 35013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2917-1	BH01	Total/NA	Solid	8021B	34851
890-2917-2	BH01A	Total/NA	Solid	8021B	34851
890-2917-3	BH02	Total/NA	Solid	8021B	34851
890-2917-4	BH03	Total/NA	Solid	8021B	34851
MB 880-34851/5-A	Method Blank	Total/NA	Solid	8021B	34851
MB 880-34941/5-A	Method Blank	Total/NA	Solid	8021B	34941
LCS 880-34851/1-A	Lab Control Sample	Total/NA	Solid	8021B	34851
LCSD 880-34851/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	34851
890-2915-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	34851
890-2915-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	34851

## Analysis Batch: 35144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2917-1	BH01	Total/NA	Solid	Total BTEX	
890-2917-2	BH01A	Total/NA	Solid	Total BTEX	
890-2917-3	BH02	Total/NA	Solid	Total BTEX	
890-2917-4	BH03	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 34171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2917-1	BH01	Total/NA	Solid	8015B NM	34181
890-2917-2	BH01A	Total/NA	Solid	8015B NM	34181
890-2917-3	BH02	Total/NA	Solid	8015B NM	34181
890-2917-4	BH03	Total/NA	Solid	8015B NM	34181
MB 880-34181/1-A	Method Blank	Total/NA	Solid	8015B NM	34181
LCS 880-34181/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	34181
LCSD 880-34181/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	34181
890-2907-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	34181
890-2907-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	34181

## Prep Batch: 34181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2917-1	BH01	Total/NA	Solid	8015NM Prep	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

## GC Semi VOA (Continued)

## Prep Batch: 34181 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2917-2	BH01A	Total/NA	Solid	8015NM Prep	
890-2917-3	BH02	Total/NA	Solid	8015NM Prep	
890-2917-4	BH03	Total/NA	Solid	8015NM Prep	
MB 880-34181/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-34181/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-34181/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2907-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2907-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 34383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2917-1	BH01	Total/NA	Solid	8015 NM	
890-2917-2	BH01A	Total/NA	Solid	8015 NM	
890-2917-3	BH02	Total/NA	Solid	8015 NM	
890-2917-4	BH03	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 34288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2917-1	BH01	Soluble	Solid	DI Leach	
890-2917-2	BH01A	Soluble	Solid	DI Leach	
890-2917-3	BH02	Soluble	Solid	DI Leach	
890-2917-4	BH03	Soluble	Solid	DI Leach	
MB 880-34288/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-34288/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-34288/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-19037-A-2-D MS	Matrix Spike	Soluble	Solid	DI Leach	
880-19037-A-2-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-2913-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2913-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 34499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2917-1	BH01	Soluble	Solid	300.0	34288
890-2917-2	BH01A	Soluble	Solid	300.0	34288
890-2917-3	BH02	Soluble	Solid	300.0	34288
890-2917-4	BH03	Soluble	Solid	300.0	34288
MB 880-34288/1-A	Method Blank	Soluble	Solid	300.0	34288
LCS 880-34288/2-A	Lab Control Sample	Soluble	Solid	300.0	34288
LCSD 880-34288/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	34288
880-19037-A-2-D MS	Matrix Spike	Soluble	Solid	300.0	34288
880-19037-A-2-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	34288
890-2913-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	34288
890-2913-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	34288

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## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

Client Sample ID: BH01

Lab Sample ID: 890-2917-1

Date Collected: 09/08/22 10:45

Matrix: Solid

Date Received: 09/09/22 09:22

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	34851	09/19/22 14:33	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	35013	09/22/22 01:28	MR	EET MID
Total/NA	Analysis	Total BTEX		1			35144	09/22/22 09:55	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34383	09/13/22 10:25	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	34181	09/12/22 08:48	AM	EET MID
Total/NA	Analysis	8015B NM		5	1 uL	1 uL	34171	09/12/22 18:54	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	34288	09/12/22 11:50	KS	EET MID
Soluble	Analysis	300.0		5			34499	09/15/22 11:18	CH	EET MID

Client Sample ID: BH01A

Lab Sample ID: 890-2917-2

Date Collected: 09/08/22 10:55

Matrix: Solid

Date Received: 09/09/22 09:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	34851	09/19/22 14:33	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	35013	09/22/22 01:48	MR	EET MID
Total/NA	Analysis	Total BTEX		1			35144	09/22/22 09:55	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34383	09/13/22 10:25	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	34181	09/12/22 08:48	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34171	09/12/22 19:37	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	34288	09/12/22 11:50	KS	EET MID
Soluble	Analysis	300.0		5			34499	09/15/22 11:23	CH	EET MID

Client Sample ID: BH02

Lab Sample ID: 890-2917-3

Date Collected: 09/08/22 12:20

Matrix: Solid

Date Received: 09/09/22 09:22

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	34851	09/19/22 14:33	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	35013	09/22/22 02:09	MR	EET MID
Total/NA	Analysis	Total BTEX		1			35144	09/22/22 09:55	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34383	09/13/22 10:25	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	34181	09/12/22 08:48	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34171	09/12/22 19:15	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	34288	09/12/22 11:50	KS	EET MID
Soluble	Analysis	300.0		10			34499	09/15/22 11:27	CH	EET MID

Client Sample ID: BH03

Lab Sample ID: 890-2917-4

Date Collected: 09/08/22 13:00

Matrix: Solid

Date Received: 09/09/22 09:22

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	34851	09/19/22 14:33	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	35013	09/22/22 02:29	MR	EET MID
Total/NA	Analysis	Total BTEX		1			35144	09/22/22 09:55	AJ	EET MID

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Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

Client Sample ID: BH03  
Date Collected: 09/08/22 13:00  
Date Received: 09/09/22 09:22

Lab Sample ID: 890-2917-4  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			34383	09/13/22 10:25	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	34181	09/12/22 08:48	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34171	09/12/22 19:58	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	34288	09/12/22 11:50	KS	EET MID
Soluble	Analysis	300.0		1			34499	09/14/22 23:30	CH	EET MID

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



Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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

Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

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

**Protocol References:**

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-2917-1  
SDG: 03E1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2917-1	BH01	Solid	09/08/22 10:45	09/09/22 09:22	2
890-2917-2	BH01A	Solid	09/08/22 10:55	09/09/22 09:22	4
890-2917-3	BH02	Solid	09/08/22 12:20	09/09/22 09:22	2
890-2917-4	BH03	Solid	09/08/22 13:00	09/09/22 09:22	1

- 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

Work Order No:

www.xenco.com Page \_\_\_\_\_ of \_\_\_\_\_

Project Manager:	Tacoma Morrissey	Bill to: (if different)	Garrett Green	<b>Work Order Comments</b> 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:
Company Name:	Ensolum	Company Name:	XTO Energy	
Address:	3122 National Parks Hwy	Address:	3104 E. Green St.	
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220	
Phone:	303-887-2946	Email:	Garret.Green@ExxonMobil.com	

Project Name:		JRU 108H		Turn Around		Pres. Code		ANALYSIS REQUEST										Preservative Codes				
Project Number:		03E1558090		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush														None: NO DI Water: H <sub>2</sub> O				
Project Location:				Due Date:														Cool: Cool MeOH: Me				
Sampler's Name:		Connor Whitman		TAT starts the day received by the lab, if received by 4:30pm														HCL: HC HNO <sub>3</sub> : HN				
PO #:																		H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na				
SAMPLE RECEIPT		Temp Blank: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Wet Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No														H <sub>3</sub> PO <sub>4</sub> : HP				
Samples Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Thermometer ID: NM027														NaHSO <sub>4</sub> : NABIS				
Cooler Custody Seals:		Yes No N/A		Correction Factor: -0.2														Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>				
Sample Custody Seals:		Yes No N/A		Temperature Reading: 1.4														Zn Acetate+NaOH: Zn				
Total Containers:				Corrected Temperature: 1.2														NaOH+Ascorbic Acid: SAPC				
Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)											Sample Comments	
BH01		S	9/8/2022	10:45	2	G	1	x	x	x											Incident ID:	
BH01A		S	9/8/2022	10:55	4	G	1	x	x	x											nAPP2217931599	
BH02		S	9/8/2022	12:20	2	G	1	x	x	x											Cost Center:	
BH03		S	9/8/2022	13:00	1	G	1	x	x	x											1139071001	
																					AFE:	

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>Caroline</i>	<i>Clare G.</i>	9-9-22 9:20			
3					
5					

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2917-1

SDG Number: 03E1558090

Login Number: 2917

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: 890-2917-1

SDG Number: 03E1558090

Login Number: 2917

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/12/22 09:08 AM

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



## Environment Testing

### ANALYTICAL REPORT

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

Laboratory Job ID: 890-3258-1

Laboratory Sample Delivery Group: 03E1558090

Client Project/Site: JRU 108H

Revision: 1

#### For:

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Ben Belill

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

Authorized for release by:

11/2/2022 4:35:09 PM

Jessica Kramer, Project Manager  
(432)704-5440

[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)

#### LINKS

Review your project  
results through



Have a Question?



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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: JRU 108H

Laboratory Job ID: 890-3258-1  
SDG: 03E1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

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

## Glossary

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

## Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

**Job ID: 890-3258-1**

**Laboratory: Eurofins Carlsbad**

### Narrative

#### Job Narrative 890-3258-1

### REVISION

The report being provided is a revision of the original report sent on 10/31/2022. The report (revision 1) is being revised due to Per client email, requesting TPH re run.

Report revision history

### Receipt

The sample was received on 10/21/2022 10:55 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

### Receipt Exceptions

The following sample was received and analyzed from an unpreserved bulk soil jar: BG01 (890-3258-1).

### GC VOA

Method 8021B: The following samples were diluted due to the nature of the sample matrix: (880-20605-A-1-E MS) and (880-20605-A-1-F MSD). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-38021 and analytical batch 880-38089 was outside the upper control limits.

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

### GC Semi VOA

Method 8015MOD\_NM: The matrix spike duplicate (MSD) recoveries for preparation batch 880-38417 and analytical batch 880-38323 were outside control limits. Non-homogeneity is 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

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37579 and analytical batch 880-37788 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

Client Sample ID: BG01

Lab Sample ID: 890-3258-1

Date Collected: 10/20/22 14:30

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		10/26/22 14:13	10/29/22 07:28	1
Toluene	<0.00201	U	0.00201	mg/Kg		10/26/22 14:13	10/29/22 07:28	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		10/26/22 14:13	10/29/22 07:28	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		10/26/22 14:13	10/29/22 07:28	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		10/26/22 14:13	10/29/22 07:28	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		10/26/22 14:13	10/29/22 07:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	127		70 - 130	10/26/22 14:13	10/29/22 07:28	1
1,4-Difluorobenzene (Surr)	92		70 - 130	10/26/22 14:13	10/29/22 07:28	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			10/25/22 11:30	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		11/01/22 15:08	11/02/22 05:03	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		11/01/22 15:08	11/02/22 05:03	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		11/01/22 15:08	11/02/22 05:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	70		70 - 130	11/01/22 15:08	11/02/22 05:03	1
o-Terphenyl	74		70 - 130	11/01/22 15:08	11/02/22 05:03	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.4		4.96	mg/Kg			10/25/22 20:41	1

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## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

## 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)
880-20605-A-1-E MS	Matrix Spike	101	92
880-20605-A-1-F MSD	Matrix Spike Duplicate	102	90
890-3258-1	BG01	127	92
LCS 880-37911/1-A	Lab Control Sample	99	91
LCSD 880-37911/2-A	Lab Control Sample Dup	101	91
MB 880-37911/5-A	Method Blank	102	87
MB 880-38021/5-A	Method Blank	72	60 S1-

## Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid

Prep Type: Total/NA

## Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	1CO1	OTPH1
		(70-130)	(70-130)
890-3258-1	BG01	70	74
890-3335-A-1-C MS	Matrix Spike	88	86
890-3335-A-1-D MSD	Matrix Spike Duplicate	79	76
LCS 880-38417/2-A	Lab Control Sample	101	106
LCSD 880-38417/3-A	Lab Control Sample Dup	90	95
MB 880-38417/1-A	Method Blank	92	99

## Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-37911/5-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37911

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/26/22 14:13	10/29/22 01:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	10/26/22 14:13	10/29/22 01:12	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/26/22 14:13	10/29/22 01:12	1

Lab Sample ID: LCS 880-37911/1-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07484		mg/Kg		75	70 - 130
Toluene	0.100	0.07671		mg/Kg		77	70 - 130
Ethylbenzene	0.100	0.07425		mg/Kg		74	70 - 130
m-Xylene & p-Xylene	0.200	0.1480		mg/Kg		74	70 - 130
o-Xylene	0.100	0.08609		mg/Kg		86	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: LCSD 880-37911/2-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.07938		mg/Kg		79	70 - 130	6	35
Toluene	0.100	0.08189		mg/Kg		82	70 - 130	7	35
Ethylbenzene	0.100	0.08032		mg/Kg		80	70 - 130	8	35
m-Xylene & p-Xylene	0.200	0.1556		mg/Kg		78	70 - 130	5	35
o-Xylene	0.100	0.08950		mg/Kg		89	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 880-20605-A-1-E MS

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F1	0.100	0.08080		mg/Kg		80	70 - 130
Toluene	<0.00201	U F1	0.100	0.07923		mg/Kg		78	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

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

Lab Sample ID: 880-20605-A-1-E MS

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.100	0.07637		mg/Kg		76	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.200	0.1440		mg/Kg		72	70 - 130
o-Xylene	<0.00201	U	0.100	0.08398		mg/Kg		84	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 880-20605-A-1-F MSD

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	<0.00201	U F1	0.0990	0.06610	F1	mg/Kg		66	70 - 130	20	35
Toluene	<0.00201	U F1	0.0990	0.06481	F1	mg/Kg		65	70 - 130	20	35
Ethylbenzene	<0.00201	U F1	0.0990	0.06337	F1	mg/Kg		64	70 - 130	19	35
m-Xylene & p-Xylene	<0.00402	U F1	0.198	0.1224	F1	mg/Kg		62	70 - 130	16	35
o-Xylene	<0.00201	U	0.0990	0.07052		mg/Kg		71	70 - 130	17	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	90		70 - 130

Lab Sample ID: MB 880-38021/5-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38021

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/27/22 13:34	10/28/22 13:48	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		70 - 130	10/27/22 13:34	10/28/22 13:48	1
1,4-Difluorobenzene (Surr)	60	S1-	70 - 130	10/27/22 13:34	10/28/22 13:48	1

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

Lab Sample ID: MB 880-38417/1-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38417

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/01/22 21:10	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-38417/1-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38417

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		11/01/22 15:08	11/01/22 21:10	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/01/22 21:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	92		70 - 130			11/01/22 15:08	11/01/22 21:10	1
o-Terphenyl	99		70 - 130			11/01/22 15:08	11/01/22 21:10	1

Lab Sample ID: LCS 880-38417/2-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1076		mg/Kg		108	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1008		mg/Kg		101	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	101		70 - 130				
o-Terphenyl	106		70 - 130				

Lab Sample ID: LCSD 880-38417/3-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1087		mg/Kg		109	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	1000	910.4		mg/Kg		91	70 - 130	10	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	90		70 - 130						
o-Terphenyl	95		70 - 130						

Lab Sample ID: 890-3335-A-1-C MS

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	812.4		mg/Kg		79	70 - 130
Diesel Range Organics (Over C10-C28)	77.7	F1	997	799.4		mg/Kg		72	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	88		70 - 130						
o-Terphenyl	86		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

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

Lab Sample ID: 890-3335-A-1-D MSD

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	984.3		mg/Kg		96	70 - 130	19	20
Diesel Range Organics (Over C10-C28)	77.7	F1	999	702.0	F1	mg/Kg		62	70 - 130	13	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	79		70 - 130								
o-Terphenyl	76		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37579/1-A

Matrix: Solid

Analysis Batch: 37788

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			10/25/22 19:00	1

Lab Sample ID: LCS 880-37579/2-A

Matrix: Solid

Analysis Batch: 37788

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	242.4		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-37579/3-A

Matrix: Solid

Analysis Batch: 37788

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	243.5		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 890-3252-A-43-B MS

Matrix: Solid

Analysis Batch: 37788

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	853	F1	250	1060	F1	mg/Kg		83	90 - 110

Lab Sample ID: 890-3252-A-43-C MSD

Matrix: Solid

Analysis Batch: 37788

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	853	F1	250	1030	F1	mg/Kg		71	90 - 110	3	20

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

## GC VOA

## Prep Batch: 37911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3258-1	BG01	Total/NA	Solid	5035	
MB 880-37911/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37911/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37911/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20605-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-20605-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Prep Batch: 38021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-38021/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 38089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3258-1	BG01	Total/NA	Solid	8021B	37911
MB 880-37911/5-A	Method Blank	Total/NA	Solid	8021B	37911
MB 880-38021/5-A	Method Blank	Total/NA	Solid	8021B	38021
LCS 880-37911/1-A	Lab Control Sample	Total/NA	Solid	8021B	37911
LCSD 880-37911/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37911
880-20605-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	37911
880-20605-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37911

## Analysis Batch: 38194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3258-1	BG01	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 37810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3258-1	BG01	Total/NA	Solid	8015 NM	

## Analysis Batch: 38323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3258-1	BG01	Total/NA	Solid	8015B NM	38417
MB 880-38417/1-A	Method Blank	Total/NA	Solid	8015B NM	38417
LCS 880-38417/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	38417
LCSD 880-38417/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	38417
890-3335-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	38417
890-3335-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	38417

## Prep Batch: 38417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3258-1	BG01	Total/NA	Solid	8015NM Prep	
MB 880-38417/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-38417/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-38417/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3335-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3335-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Eurofins Carlsbad

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

## HPLC/IC

## Leach Batch: 37579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3258-1	BG01	Soluble	Solid	DI Leach	
MB 880-37579/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37579/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37579/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3252-A-43-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3252-A-43-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 37788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3258-1	BG01	Soluble	Solid	300.0	37579
MB 880-37579/1-A	Method Blank	Soluble	Solid	300.0	37579
LCS 880-37579/2-A	Lab Control Sample	Soluble	Solid	300.0	37579
LCSD 880-37579/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37579
890-3252-A-43-B MS	Matrix Spike	Soluble	Solid	300.0	37579
890-3252-A-43-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37579

Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

Client Sample ID: BG01  
Date Collected: 10/20/22 14:30  
Date Received: 10/21/22 10:55

Lab Sample ID: 890-3258-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38089	10/29/22 07:28	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38194	10/30/22 21:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			37810	10/25/22 11:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	38417	11/01/22 15:08	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	38323	11/02/22 05:03	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		1			37788	10/25/22 20:41	CH	EET MID

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

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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

## Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

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

### Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

### Laboratory References:

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



Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3258-1  
SDG: 03E1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3258-1	BG01	Solid	10/20/22 14:30	10/21/22 10:55	0.5'

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



Environment Testing  
Xenoco

Chain of Custody

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

Work Order No: \_\_\_\_\_

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Project Manager:	Ben Bellill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy, Inc.
Address:	3122 National parks Hwy	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	bbellill@ensolum.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: _____

Project Name:	JRU 108H	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code	
Project Number:	03E1558090	Due Date:			
Project Location:	EDDY COUNTY, NM	TAT starts the day received by the lab, if received by 4:30pm			
Sampler's Name:	Ben Bellill				
PO #:					
<b>SAMPLE RECEIPT</b>					
Samples Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Thermometer ID:	1000		
Cooler Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Correction Factor:	0.0		
Sample Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Temperature Reading:	1.4		
Total Containers:		Corrected Temperature:	1.0		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)	ANALYSIS REQUEST	Preservative Codes	Sample Comments
BG01	S	10/20/2022	1430	0.5'	Grab	1	X	X	X		None, NO Cool: Cool HCL: HC H2SO4: H2 H3PO4: HP NaHSO4: NABIS Na2S2O3: NaSO3 Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: SAPC	Cost Center: 1139071001
Incident Number: NAPP2247894599												

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

Circle Method(s) and Metal(s) to be analyzed: TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631 / 245, 17470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenoco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenoco 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 Xenoco. A minimum charge of \$95.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenoco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	10/20/2022	<i>[Signature]</i>	<i>[Signature]</i>	10/20/2022

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3258-1

SDG Number: 03E1558090

Login Number: 3258

List Number: 1

Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3258-1

SDG Number: 03E1558090

Login Number: 3258

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 10/24/22 07:56 AM

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



## Environment Testing

# ANALYTICAL REPORT

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

Laboratory Job ID: 890-3259-1

Laboratory Sample Delivery Group: 03E1558090

Client Project/Site: JRU 108H

Revision: 1

### For:

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Ben Belill

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

Authorized for release by:

11/2/2022 4:37:12 PM

Jessica Kramer, Project Manager  
(432)704-5440

[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)

### LINKS

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results through



Have a Question?



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[www.eurofinsus.com/Env](http://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: JRU 108H

Laboratory Job ID: 890-3259-1  
SDG: 03E1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

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

## Glossary

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

## Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

**Job ID: 890-3259-1****Laboratory: Eurofins Carlsbad****Narrative****Job Narrative  
890-3259-1**REVISION

The report being provided is a revision of the original report sent on 10/31/2022. The report (revision 1) is being revised due to Per client email, requesting TPH re run.

Report revision history

**Receipt**

The sample was received on 10/21/2022 10:55 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: BG01 (890-3259-1).

**GC VOA**

Method 8021B: The following samples were diluted due to the nature of the sample matrix: (880-20605-A-1-E MS) and (880-20605-A-1-F MSD). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-38021 and analytical batch 880-38089 was outside the upper control limits.

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

**GC Semi VOA**

Method 8015MOD\_NM: The matrix spike duplicate (MSD) recoveries for preparation batch 880-38417 and analytical batch 880-38323 were outside control limits. Non-homogeneity is 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**

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37579 and analytical batch 880-37788 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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



## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

Client Sample ID: BG01

Lab Sample ID: 890-3259-1

Date Collected: 10/20/22 14:35

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 4'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 03:38	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 03:38	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 03:38	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/26/22 14:13	10/29/22 03:38	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 03:38	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/26/22 14:13	10/29/22 03:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	122		70 - 130	10/26/22 14:13	10/29/22 03:38	1
1,4-Difluorobenzene (Surr)	100		70 - 130	10/26/22 14:13	10/29/22 03:38	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			10/25/22 11:30	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/02/22 05:25	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/02/22 05:25	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/02/22 05:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	86		70 - 130	11/01/22 15:08	11/02/22 05:25	1
o-Terphenyl	90		70 - 130	11/01/22 15:08	11/02/22 05:25	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4860		50.0	mg/Kg			10/25/22 20:49	10

Eurofins Carlsbad

## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

## 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)
880-20605-A-1-E MS	Matrix Spike	101	92
880-20605-A-1-F MSD	Matrix Spike Duplicate	102	90
890-3259-1	BG01	122	100
LCS 880-37911/1-A	Lab Control Sample	99	91
LCSD 880-37911/2-A	Lab Control Sample Dup	101	91
MB 880-37911/5-A	Method Blank	102	87
MB 880-38021/5-A	Method Blank	72	60 S1-

## Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid

Prep Type: Total/NA

## Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-3259-1	BG01	86	90
890-3335-A-1-C MS	Matrix Spike	88	86
890-3335-A-1-D MSD	Matrix Spike Duplicate	79	76
LCS 880-38417/2-A	Lab Control Sample	101	106
LCSD 880-38417/3-A	Lab Control Sample Dup	90	95
MB 880-38417/1-A	Method Blank	92	99

## Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-37911/5-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37911

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/26/22 14:13	10/29/22 01:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	10/26/22 14:13	10/29/22 01:12	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/26/22 14:13	10/29/22 01:12	1

Lab Sample ID: LCS 880-37911/1-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07484		mg/Kg		75	70 - 130
Toluene	0.100	0.07671		mg/Kg		77	70 - 130
Ethylbenzene	0.100	0.07425		mg/Kg		74	70 - 130
m-Xylene & p-Xylene	0.200	0.1480		mg/Kg		74	70 - 130
o-Xylene	0.100	0.08609		mg/Kg		86	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: LCSD 880-37911/2-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.07938		mg/Kg		79	70 - 130	6	35
Toluene	0.100	0.08189		mg/Kg		82	70 - 130	7	35
Ethylbenzene	0.100	0.08032		mg/Kg		80	70 - 130	8	35
m-Xylene & p-Xylene	0.200	0.1556		mg/Kg		78	70 - 130	5	35
o-Xylene	0.100	0.08950		mg/Kg		89	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 880-20605-A-1-E MS

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F1	0.100	0.08080		mg/Kg		80	70 - 130
Toluene	<0.00201	U F1	0.100	0.07923		mg/Kg		78	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

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

Lab Sample ID: 880-20605-A-1-E MS

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.100	0.07637		mg/Kg		76	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.200	0.1440		mg/Kg		72	70 - 130
o-Xylene	<0.00201	U	0.100	0.08398		mg/Kg		84	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 880-20605-A-1-F MSD

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	<0.00201	U F1	0.0990	0.06610	F1	mg/Kg		66	70 - 130	20	35
Toluene	<0.00201	U F1	0.0990	0.06481	F1	mg/Kg		65	70 - 130	20	35
Ethylbenzene	<0.00201	U F1	0.0990	0.06337	F1	mg/Kg		64	70 - 130	19	35
m-Xylene & p-Xylene	<0.00402	U F1	0.198	0.1224	F1	mg/Kg		62	70 - 130	16	35
o-Xylene	<0.00201	U	0.0990	0.07052		mg/Kg		71	70 - 130	17	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	90		70 - 130

Lab Sample ID: MB 880-38021/5-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38021

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/27/22 13:34	10/28/22 13:48	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		70 - 130	10/27/22 13:34	10/28/22 13:48	1
1,4-Difluorobenzene (Surr)	60	S1-	70 - 130	10/27/22 13:34	10/28/22 13:48	1

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

Lab Sample ID: MB 880-38417/1-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38417

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/01/22 21:10	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-38417/1-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38417

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		11/01/22 15:08	11/01/22 21:10	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/01/22 21:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	92		70 - 130			11/01/22 15:08	11/01/22 21:10	1
o-Terphenyl	99		70 - 130			11/01/22 15:08	11/01/22 21:10	1

Lab Sample ID: LCS 880-38417/2-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1076		mg/Kg		108	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1008		mg/Kg		101	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	101		70 - 130				
o-Terphenyl	106		70 - 130				

Lab Sample ID: LCSD 880-38417/3-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1087		mg/Kg		109	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	1000	910.4		mg/Kg		91	70 - 130	10	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	90		70 - 130						
o-Terphenyl	95		70 - 130						

Lab Sample ID: 890-3335-A-1-C MS

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	812.4		mg/Kg		79	70 - 130
Diesel Range Organics (Over C10-C28)	77.7	F1	997	799.4		mg/Kg		72	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	88		70 - 130						
o-Terphenyl	86		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

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

Lab Sample ID: 890-3335-A-1-D MSD

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	984.3		mg/Kg		96	70 - 130	19	20
Diesel Range Organics (Over C10-C28)	77.7	F1	999	702.0	F1	mg/Kg		62	70 - 130	13	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	79		70 - 130								
o-Terphenyl	76		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37579/1-A

Matrix: Solid

Analysis Batch: 37788

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			10/25/22 19:00	1

Lab Sample ID: LCS 880-37579/2-A

Matrix: Solid

Analysis Batch: 37788

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	242.4		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-37579/3-A

Matrix: Solid

Analysis Batch: 37788

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	243.5		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 890-3252-A-43-B MS

Matrix: Solid

Analysis Batch: 37788

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	853	F1	250	1060	F1	mg/Kg		83	90 - 110

Lab Sample ID: 890-3252-A-43-C MSD

Matrix: Solid

Analysis Batch: 37788

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	853	F1	250	1030	F1	mg/Kg		71	90 - 110	3	20

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

## GC VOA

## Prep Batch: 37911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3259-1	BG01	Total/NA	Solid	5035	
MB 880-37911/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37911/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37911/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20605-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-20605-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Prep Batch: 38021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-38021/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 38089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3259-1	BG01	Total/NA	Solid	8021B	37911
MB 880-37911/5-A	Method Blank	Total/NA	Solid	8021B	37911
MB 880-38021/5-A	Method Blank	Total/NA	Solid	8021B	38021
LCS 880-37911/1-A	Lab Control Sample	Total/NA	Solid	8021B	37911
LCSD 880-37911/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37911
880-20605-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	37911
880-20605-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37911

## Analysis Batch: 38190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3259-1	BG01	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 37811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3259-1	BG01	Total/NA	Solid	8015 NM	

## Analysis Batch: 38323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3259-1	BG01	Total/NA	Solid	8015B NM	38417
MB 880-38417/1-A	Method Blank	Total/NA	Solid	8015B NM	38417
LCS 880-38417/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	38417
LCSD 880-38417/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	38417
890-3335-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	38417
890-3335-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	38417

## Prep Batch: 38417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3259-1	BG01	Total/NA	Solid	8015NM Prep	
MB 880-38417/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-38417/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-38417/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3335-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3335-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

## HPLC/IC

## Leach Batch: 37579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3259-1	BG01	Soluble	Solid	DI Leach	
MB 880-37579/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37579/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37579/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3252-A-43-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3252-A-43-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 37788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3259-1	BG01	Soluble	Solid	300.0	37579
MB 880-37579/1-A	Method Blank	Soluble	Solid	300.0	37579
LCS 880-37579/2-A	Lab Control Sample	Soluble	Solid	300.0	37579
LCSD 880-37579/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37579
890-3252-A-43-B MS	Matrix Spike	Soluble	Solid	300.0	37579
890-3252-A-43-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37579



Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

Client Sample ID: BG01  
Date Collected: 10/20/22 14:35  
Date Received: 10/21/22 10:55

Lab Sample ID: 890-3259-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38089	10/29/22 03:38	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38190	10/30/22 21:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			37811	10/25/22 11:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	38417	11/01/22 15:08	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	38323	11/02/22 05:25	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		10			37788	10/25/22 20:49	CH	EET MID

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

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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

## Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

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

**Protocol References:**

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3259-1  
SDG: 03E1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3259-1	BG01	Solid	10/20/22 14:35	10/21/22 10:55	4'


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

## Chain of Custody

**Work Order No:** \_\_\_\_\_

Page 1 of 1  
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Work Order Comments	
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables: EDD <input type="checkbox"/> ADAPt <input type="checkbox"/> Other:	

Project Name:		JKU 108H		Turn Around										Preservative Codes		
Project Number:		03E1558090		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush										None, NO		DI Water, H <sub>2</sub> O
Project Location:		EDDY COUNTY, NM		Due Date:										Cool, Cool		MeOH, Me
Sampler's Name:		Ben Bellill		TAT starts the day received by the lab, if received by 4:30pm										HCL, HC		HNO <sub>3</sub> , HN
PO #:														H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub>		NaOH, Na
<b>SAMPLE RECEIPT</b>		Temp Blank:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Wet Ice:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								
Samples Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Thermometer ID:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No										
Cooler Custody Seals:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Correction Factor:												
Sample Custody Seals:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Temperature Reading:												
Total Containers:				Corrected Temperature:												
Parameters																
IDES (EPA: 300.0)																
115)																
3021																
																
890-3259 Chain of Custody																
H <sub>3</sub> PO <sub>4</sub> , HP NaHSO <sub>4</sub> , NABIS Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , NaSO <sub>3</sub> Zn Acetate+NaOH, Zn NaOH+Ascorbic Acid, SAPC																



[illegible]

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO<sub>2</sub> Na Sr Ti Sn U V Zn

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 Xeno, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xeno 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 Xeno. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xeno, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		10/21/22 05:58			
2		4			
3					
4					
5		6			

Revised Date: 08/25/2020 Rev. 2020

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3259-1

SDG Number: 03E1558090

Login Number: 3259

List Number: 1

Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3259-1

SDG Number: 03E1558090

Login Number: 3259

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 10/24/22 07:56 AM

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





## Environment Testing

### ANALYTICAL REPORT

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

Laboratory Job ID: 890-3260-1

Laboratory Sample Delivery Group: 03E1558090

Client Project/Site: JRU 108H

**For:**

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Ben Belill

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

Authorized for release by:

10/31/2022 9:39:13 AM

Jessica Kramer, Project Manager  
(432)704-5440

[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)

#### LINKS

Review your project  
results through



Have a Question?



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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: JRU 108H

Laboratory Job ID: 890-3260-1  
SDG: 03E1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

## 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.
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

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

## Glossary

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

## Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

**Job ID: 890-3260-1****Laboratory: Eurofins Carlsbad****Narrative****Job Narrative  
890-3260-1****Receipt**

The sample was received on 10/21/2022 10:55 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: BG01 (890-3260-1).

**GC VOA**

Method 8021B: The following samples were diluted due to the nature of the sample matrix: (880-20605-A-1-E MS) and (880-20605-A-1-F MSD). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-38021 and analytical batch 880-38089 was outside the upper control limits.

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

**GC Semi VOA**

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37617 and analytical batch 880-37611 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

**HPLC/IC**

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37579 and analytical batch 880-37788 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

Client Sample ID: BG01

Lab Sample ID: 890-3260-1

Date Collected: 10/20/22 14:40

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 6'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.00216		0.00200	mg/Kg		10/26/22 14:13	10/29/22 03:59	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 03:59	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 03:59	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		10/26/22 14:13	10/29/22 03:59	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 03:59	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		10/26/22 14:13	10/29/22 03:59	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130			10/26/22 14:13	10/29/22 03:59	1
1,4-Difluorobenzene (Surr)	92		70 - 130			10/26/22 14:13	10/29/22 03:59	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			10/25/22 11:30	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		10/24/22 08:52	10/24/22 19:15	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/24/22 08:52	10/24/22 19:15	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/24/22 08:52	10/24/22 19:15	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	84		70 - 130			10/24/22 08:52	10/24/22 19:15	1
o-Terphenyl	89		70 - 130			10/24/22 08:52	10/24/22 19:15	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4650		50.5	mg/Kg			10/25/22 20:57	10

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## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

## 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)
880-20605-A-1-E MS	Matrix Spike	101	92
880-20605-A-1-F MSD	Matrix Spike Duplicate	102	90
890-3260-1	BG01	108	92
LCS 880-37911/1-A	Lab Control Sample	99	91
LCSD 880-37911/2-A	Lab Control Sample Dup	101	91
MB 880-37911/5-A	Method Blank	102	87
MB 880-38021/5-A	Method Blank	72	60 S1-
<b>Surrogate Legend</b>			
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)
890-3253-A-1-H MS	Matrix Spike	95	92
890-3253-A-1-I MSD	Matrix Spike Duplicate	88	84
890-3260-1	BG01	84	89
LCS 880-37617/2-A	Lab Control Sample	105	110
LCSD 880-37617/3-A	Lab Control Sample Dup	108	114
MB 880-37617/1-A	Method Blank	80	94
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-37911/5-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37911

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/26/22 14:13	10/29/22 01:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	10/26/22 14:13	10/29/22 01:12	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/26/22 14:13	10/29/22 01:12	1

Lab Sample ID: LCS 880-37911/1-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07484		mg/Kg		75	70 - 130
Toluene	0.100	0.07671		mg/Kg		77	70 - 130
Ethylbenzene	0.100	0.07425		mg/Kg		74	70 - 130
m-Xylene & p-Xylene	0.200	0.1480		mg/Kg		74	70 - 130
o-Xylene	0.100	0.08609		mg/Kg		86	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: LCSD 880-37911/2-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.07938		mg/Kg		79	70 - 130	6	35
Toluene	0.100	0.08189		mg/Kg		82	70 - 130	7	35
Ethylbenzene	0.100	0.08032		mg/Kg		80	70 - 130	8	35
m-Xylene & p-Xylene	0.200	0.1556		mg/Kg		78	70 - 130	5	35
o-Xylene	0.100	0.08950		mg/Kg		89	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 880-20605-A-1-E MS

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F1	0.100	0.08080		mg/Kg		80	70 - 130
Toluene	<0.00201	U F1	0.100	0.07923		mg/Kg		78	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

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

Lab Sample ID: 880-20605-A-1-E MS

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.100	0.07637		mg/Kg		76	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.200	0.1440		mg/Kg		72	70 - 130
o-Xylene	<0.00201	U	0.100	0.08398		mg/Kg		84	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 880-20605-A-1-F MSD

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U F1	0.0990	0.06610	F1	mg/Kg		66	70 - 130	20	35
Toluene	<0.00201	U F1	0.0990	0.06481	F1	mg/Kg		65	70 - 130	20	35
Ethylbenzene	<0.00201	U F1	0.0990	0.06337	F1	mg/Kg		64	70 - 130	19	35
m-Xylene & p-Xylene	<0.00402	U F1	0.198	0.1224	F1	mg/Kg		62	70 - 130	16	35
o-Xylene	<0.00201	U	0.0990	0.07052		mg/Kg		71	70 - 130	17	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	90		70 - 130

Lab Sample ID: MB 880-38021/5-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38021

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/27/22 13:34	10/28/22 13:48	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		70 - 130	10/27/22 13:34	10/28/22 13:48	1
1,4-Difluorobenzene (Surr)	60	S1-	70 - 130	10/27/22 13:34	10/28/22 13:48	1

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

Lab Sample ID: MB 880-37617/1-A

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37617

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		10/24/22 08:52	10/24/22 10:35	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-37617/1-A

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37617

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/24/22 08:52	10/24/22 10:35	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/24/22 08:52	10/24/22 10:35	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	80		70 - 130			10/24/22 08:52	10/24/22 10:35	1
o-Terphenyl	94		70 - 130			10/24/22 08:52	10/24/22 10:35	1

Lab Sample ID: LCS 880-37617/2-A

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 37617

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1169		mg/Kg		117	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1015		mg/Kg		102	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	105		70 - 130				
o-Terphenyl	110		70 - 130				

Lab Sample ID: LCSD 880-37617/3-A

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 37617

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1158		mg/Kg		116	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	1000	1018		mg/Kg		102	70 - 130	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	108		70 - 130						
o-Terphenyl	114		70 - 130						

Lab Sample ID: 890-3253-A-1-H MS

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37617

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.8	U F1 F2	998	1543	F1	mg/Kg		151	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	998	812.7		mg/Kg		81	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	95		70 - 130						
o-Terphenyl	92		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

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

Lab Sample ID: 890-3253-A-1-I MSD

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 37617

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.8	U F1 F2	998	1075	F2	mg/Kg		104	70 - 130	36	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	782.1		mg/Kg		78	70 - 130	4	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	88		70 - 130								
o-Terphenyl	84		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37579/1-A

Matrix: Solid

Analysis Batch: 37788

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			10/25/22 19:00	1

Lab Sample ID: LCS 880-37579/2-A

Matrix: Solid

Analysis Batch: 37788

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	242.4		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-37579/3-A

Matrix: Solid

Analysis Batch: 37788

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	243.5		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 890-3252-A-43-B MS

Matrix: Solid

Analysis Batch: 37788

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	853	F1	250	1060	F1	mg/Kg		83	90 - 110

Lab Sample ID: 890-3252-A-43-C MSD

Matrix: Solid

Analysis Batch: 37788

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	853	F1	250	1030	F1	mg/Kg		71	90 - 110	3	20

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

## GC VOA

## Prep Batch: 37911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3260-1	BG01	Total/NA	Solid	5035	
MB 880-37911/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37911/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37911/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20605-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-20605-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Prep Batch: 38021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-38021/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 38089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3260-1	BG01	Total/NA	Solid	8021B	37911
MB 880-37911/5-A	Method Blank	Total/NA	Solid	8021B	37911
MB 880-38021/5-A	Method Blank	Total/NA	Solid	8021B	38021
LCS 880-37911/1-A	Lab Control Sample	Total/NA	Solid	8021B	37911
LCSD 880-37911/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37911
880-20605-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	37911
880-20605-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37911

## Analysis Batch: 38191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3260-1	BG01	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 37611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3260-1	BG01	Total/NA	Solid	8015B NM	37617
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015B NM	37617
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37617
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37617
890-3253-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	37617
890-3253-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37617

## Prep Batch: 37617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3260-1	BG01	Total/NA	Solid	8015NM Prep	
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3253-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3253-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 37812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3260-1	BG01	Total/NA	Solid	8015 NM	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

## HPLC/IC

## Leach Batch: 37579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3260-1	BG01	Soluble	Solid	DI Leach	
MB 880-37579/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37579/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37579/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3252-A-43-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3252-A-43-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 37788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3260-1	BG01	Soluble	Solid	300.0	37579
MB 880-37579/1-A	Method Blank	Soluble	Solid	300.0	37579
LCS 880-37579/2-A	Lab Control Sample	Soluble	Solid	300.0	37579
LCSD 880-37579/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37579
890-3252-A-43-B MS	Matrix Spike	Soluble	Solid	300.0	37579
890-3252-A-43-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37579

Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

Client Sample ID: BG01  
Date Collected: 10/20/22 14:40  
Date Received: 10/21/22 10:55

Lab Sample ID: 890-3260-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38089	10/29/22 03:59	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38191	10/30/22 21:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			37812	10/25/22 11:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	37617	10/24/22 08:52	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37611	10/24/22 19:15	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		10			37788	10/25/22 20:57	CH	EET MID

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

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

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

**Protocol References:**

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3260-1  
SDG: 03E1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3260-1	BG01	Solid	10/20/22 14:40	10/21/22 10:55	6'

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

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

**Work Order No:** \_\_\_\_\_

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Work Order Comments	
Program: USTPST <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:	

Revised Date: 08/25/2020 Rev. 2020.2



## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3260-1

SDG Number: 03E1558090

Login Number: 3260

List Number: 1

Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3260-1

SDG Number: 03E1558090

Login Number: 3260

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 10/24/22 07:56 AM

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



## Environment Testing

# ANALYTICAL REPORT

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

Laboratory Job ID: 890-3261-1

Laboratory Sample Delivery Group: 03E1558090

Client Project/Site: JRU 108H

Revision: 1

### For:

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Ben Belill

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

Authorized for release by:

11/2/2022 4:39:15 PM

Jessica Kramer, Project Manager  
(432)704-5440

[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)

### LINKS

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results through



Have a Question?



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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: JRU 108H

Laboratory Job ID: 890-3261-1  
SDG: 03E1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

## Qualifiers

## GC VOA

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

## GC Semi VOA

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

## HPLC/IC

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

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

### Job ID: 890-3261-1

#### Laboratory: Eurofins Carlsbad

#### Narrative

#### Job Narrative 890-3261-1

#### REVISION

The report being provided is a revision of the original report sent on 10/31/2022. The report (revision 1) is being revised due to Per client email, requesting TPH re run.

Report revision history

#### Receipt

The samples were received on 10/21/2022 10:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

#### Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: PH01 (890-3261-1), PH01 (890-3261-2), PH01 (890-3261-3), PH01 (890-3261-4) and PH01 (890-3261-5).

#### GC VOA

Method 8021B: The following samples were diluted due to the nature of the sample matrix: (880-20605-A-1-E MS) and (880-20605-A-1-F MSD). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-38021 and analytical batch 880-38089 was outside the upper control limits.

Method 8021B: Surrogate recovery for the following samples were outside control limits: PH01 (890-3261-1), PH01 (890-3261-2) and PH01 (890-3261-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

#### GC Semi VOA

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37617 and analytical batch 880-37611 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8015MOD\_NM: The matrix spike duplicate (MSD) recoveries for preparation batch 880-38417 and analytical batch 880-38323 were outside control limits. Non-homogeneity is 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: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

Client Sample ID: PH01

Lab Sample ID: 890-3261-1

Date Collected: 10/20/22 11:50

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 2'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0498	U	0.0498	mg/Kg		10/26/22 14:13	10/29/22 08:31	25
Toluene	<0.0498	U	0.0498	mg/Kg		10/26/22 14:13	10/29/22 08:31	25
Ethylbenzene	0.120		0.0498	mg/Kg		10/26/22 14:13	10/29/22 08:31	25
m-Xylene & p-Xylene	1.90		0.0996	mg/Kg		10/26/22 14:13	10/29/22 08:31	25
o-Xylene	0.380		0.0498	mg/Kg		10/26/22 14:13	10/29/22 08:31	25
Xylenes, Total	2.28		0.0996	mg/Kg		10/26/22 14:13	10/29/22 08:31	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	245	S1+	70 - 130	10/26/22 14:13	10/29/22 08:31	25
1,4-Difluorobenzene (Surr)	105		70 - 130	10/26/22 14:13	10/29/22 08:31	25

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	2.40		0.0996	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	6370		50.0	mg/Kg			10/25/22 11:30	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	935		50.0	mg/Kg		10/24/22 08:52	10/24/22 16:50	1
Diesel Range Organics (Over C10-C28)	3250		50.0	mg/Kg		10/24/22 08:52	10/24/22 16:50	1
Oil Range Organics (Over C28-C36)	2180		50.0	mg/Kg		10/24/22 08:52	10/24/22 16:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	93		70 - 130	10/24/22 08:52	10/24/22 16:50	1
o-Terphenyl	86		70 - 130	10/24/22 08:52	10/24/22 16:50	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2870		25.0	mg/Kg			10/25/22 21:06	5

Client Sample ID: PH01

Lab Sample ID: 890-3261-2

Date Collected: 10/20/22 11:55

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 3'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0497	U	0.0497	mg/Kg		10/26/22 14:13	10/29/22 08:51	25
Toluene	2.13		0.0497	mg/Kg		10/26/22 14:13	10/29/22 08:51	25
Ethylbenzene	6.51		0.0497	mg/Kg		10/26/22 14:13	10/29/22 08:51	25
m-Xylene & p-Xylene	14.6		0.0994	mg/Kg		10/26/22 14:13	10/29/22 08:51	25
o-Xylene	9.38		0.0497	mg/Kg		10/26/22 14:13	10/29/22 08:51	25
Xylenes, Total	24.0		0.0994	mg/Kg		10/26/22 14:13	10/29/22 08:51	25

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

Client Sample ID: PH01

Lab Sample ID: 890-3261-2

Date Collected: 10/20/22 11:55

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 3'

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	426	S1+	70 - 130	10/26/22 14:13	10/29/22 08:51	25
1,4-Difluorobenzene (Surr)	89		70 - 130	10/26/22 14:13	10/29/22 08:51	25

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	32.6		0.0994	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	4010		50.0	mg/Kg			10/25/22 11:30	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	848		50.0	mg/Kg		10/24/22 08:52	10/24/22 17:11	1
Diesel Range Organics (Over C10-C28)	1970		50.0	mg/Kg		10/24/22 08:52	10/24/22 17:11	1
Oil Range Organics (Over C28-C36)	1190		50.0	mg/Kg		10/24/22 08:52	10/24/22 17:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	94		70 - 130			10/24/22 08:52	10/24/22 17:11	1
o-Terphenyl	77		70 - 130			10/24/22 08:52	10/24/22 17:11	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12300		100	mg/Kg			10/25/22 21:14	20

Client Sample ID: PH01

Lab Sample ID: 890-3261-3

Date Collected: 10/20/22 12:00

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 4'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0499	U	0.0499	mg/Kg		10/26/22 14:13	10/29/22 09:12	25
Toluene	1.76		0.0499	mg/Kg		10/26/22 14:13	10/29/22 09:12	25
Ethylbenzene	3.84		0.0499	mg/Kg		10/26/22 14:13	10/29/22 09:12	25
m-Xylene & p-Xylene	13.0		0.0998	mg/Kg		10/26/22 14:13	10/29/22 09:12	25
o-Xylene	8.51		0.0499	mg/Kg		10/26/22 14:13	10/29/22 09:12	25
Xylenes, Total	21.5		0.0998	mg/Kg		10/26/22 14:13	10/29/22 09:12	25
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	332	S1+	70 - 130			10/26/22 14:13	10/29/22 09:12	25
1,4-Difluorobenzene (Surr)	87		70 - 130			10/26/22 14:13	10/29/22 09:12	25

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	27.1		0.0998	mg/Kg			10/30/22 21:36	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

Client Sample ID: PH01

Lab Sample ID: 890-3261-3

Date Collected: 10/20/22 12:00

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 4'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	2700		49.9	mg/Kg			10/25/22 11:30	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	531		49.9	mg/Kg		10/24/22 08:52	10/24/22 17:31	1
Diesel Range Organics (Over C10-C28)	1340		49.9	mg/Kg		10/24/22 08:52	10/24/22 17:31	1
Oil Range Organics (Over C28-C36)	824		49.9	mg/Kg		10/24/22 08:52	10/24/22 17:31	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130			10/24/22 08:52	10/24/22 17:31	1
o-Terphenyl	79		70 - 130			10/24/22 08:52	10/24/22 17:31	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3160		25.2	mg/Kg			10/25/22 21:23	5

Client Sample ID: PH01

Lab Sample ID: 890-3261-4

Date Collected: 10/20/22 12:10

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 6'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 07:49	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 07:49	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 07:49	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/26/22 14:13	10/29/22 07:49	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 07:49	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/26/22 14:13	10/29/22 07:49	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	119		70 - 130			10/26/22 14:13	10/29/22 07:49	1
1,4-Difluorobenzene (Surr)	101		70 - 130			10/26/22 14:13	10/29/22 07:49	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			10/25/22 11:30	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/02/22 05:47	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/02/22 05:47	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/02/22 05:47	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

Client Sample ID: PH01

Lab Sample ID: 890-3261-4

Date Collected: 10/20/22 12:10

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 6'

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	85		70 - 130	11/01/22 15:08	11/02/22 05:47	1
o-Terphenyl	90		70 - 130	11/01/22 15:08	11/02/22 05:47	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26700		250	mg/Kg			10/25/22 21:48	50

Client Sample ID: PH01

Lab Sample ID: 890-3261-5

Date Collected: 10/20/22 12:20

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 7'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 08:10	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 08:10	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 08:10	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/26/22 14:13	10/29/22 08:10	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 08:10	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/26/22 14:13	10/29/22 08:10	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	129		70 - 130			10/26/22 14:13	10/29/22 08:10	1
1,4-Difluorobenzene (Surr)	98		70 - 130			10/26/22 14:13	10/29/22 08:10	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			10/25/22 11:30	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/02/22 06:08	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/02/22 06:08	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/02/22 06:08	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	83		70 - 130			11/01/22 15:08	11/02/22 06:08	1
o-Terphenyl	87		70 - 130			11/01/22 15:08	11/02/22 06:08	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4100		50.3	mg/Kg			10/25/22 21:56	10

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## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

## 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)
880-20605-A-1-E MS	Matrix Spike	101	92
880-20605-A-1-F MSD	Matrix Spike Duplicate	102	90
890-3261-1	PH01	245 S1+	105
890-3261-2	PH01	426 S1+	89
890-3261-3	PH01	332 S1+	87
890-3261-4	PH01	119	101
890-3261-5	PH01	129	98
LCS 880-37911/1-A	Lab Control Sample	99	91
LCSD 880-37911/2-A	Lab Control Sample Dup	101	91
MB 880-37911/5-A	Method Blank	102	87
MB 880-38021/5-A	Method Blank	72	60 S1-

## Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid

Prep Type: Total/NA

## Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-3253-A-1-H MS	Matrix Spike	95	92
890-3253-A-1-I MSD	Matrix Spike Duplicate	88	84
890-3261-1	PH01	93	86
890-3261-2	PH01	94	77
890-3261-3	PH01	89	79
890-3261-4	PH01	85	90
890-3261-5	PH01	83	87
890-3335-A-1-C MS	Matrix Spike	88	86
890-3335-A-1-D MSD	Matrix Spike Duplicate	79	76
LCS 880-37617/2-A	Lab Control Sample	105	110
LCS 880-38417/2-A	Lab Control Sample	101	106
LCSD 880-37617/3-A	Lab Control Sample Dup	108	114
LCSD 880-38417/3-A	Lab Control Sample Dup	90	95
MB 880-37617/1-A	Method Blank	80	94
MB 880-38417/1-A	Method Blank	92	99

## Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-37911/5-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37911

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/26/22 14:13	10/29/22 01:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	10/26/22 14:13	10/29/22 01:12	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/26/22 14:13	10/29/22 01:12	1

Lab Sample ID: LCS 880-37911/1-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07484		mg/Kg		75	70 - 130
Toluene	0.100	0.07671		mg/Kg		77	70 - 130
Ethylbenzene	0.100	0.07425		mg/Kg		74	70 - 130
m-Xylene & p-Xylene	0.200	0.1480		mg/Kg		74	70 - 130
o-Xylene	0.100	0.08609		mg/Kg		86	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: LCSD 880-37911/2-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.07938		mg/Kg		79	70 - 130	6	35
Toluene	0.100	0.08189		mg/Kg		82	70 - 130	7	35
Ethylbenzene	0.100	0.08032		mg/Kg		80	70 - 130	8	35
m-Xylene & p-Xylene	0.200	0.1556		mg/Kg		78	70 - 130	5	35
o-Xylene	0.100	0.08950		mg/Kg		89	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 880-20605-A-1-E MS

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F1	0.100	0.08080		mg/Kg		80	70 - 130
Toluene	<0.00201	U F1	0.100	0.07923		mg/Kg		78	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

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

Lab Sample ID: 880-20605-A-1-E MS

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.100	0.07637		mg/Kg		76	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.200	0.1440		mg/Kg		72	70 - 130
o-Xylene	<0.00201	U	0.100	0.08398		mg/Kg		84	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 880-20605-A-1-F MSD

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	<0.00201	U F1	0.0990	0.06610	F1	mg/Kg		66	70 - 130	20	35
Toluene	<0.00201	U F1	0.0990	0.06481	F1	mg/Kg		65	70 - 130	20	35
Ethylbenzene	<0.00201	U F1	0.0990	0.06337	F1	mg/Kg		64	70 - 130	19	35
m-Xylene & p-Xylene	<0.00402	U F1	0.198	0.1224	F1	mg/Kg		62	70 - 130	16	35
o-Xylene	<0.00201	U	0.0990	0.07052		mg/Kg		71	70 - 130	17	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	90		70 - 130

Lab Sample ID: MB 880-38021/5-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38021

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/27/22 13:34	10/28/22 13:48	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		70 - 130	10/27/22 13:34	10/28/22 13:48	1
1,4-Difluorobenzene (Surr)	60	S1-	70 - 130	10/27/22 13:34	10/28/22 13:48	1

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

Lab Sample ID: MB 880-37617/1-A

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37617

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		10/24/22 08:52	10/24/22 10:35	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-37617/1-A

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37617

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/24/22 08:52	10/24/22 10:35	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/24/22 08:52	10/24/22 10:35	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	80		70 - 130			10/24/22 08:52	10/24/22 10:35	1
o-Terphenyl	94		70 - 130			10/24/22 08:52	10/24/22 10:35	1

Lab Sample ID: LCS 880-37617/2-A

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 37617

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1169		mg/Kg		117	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1015		mg/Kg		102	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	105		70 - 130				
o-Terphenyl	110		70 - 130				

Lab Sample ID: LCSD 880-37617/3-A

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 37617

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1158		mg/Kg		116	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	1000	1018		mg/Kg		102	70 - 130	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	108		70 - 130						
o-Terphenyl	114		70 - 130						

Lab Sample ID: 890-3253-A-1-H MS

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37617

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.8	U F1 F2	998	1543	F1	mg/Kg		151	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	998	812.7		mg/Kg		81	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	95		70 - 130						
o-Terphenyl	92		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

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

Lab Sample ID: 890-3253-A-1-I MSD

Matrix: Solid

Analysis Batch: 37611

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 37617

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.8	U F1 F2	998	1075	F2	mg/Kg		104	70 - 130	36	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	782.1		mg/Kg		78	70 - 130	4	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	88		70 - 130								
o-Terphenyl	84		70 - 130								

Lab Sample ID: MB 880-38417/1-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38417

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/01/22 21:10	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/01/22 21:10	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/01/22 15:08	11/01/22 21:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	92		70 - 130			11/01/22 15:08	11/01/22 21:10	1
o-Terphenyl	99		70 - 130			11/01/22 15:08	11/01/22 21:10	1

Lab Sample ID: LCS 880-38417/2-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	1000	1076		mg/Kg		108	70 - 130		
Diesel Range Organics (Over C10-C28)	1000	1008		mg/Kg		101	70 - 130		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
1-Chlorooctane	101		70 - 130						
o-Terphenyl	106		70 - 130						

Lab Sample ID: LCSD 880-38417/3-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1087		mg/Kg		109	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	1000	910.4		mg/Kg		91	70 - 130	10	20

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

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

Lab Sample ID: LCSD 880-38417/3-A

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 38417

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	90		70 - 130
o-Terphenyl	95		70 - 130

Lab Sample ID: 890-3335-A-1-C MS

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	812.4		mg/Kg		79	70 - 130
Diesel Range Organics (Over C10-C28)	77.7	F1	997	799.4		mg/Kg		72	70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	86		70 - 130

Lab Sample ID: 890-3335-A-1-D MSD

Matrix: Solid

Analysis Batch: 38323

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 38417

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	984.3		mg/Kg		96	70 - 130	19	20
Diesel Range Organics (Over C10-C28)	77.7	F1	999	702.0	F1	mg/Kg		62	70 - 130	13	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	79		70 - 130
o-Terphenyl	76		70 - 130

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37579/1-A

Matrix: Solid

Analysis Batch: 37788

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			10/25/22 19:00	1

Lab Sample ID: LCS 880-37579/2-A

Matrix: Solid

Analysis Batch: 37788

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	242.4		mg/Kg		97	90 - 110

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QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 880-37579/3-A				Client Sample ID: Lab Control Sample Dup							
Matrix: Solid				Prep Type: Soluble							
Analysis Batch: 37788											
Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	243.5		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 890-3261-3 MS				Client Sample ID: PH01							
Matrix: Solid				Prep Type: Soluble							
Analysis Batch: 37788											
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	3160		1260	4301		mg/Kg		91	90 - 110		

Lab Sample ID: 890-3261-3 MSD				Client Sample ID: PH01							
Matrix: Solid				Prep Type: Soluble							
Analysis Batch: 37788											
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	3160		1260	4415		mg/Kg		100	90 - 110	3	20

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

## GC VOA

## Prep Batch: 37911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3261-1	PH01	Total/NA	Solid	5035	
890-3261-2	PH01	Total/NA	Solid	5035	
890-3261-3	PH01	Total/NA	Solid	5035	
890-3261-4	PH01	Total/NA	Solid	5035	
890-3261-5	PH01	Total/NA	Solid	5035	
MB 880-37911/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37911/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37911/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20605-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-20605-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Prep Batch: 38021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-38021/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 38089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3261-1	PH01	Total/NA	Solid	8021B	37911
890-3261-2	PH01	Total/NA	Solid	8021B	37911
890-3261-3	PH01	Total/NA	Solid	8021B	37911
890-3261-4	PH01	Total/NA	Solid	8021B	37911
890-3261-5	PH01	Total/NA	Solid	8021B	37911
MB 880-37911/5-A	Method Blank	Total/NA	Solid	8021B	37911
MB 880-38021/5-A	Method Blank	Total/NA	Solid	8021B	38021
LCS 880-37911/1-A	Lab Control Sample	Total/NA	Solid	8021B	37911
LCSD 880-37911/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37911
880-20605-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	37911
880-20605-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37911

## Analysis Batch: 38195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3261-1	PH01	Total/NA	Solid	Total BTEX	
890-3261-2	PH01	Total/NA	Solid	Total BTEX	
890-3261-3	PH01	Total/NA	Solid	Total BTEX	
890-3261-4	PH01	Total/NA	Solid	Total BTEX	
890-3261-5	PH01	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 37611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3261-1	PH01	Total/NA	Solid	8015B NM	37617
890-3261-2	PH01	Total/NA	Solid	8015B NM	37617
890-3261-3	PH01	Total/NA	Solid	8015B NM	37617
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015B NM	37617
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37617
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37617
890-3253-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	37617
890-3253-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37617

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

## GC Semi VOA

## Prep Batch: 37617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3261-1	PH01	Total/NA	Solid	8015NM Prep	
890-3261-2	PH01	Total/NA	Solid	8015NM Prep	
890-3261-3	PH01	Total/NA	Solid	8015NM Prep	
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3253-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3253-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 37809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3261-1	PH01	Total/NA	Solid	8015 NM	
890-3261-2	PH01	Total/NA	Solid	8015 NM	
890-3261-3	PH01	Total/NA	Solid	8015 NM	
890-3261-4	PH01	Total/NA	Solid	8015 NM	
890-3261-5	PH01	Total/NA	Solid	8015 NM	

## Analysis Batch: 38323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3261-4	PH01	Total/NA	Solid	8015B NM	38417
890-3261-5	PH01	Total/NA	Solid	8015B NM	38417
MB 880-38417/1-A	Method Blank	Total/NA	Solid	8015B NM	38417
LCS 880-38417/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	38417
LCSD 880-38417/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	38417
890-3335-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	38417
890-3335-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	38417

## Prep Batch: 38417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3261-4	PH01	Total/NA	Solid	8015NM Prep	
890-3261-5	PH01	Total/NA	Solid	8015NM Prep	
MB 880-38417/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-38417/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-38417/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3335-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3335-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## HPLC/IC

## Leach Batch: 37579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3261-1	PH01	Soluble	Solid	DI Leach	
890-3261-2	PH01	Soluble	Solid	DI Leach	
890-3261-3	PH01	Soluble	Solid	DI Leach	
890-3261-4	PH01	Soluble	Solid	DI Leach	
890-3261-5	PH01	Soluble	Solid	DI Leach	
MB 880-37579/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37579/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37579/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3261-3 MS	PH01	Soluble	Solid	DI Leach	
890-3261-3 MSD	PH01	Soluble	Solid	DI Leach	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

## HPLC/IC

## Analysis Batch: 37788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3261-1	PH01	Soluble	Solid	300.0	37579
890-3261-2	PH01	Soluble	Solid	300.0	37579
890-3261-3	PH01	Soluble	Solid	300.0	37579
890-3261-4	PH01	Soluble	Solid	300.0	37579
890-3261-5	PH01	Soluble	Solid	300.0	37579
MB 880-37579/1-A	Method Blank	Soluble	Solid	300.0	37579
LCS 880-37579/2-A	Lab Control Sample	Soluble	Solid	300.0	37579
LCSD 880-37579/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37579
890-3261-3 MS	PH01	Soluble	Solid	300.0	37579
890-3261-3 MSD	PH01	Soluble	Solid	300.0	37579

## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

Client Sample ID: PH01

Lab Sample ID: 890-3261-1

Date Collected: 10/20/22 11:50

Matrix: Solid

Date Received: 10/21/22 10:55

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	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		25	5 mL	5 mL	38089	10/29/22 08:31	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38195	10/30/22 21:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			37809	10/25/22 11:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	37617	10/24/22 08:52	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37611	10/24/22 16:50	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		5			37788	10/25/22 21:06	CH	EET MID

Client Sample ID: PH01

Lab Sample ID: 890-3261-2

Date Collected: 10/20/22 11:55

Matrix: Solid

Date Received: 10/21/22 10:55

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	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		25	5 mL	5 mL	38089	10/29/22 08:51	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38195	10/30/22 21:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			37809	10/25/22 11:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	37617	10/24/22 08:52	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37611	10/24/22 17:11	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		20			37788	10/25/22 21:14	CH	EET MID

Client Sample ID: PH01

Lab Sample ID: 890-3261-3

Date Collected: 10/20/22 12:00

Matrix: Solid

Date Received: 10/21/22 10:55

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	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		25	5 mL	5 mL	38089	10/29/22 09:12	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38195	10/30/22 21:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			37809	10/25/22 11:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37617	10/24/22 08:52	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37611	10/24/22 17:31	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		5			37788	10/25/22 21:23	CH	EET MID

Client Sample ID: PH01

Lab Sample ID: 890-3261-4

Date Collected: 10/20/22 12:10

Matrix: Solid

Date Received: 10/21/22 10:55

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	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38089	10/29/22 07:49	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38195	10/30/22 21:36	SM	EET MID

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## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

Client Sample ID: PH01

Lab Sample ID: 890-3261-4

Date Collected: 10/20/22 12:10

Matrix: Solid

Date Received: 10/21/22 10:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			37809	10/25/22 11:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	38417	11/01/22 15:08	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	38323	11/02/22 05:47	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		50			37788	10/25/22 21:48	CH	EET MID

Client Sample ID: PH01

Lab Sample ID: 890-3261-5

Date Collected: 10/20/22 12:20

Matrix: Solid

Date Received: 10/21/22 10:55

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	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38089	10/29/22 08:10	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38195	10/30/22 21:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			37809	10/25/22 11:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	38417	11/01/22 15:08	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	38323	11/02/22 06:08	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		10			37788	10/25/22 21:56	CH	EET MID

## Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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

## Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

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

### Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

### Laboratory References:

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



Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3261-1  
SDG: 03E1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3261-1	PH01	Solid	10/20/22 11:50	10/21/22 10:55	2'
890-3261-2	PH01	Solid	10/20/22 11:55	10/21/22 10:55	3'
890-3261-3	PH01	Solid	10/20/22 12:00	10/21/22 10:55	4'
890-3261-4	PH01	Solid	10/20/22 12:10	10/21/22 10:55	6'
890-3261-5	PH01	Solid	10/20/22 12:20	10/21/22 10:55	7'

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



Environmental Testing  
Xenoco

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

Chain of Custody

Work Order No: \_\_\_\_\_

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Project Manager:	Ben Beilli	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy, Inc.
Address:	3122 National parks Hwy	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	bbeilli@ensolum.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: _____

Project Name:	JRU 108H	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code	
Project Number:	03E1558090	Due Date:			
Project Location:	EDDY COUNTY, NM	TAT starts the day received by the lab, if received by 4:30pm			
Sampler's Name:	Ben Beilli				
PO #:					
SAMPLE RECEIPT		Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Well Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID:			
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor:			
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Temperature Reading:			
Total Containers:		Corrected Temperature:			
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp
PH01	S	10/20/2022	1150	2'	Grab/ 1
PH01	S	10/20/2022	1155	3'	Grab/ 1
PH01	S	10/20/2022	1200	4'	Grab/ 1
PH01	S	10/20/2022	1210	6'	Grab/ 1
PH01	S	10/20/2022	1220	7'	Grab/ 1
Parameters					
CHLORIDES (EPA: 300.0)					
TPH (8015)					
BTEX (8021)					
ANALYSIS REQUEST					
PRESERVATIVE CODES					
None: NO DI Water: H2O					
Cool: Cool MeOH: Me					
HCL: HC HNO3: HN					
H2SO4: H2 NaOH: Na					
H3PO4: HP					
NaHSO4: NABIS					
Na2S2O3: NaSO3					
Zn Acetate+NaOH: Zn					
NaOH+Ascorbic Acid: SAPC					
Sample Comments					
Cost Center: 1139071001					
Incident Number: NAPP2217991609					

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

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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenoco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenoco 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 Xenoco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenoco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>Ben Beilli</i>	<i>Aranda</i>	10/20/2022			

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3261-1

SDG Number: 03E1558090

Login Number: 3261

List Number: 1

Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3261-1

SDG Number: 03E1558090

**Login Number: 3261****List Number: 2****Creator: Rodriguez, Leticia****List Source: Eurofins Midland****List Creation: 10/24/22 07:56 AM**

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



## Environment Testing

### ANALYTICAL REPORT

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

Laboratory Job ID: 890-3262-1

Laboratory Sample Delivery Group: 03E1558090

Client Project/Site: JRU 108H

**For:**

Ensolum  
705 W. Wadley  
Suite 210  
Midland, Texas 79701

Attn: Ben Belill

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

Authorized for release by:

10/31/2022 9:40:22 AM

Jessica Kramer, Project Manager  
(432)704-5440

[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)

#### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://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: JRU 108H

Laboratory Job ID: 890-3262-1  
SDG: 03E1558090

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Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

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
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
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: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

Job ID: 890-3262-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative  
890-3262-1

Receipt

The samples were received on 10/21/2022 10:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: PH02 (890-3262-1), PH02 (890-3262-2), PH02 (890-3262-3) and PH02 (890-3262-4).

GC VOA

Method 8021B: The following samples were diluted due to the nature of the sample matrix: (880-20605-A-1-E MS) and (880-20605-A-1-F MSD). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-38021 and analytical batch 880-38089 was outside the upper control limits.

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

GC Semi VOA

Method 8015MOD\_NM: The spiking solution was inadvertently omitted during the extraction process for the laboratory control sample (LCS) associated with preparation batch 880-37769; therefore, percent recoveries are unavailable. The LCSD and MS/MSD will show acceptability for the batch, therefore data was qualified and reported.

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

HPLC/IC

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

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

Client Sample ID: PH02

Lab Sample ID: 890-3262-1

Date Collected: 10/20/22 13:50

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 2'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		10/26/22 14:13	10/29/22 04:19	1
Toluene	<0.00201	U	0.00201	mg/Kg		10/26/22 14:13	10/29/22 04:19	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		10/26/22 14:13	10/29/22 04:19	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		10/26/22 14:13	10/29/22 04:19	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		10/26/22 14:13	10/29/22 04:19	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		10/26/22 14:13	10/29/22 04:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130	10/26/22 14:13	10/29/22 04:19	1
1,4-Difluorobenzene (Surr)	97		70 - 130	10/26/22 14:13	10/29/22 04:19	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	63.5		49.9	mg/Kg			10/26/22 11:59	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *1	49.9	mg/Kg		10/25/22 08:30	10/25/22 13:41	1
Diesel Range Organics (Over C10-C28)	63.5	*1	49.9	mg/Kg		10/25/22 08:30	10/25/22 13:41	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		10/25/22 08:30	10/25/22 13:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130	10/25/22 08:30	10/25/22 13:41	1
o-Terphenyl	94		70 - 130	10/25/22 08:30	10/25/22 13:41	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13600		100	mg/Kg			10/25/22 22:21	20

Client Sample ID: PH02

Lab Sample ID: 890-3262-2

Date Collected: 10/20/22 14:00

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 4'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 04:40	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 04:40	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 04:40	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		10/26/22 14:13	10/29/22 04:40	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 04:40	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		10/26/22 14:13	10/29/22 04:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	130		70 - 130	10/26/22 14:13	10/29/22 04:40	1

Eurofins Carlsbad

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

Client Sample ID: PH02

Lab Sample ID: 890-3262-2

Date Collected: 10/20/22 14:00

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 4'

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	102		70 - 130	10/26/22 14:13	10/29/22 04:40	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			10/26/22 11:59	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *- *1	49.9	mg/Kg		10/25/22 08:30	10/25/22 14:02	1
Diesel Range Organics (Over C10-C28)	<49.9	U *- *1	49.9	mg/Kg		10/25/22 08:30	10/25/22 14:02	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		10/25/22 08:30	10/25/22 14:02	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	88		70 - 130			10/25/22 08:30	10/25/22 14:02	1
o-Terphenyl	93		70 - 130			10/25/22 08:30	10/25/22 14:02	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22100		249	mg/Kg			10/25/22 22:30	50

Client Sample ID: PH02

Lab Sample ID: 890-3262-3

Date Collected: 10/20/22 14:05

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 5'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 06:05	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 06:05	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 06:05	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/26/22 14:13	10/29/22 06:05	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/26/22 14:13	10/29/22 06:05	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/26/22 14:13	10/29/22 06:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130	10/26/22 14:13	10/29/22 06:05	1
1,4-Difluorobenzene (Surr)	96		70 - 130	10/26/22 14:13	10/29/22 06:05	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			10/26/22 11:59	1

Eurofins Carlsbad

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

Client Sample ID: PH02

Lab Sample ID: 890-3262-3

Date Collected: 10/20/22 14:05

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 5'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *- *1	49.9	mg/Kg		10/25/22 08:30	10/25/22 14:23	1
Diesel Range Organics (Over C10-C28)	<49.9	U *- *1	49.9	mg/Kg		10/25/22 08:30	10/25/22 14:23	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		10/25/22 08:30	10/25/22 14:23	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	91		70 - 130			10/25/22 08:30	10/25/22 14:23	1
o-Terphenyl	98		70 - 130			10/25/22 08:30	10/25/22 14:23	1

## Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6400		50.1	mg/Kg			10/25/22 22:38	10

Client Sample ID: PH02

Lab Sample ID: 890-3262-4

Date Collected: 10/20/22 14:15

Matrix: Solid

Date Received: 10/21/22 10:55

Sample Depth: 7'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		10/26/22 14:13	10/29/22 06:26	1
Toluene	<0.00198	U	0.00198	mg/Kg		10/26/22 14:13	10/29/22 06:26	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		10/26/22 14:13	10/29/22 06:26	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		10/26/22 14:13	10/29/22 06:26	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		10/26/22 14:13	10/29/22 06:26	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		10/26/22 14:13	10/29/22 06:26	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	123		70 - 130			10/26/22 14:13	10/29/22 06:26	1
1,4-Difluorobenzene (Surr)	92		70 - 130			10/26/22 14:13	10/29/22 06:26	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			10/30/22 21:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			10/26/22 11:59	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *- *1	50.0	mg/Kg		10/25/22 08:30	10/25/22 14:44	1
Diesel Range Organics (Over C10-C28)	<50.0	U *- *1	50.0	mg/Kg		10/25/22 08:30	10/25/22 14:44	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/25/22 08:30	10/25/22 14:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	87		70 - 130			10/25/22 08:30	10/25/22 14:44	1
o-Terphenyl	91		70 - 130			10/25/22 08:30	10/25/22 14:44	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

Client Sample ID: PH02  
Date Collected: 10/20/22 14:15  
Date Received: 10/21/22 10:55  
Sample Depth: 7'

Lab Sample ID: 890-3262-4  
Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	5550		50.2	mg/Kg			10/25/22 22:46	10	

## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

## 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)
880-20605-A-1-E MS	Matrix Spike	101	92
880-20605-A-1-F MSD	Matrix Spike Duplicate	102	90
890-3262-1	PH02	120	97
890-3262-2	PH02	130	102
890-3262-3	PH02	115	96
890-3262-4	PH02	123	92
LCS 880-37911/1-A	Lab Control Sample	99	91
LCSD 880-37911/2-A	Lab Control Sample Dup	101	91
MB 880-37911/5-A	Method Blank	102	87
MB 880-38021/5-A	Method Blank	72	60 S1-
<b>Surrogate Legend</b>			
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)
890-3262-1	PH02	89	94
890-3262-2	PH02	88	93
890-3262-3	PH02	91	98
890-3262-4	PH02	87	91
890-3263-A-1-C MS	Matrix Spike	89	80
890-3263-A-1-D MSD	Matrix Spike Duplicate	86	78
LCS 880-37769/2-A	Lab Control Sample	117	125
LCSD 880-37769/3-A	Lab Control Sample Dup	98	103
MB 880-37769/1-A	Method Blank	100	107
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-37911/5-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37911

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/26/22 14:13	10/29/22 01:12	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/26/22 14:13	10/29/22 01:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	10/26/22 14:13	10/29/22 01:12	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/26/22 14:13	10/29/22 01:12	1

Lab Sample ID: LCS 880-37911/1-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07484		mg/Kg		75	70 - 130
Toluene	0.100	0.07671		mg/Kg		77	70 - 130
Ethylbenzene	0.100	0.07425		mg/Kg		74	70 - 130
m-Xylene & p-Xylene	0.200	0.1480		mg/Kg		74	70 - 130
o-Xylene	0.100	0.08609		mg/Kg		86	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: LCSD 880-37911/2-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.07938		mg/Kg		79	70 - 130	6	35
Toluene	0.100	0.08189		mg/Kg		82	70 - 130	7	35
Ethylbenzene	0.100	0.08032		mg/Kg		80	70 - 130	8	35
m-Xylene & p-Xylene	0.200	0.1556		mg/Kg		78	70 - 130	5	35
o-Xylene	0.100	0.08950		mg/Kg		89	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 880-20605-A-1-E MS

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F1	0.100	0.08080		mg/Kg		80	70 - 130
Toluene	<0.00201	U F1	0.100	0.07923		mg/Kg		78	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

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

Lab Sample ID: 880-20605-A-1-E MS

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.100	0.07637		mg/Kg		76	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.200	0.1440		mg/Kg		72	70 - 130
o-Xylene	<0.00201	U	0.100	0.08398		mg/Kg		84	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 880-20605-A-1-F MSD

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 37911

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U F1	0.0990	0.06610	F1	mg/Kg		66	70 - 130	20	35
Toluene	<0.00201	U F1	0.0990	0.06481	F1	mg/Kg		65	70 - 130	20	35
Ethylbenzene	<0.00201	U F1	0.0990	0.06337	F1	mg/Kg		64	70 - 130	19	35
m-Xylene & p-Xylene	<0.00402	U F1	0.198	0.1224	F1	mg/Kg		62	70 - 130	16	35
o-Xylene	<0.00201	U	0.0990	0.07052		mg/Kg		71	70 - 130	17	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	90		70 - 130

Lab Sample ID: MB 880-38021/5-A

Matrix: Solid

Analysis Batch: 38089

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38021

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/27/22 13:34	10/28/22 13:48	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/27/22 13:34	10/28/22 13:48	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		70 - 130	10/27/22 13:34	10/28/22 13:48	1
1,4-Difluorobenzene (Surr)	60	S1-	70 - 130	10/27/22 13:34	10/28/22 13:48	1

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

Lab Sample ID: MB 880-37769/1-A

Matrix: Solid

Analysis Batch: 37764

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37769

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		10/25/22 08:30	10/25/22 09:08	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

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

Lab Sample ID: MB 880-37769/1-A

Matrix: Solid

Analysis Batch: 37764

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37769

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/25/22 08:30	10/25/22 09:08	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/25/22 08:30	10/25/22 09:08	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130			10/25/22 08:30	10/25/22 09:08	1
o-Terphenyl	107		70 - 130			10/25/22 08:30	10/25/22 09:08	1

Lab Sample ID: LCS 880-37769/2-A

Matrix: Solid

Analysis Batch: 37764

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 37769

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	16.63	J *	mg/Kg		2	70 - 130
Diesel Range Organics (Over C10-C28)	1000	16.30	J *	mg/Kg		2	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	117		70 - 130				
o-Terphenyl	125		70 - 130				

Lab Sample ID: LCSD 880-37769/3-A

Matrix: Solid

Analysis Batch: 37764

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 37769

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	802.8	*1	mg/Kg		80	70 - 130	192	20
Diesel Range Organics (Over C10-C28)	1000	841.9	*1	mg/Kg		84	70 - 130	192	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	98		70 - 130						
o-Terphenyl	103		70 - 130						

Lab Sample ID: 890-3263-A-1-C MS

Matrix: Solid

Analysis Batch: 37764

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 37769

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.8	U *1 *	998	1230		mg/Kg		121	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U *1 *	998	903.5		mg/Kg		91	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	89		70 - 130						
o-Terphenyl	80		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

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

Lab Sample ID: 890-3263-A-1-D MSD

Matrix: Solid

Analysis Batch: 37764

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 37769

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.8	U *1 *-	998	1205		mg/Kg		119	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.8	U *1 *-	998	871.4		mg/Kg		87	70 - 130	4	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	86		70 - 130								
o-Terphenyl	78		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37579/1-A

Matrix: Solid

Analysis Batch: 37788

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			10/25/22 19:00	1

Lab Sample ID: LCS 880-37579/2-A

Matrix: Solid

Analysis Batch: 37788

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	242.4		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-37579/3-A

Matrix: Solid

Analysis Batch: 37788

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	243.5		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 890-3261-A-3-B MS

Matrix: Solid

Analysis Batch: 37788

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	3160		1260	4301		mg/Kg		91	90 - 110

Lab Sample ID: 890-3261-A-3-C MSD

Matrix: Solid

Analysis Batch: 37788

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	3160		1260	4415		mg/Kg		100	90 - 110	3	20

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

## GC VOA

## Prep Batch: 37911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3262-1	PH02	Total/NA	Solid	5035	
890-3262-2	PH02	Total/NA	Solid	5035	
890-3262-3	PH02	Total/NA	Solid	5035	
890-3262-4	PH02	Total/NA	Solid	5035	
MB 880-37911/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37911/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37911/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20605-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-20605-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Prep Batch: 38021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-38021/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 38089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3262-1	PH02	Total/NA	Solid	8021B	37911
890-3262-2	PH02	Total/NA	Solid	8021B	37911
890-3262-3	PH02	Total/NA	Solid	8021B	37911
890-3262-4	PH02	Total/NA	Solid	8021B	37911
MB 880-37911/5-A	Method Blank	Total/NA	Solid	8021B	37911
MB 880-38021/5-A	Method Blank	Total/NA	Solid	8021B	38021
LCS 880-37911/1-A	Lab Control Sample	Total/NA	Solid	8021B	37911
LCSD 880-37911/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37911
880-20605-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	37911
880-20605-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37911

## Analysis Batch: 38192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3262-1	PH02	Total/NA	Solid	Total BTEX	
890-3262-2	PH02	Total/NA	Solid	Total BTEX	
890-3262-3	PH02	Total/NA	Solid	Total BTEX	
890-3262-4	PH02	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 37764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3262-1	PH02	Total/NA	Solid	8015B NM	37769
890-3262-2	PH02	Total/NA	Solid	8015B NM	37769
890-3262-3	PH02	Total/NA	Solid	8015B NM	37769
890-3262-4	PH02	Total/NA	Solid	8015B NM	37769
MB 880-37769/1-A	Method Blank	Total/NA	Solid	8015B NM	37769
LCS 880-37769/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37769
LCSD 880-37769/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37769
890-3263-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	37769
890-3263-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37769

## Prep Batch: 37769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3262-1	PH02	Total/NA	Solid	8015NM Prep	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

## GC Semi VOA (Continued)

## Prep Batch: 37769 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3262-2	PH02	Total/NA	Solid	8015NM Prep	
890-3262-3	PH02	Total/NA	Solid	8015NM Prep	
890-3262-4	PH02	Total/NA	Solid	8015NM Prep	
MB 880-37769/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37769/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37769/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3263-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3263-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 37884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3262-1	PH02	Total/NA	Solid	8015 NM	
890-3262-2	PH02	Total/NA	Solid	8015 NM	
890-3262-3	PH02	Total/NA	Solid	8015 NM	
890-3262-4	PH02	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 37579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3262-1	PH02	Soluble	Solid	DI Leach	
890-3262-2	PH02	Soluble	Solid	DI Leach	
890-3262-3	PH02	Soluble	Solid	DI Leach	
890-3262-4	PH02	Soluble	Solid	DI Leach	
MB 880-37579/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37579/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37579/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3261-A-3-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3261-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 37788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3262-1	PH02	Soluble	Solid	300.0	37579
890-3262-2	PH02	Soluble	Solid	300.0	37579
890-3262-3	PH02	Soluble	Solid	300.0	37579
890-3262-4	PH02	Soluble	Solid	300.0	37579
MB 880-37579/1-A	Method Blank	Soluble	Solid	300.0	37579
LCS 880-37579/2-A	Lab Control Sample	Soluble	Solid	300.0	37579
LCSD 880-37579/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37579
890-3261-A-3-B MS	Matrix Spike	Soluble	Solid	300.0	37579
890-3261-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37579

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## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

Client Sample ID: PH02

Lab Sample ID: 890-3262-1

Date Collected: 10/20/22 13:50

Matrix: Solid

Date Received: 10/21/22 10:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38089	10/29/22 04:19	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38192	10/30/22 21:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			37884	10/26/22 11:59	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	37769	10/25/22 08:30	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37764	10/25/22 13:41	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		20			37788	10/25/22 22:21	CH	EET MID

Client Sample ID: PH02

Lab Sample ID: 890-3262-2

Date Collected: 10/20/22 14:00

Matrix: Solid

Date Received: 10/21/22 10:55

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	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38089	10/29/22 04:40	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38192	10/30/22 21:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			37884	10/26/22 11:59	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	37769	10/25/22 08:30	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37764	10/25/22 14:02	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		50			37788	10/25/22 22:30	CH	EET MID

Client Sample ID: PH02

Lab Sample ID: 890-3262-3

Date Collected: 10/20/22 14:05

Matrix: Solid

Date Received: 10/21/22 10:55

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	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38089	10/29/22 06:05	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38192	10/30/22 21:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			37884	10/26/22 11:59	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37769	10/25/22 08:30	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37764	10/25/22 14:23	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		10			37788	10/25/22 22:38	CH	EET MID

Client Sample ID: PH02

Lab Sample ID: 890-3262-4

Date Collected: 10/20/22 14:15

Matrix: Solid

Date Received: 10/21/22 10:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	37911	10/26/22 14:13	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38089	10/29/22 06:26	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38192	10/30/22 21:36	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

Client Sample ID: PH02  
Date Collected: 10/20/22 14:15  
Date Received: 10/21/22 10:55

Lab Sample ID: 890-3262-4  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			37884	10/26/22 11:59	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	37769	10/25/22 08:30	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37764	10/25/22 14:44	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37579	10/22/22 12:59	SMC	EET MID
Soluble	Analysis	300.0		10			37788	10/25/22 22:46	CH	EET MID

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
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- 12
- 13
- 14

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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

Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

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

**Protocol References:**

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-3262-1  
SDG: 03E1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3262-1	PH02	Solid	10/20/22 13:50	10/21/22 10:55	2'
890-3262-2	PH02	Solid	10/20/22 14:00	10/21/22 10:55	4'
890-3262-3	PH02	Solid	10/20/22 14:05	10/21/22 10:55	5'
890-3262-4	PH02	Solid	10/20/22 14:15	10/21/22 10:55	7'

- 1
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- 12
- 13
- 14





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) 586-3443, Lubbock, TX (806) 794-1296  
Hobbs, NM (575) 392-7650, Carlsbad, NM (575) 988-3199


## Chain of Custody

**Work Order No:**

www.xenco.com Page 1 of 1

Project Manager:	Ben Beill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy, Inc.
Address:	3122 National parks Hwy	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	<a href="mailto:bbeill@ensolum.com">bbeill@ensolum.com</a>

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

Project Name:		JFU 108H		Turn Around																Preservative Codes	
Project Number:		03E1558090		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush																None, NO	
Project Location:		EDDY COUNTY, NM		Due Date:																Cool: Cool MeOH, Me HCL: HC HNO <sub>3</sub> : HN H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na	
Sampler's Name:		Ben Bellill		TAT starts the day received by the lab, if received by 4:30pm																H <sub>3</sub> PO <sub>4</sub> : HP NaHSO <sub>4</sub> : NABIS Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub> Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: SASC	
PO #:																					
<b>SAMPLE RECEIPT</b>		Temp Blank:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Wet Ice:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													
Samples Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Thermometer ID:																	
Cooler Custody Seals:		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Correction Factor:																	
Sample Custody Seals:		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Temperature Reading:																	
Total Containers:				Corrected Temperature:																	
<div style="display: flex; justify-content: space-between;"> <div> <b>Parameters</b>            RIDES (EPA: 300.0)            015)            8021         </div> <div> <b>ANALYSIS REQUEST</b> </div> </div>																					
<div style="display: flex; justify-content: space-between;"> <div>             890-3262 Chain of Custody         </div> <div> </div> </div>																					

[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 Eurofins Xenco. A minimum charge of \$55.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	06/21/2008			

Revised Date 08/25/2020 Rev. 2020

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3262-1

SDG Number: 03E1558090

Login Number: 3262

List Number: 1

Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3262-1

SDG Number: 03E1558090

Login Number: 3262

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 10/24/22 07:56 AM

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



## APPENDIX E

### NMOCD Notifications

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**From:** [Hamlet, Robert, EMNRD](#)  
**To:** [Collins, Melanie](#)  
**Cc:** [DelawareSpills /SM](#); [Green, Garrett J](#); [Ben Belill](#); [Ashley Ager](#); [Tacoma Morrissey](#); [Kalei Jennings](#); [Bratcher, Michael, EMNRD](#); [Nobui, Jennifer, EMNRD](#); [Harimon, Jocelyn, EMNRD](#)  
**Subject:** (Extension Approval) - James Ranch Unit 108H - Incident Number NAPP221793159  
**Date:** Monday, September 19, 2022 3:21:36 PM  
**Attachments:** [image003.png](#)

---

[ \*\*EXTERNAL EMAIL\*\* ]

RE: Incident #NAPP2217931599

**Melanie,**

Your request for an extension to **December 19th, 2022** is approved. Please include this e-mail correspondence in the remediation and/or closure report.

**Robert Hamlet** • Environmental Specialist - Advanced

Environmental Bureau

EMNRD - Oil Conservation Division

506 W. Texas Ave. | Artesia, NM 88210

575.909.0302 | [robert.hamlet@state.nm.us](mailto:robert.hamlet@state.nm.us)

<http://www.emnrd.state.nm.us/OCD/>



---

**From:** Collins, Melanie <[melanie.collins@exxonmobil.com](mailto:melanie.collins@exxonmobil.com)>

**Sent:** Monday, September 19, 2022 12:04 PM

**To:** Enviro, OCD, EMNRD <[OCD.Enviro@emnrd.nm.gov](mailto:OCD.Enviro@emnrd.nm.gov)>; [mike.bratcher@state.nm.us](mailto:mike.bratcher@state.nm.us); Hamlet, Robert, EMNRD <[Robert.Hamlet@state.nm.us](mailto:Robert.Hamlet@state.nm.us)>

**Cc:** DelawareSpills /SM <[DelawareSpills@exxonmobil.com](mailto:DelawareSpills@exxonmobil.com)>; Green, Garrett J <[garrett.green@exxonmobil.com](mailto:garrett.green@exxonmobil.com)>; [bbelill@ensolum.com](mailto:bbelill@ensolum.com); Ashley Ager <[aager@ensolum.com](mailto:aager@ensolum.com)>; Tacoma Morrissey <[tmorrissey@ensolum.com](mailto:tmorrissey@ensolum.com)>; Kalei Jennings <[kjennings@ensolum.com](mailto:kjennings@ensolum.com)>

**Subject:** [EXTERNAL] XTO - Extension Request - James Ranch Unit 108H - Incident Number NAPP2217931599

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

All,

**XTO – Extension Request – James Ranch Unit 108H – Incident Number nAPP2217931599**

XTO is requesting an extension for the current deadline of September 20, 2022 for submitting a remediation work plan or closure report required in 19.15.29.12.B.(1) NMAC at the James Ranch

Unit 108H (Incident Number NAPP2217931599). The release occurred on June 22, 2022, and initial site assessment activities were completed July 26, 2022. Additional delineation activities were completed last week and are pending laboratory analytical results. In order to review the laboratory analytical results, discuss remedial options, and submit a remediation work plan or closure report, XTO requests an extension until December 19, 2022.

Thank you,

*Melanie Collins*



Environmental Technician

[melanie.collins@exxonmobil.com](mailto:melanie.collins@exxonmobil.com)

432-556-3756

**Ben Belill**

---

**From:** Tacoma Morrissey  
**Sent:** Wednesday, December 14, 2022 1:49 PM  
**To:** Ben Belill  
**Subject:** FW: XTO - Sampling Notification (Week of 10/17/22 - 10/21/22)

See below!

**Tacoma Morrissey**

Senior Geologist

337-257-8307

Ensolum, LLC



---

**From:** Green, Garrett J <garrett.green@exxonmobil.com>  
**Sent:** Monday, October 17, 2022 11:21 AM  
**To:** ocd.enviro@emnrd.nm.gov; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>  
**Cc:** Tacoma Morrissey <tmorrissey@ensolum.com>; DelawareSpills /SM <DelawareSpills@exxonmobil.com>  
**Subject:** XTO - Sampling Notification (Week of 10/17/22 - 10/21/22)

[ \*\*EXTERNAL EMAIL\*\* ]

All,

Please see the update below to this week's sampling schedule. XTO plans to complete final sampling activities at the following sites the week of Oct 17, 2022.

**Monday**

- BEU 29W Vader 100H / nAPP2102831345

**Tuesday**

- BEU 29W Vader 100H / nAPP2102831345
- PLU 21 BD 125H/ nAPP2214547737

**Wednesday**

- BEU 29W Vader 100H / nAPP2102831345
- PLU 30 Big Sinks/ nAPP2209137379, nAPP2208351954, nAPP2206853301

**Thursday**

- PLU 30 Big Sinks/ nAPP2209137379, nAPP2208351954, nAPP2206853301
- JRU 108 / nAPP2217931599
- JRU 106 / nAPP2212344322

**Garrett Green**

Environmental Coordinator  
Delaware Business Unit

(575) 200-0729

[Garrett.Green@ExxonMobil.com](mailto:Garrett.Green@ExxonMobil.com)

XTO Energy, Inc.

3104 E. Greene Street | Carlsbad, NM 88220 | M: (575)200-0729





October 24, 2023

**New Mexico Oil Conservation Division**

1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

**Re: Closure Request  
James Ranch Unit 108H  
Incident Number nAPP2217931599  
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 remedial actions completed to address impacted soil identified at the James Ranch Unit 108H (Site) following the New Mexico Oil Conservation Division (NMOCD) approval of the April 28, 2023 *Remediation Work Plan*. The purpose of the remedial actions was to address impacted soil resulting from a release of produced water and crude oil at the Site. Based on the excavation activities and laboratory analytical results from the soil sampling events, XTO is submitting this *Closure Request*, describing remediation activities that has occurred and requesting no further action for Incident Number nAPP2217931599.

**SITE DESCRIPTION AND RELEASE SUMMARY**

The Site is located in Unit G, Section 1, Township 23 South, Range 30 East, in Eddy County, New Mexico (32.33641, -103.83180) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM).

On June 22, 2022, corrosion on a flowline resulted in the release of 7.26 barrels (bbls) of produced water and 1.59 bbls of crude oil into the pasture underneath active surface flowlines. A vacuum truck was immediately dispatched to the Site to recover the free-standing fluids; approximately 0.41 bbls of produced water and 0.09 bbls of crude oil were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification Form C-141 (Form C-141) on June 27, 2022. The release was assigned Incident Number nAPP2217931599.

Between July 26, and October 20, 2022, Ensolum personnel conducted Site assessment and delineation activities to evaluate the release extent based on information provided on the Form C-141 and visual observations. Results of the assessments were presented in the December 19, 2022, *Remediation Work Plan (Work Plan)* which proposed excavation of soil containing total petroleum hydrocarbon (TPH) exceeding 100 milligrams per kilogram (mg/kg) and the collection of background potholes to determine the presence or absence of naturally occurring chloride in native soil. The proposed remedial actions were approved by NMOCD on April 28, 2023 with the following conditions:

- *This release is in a high karst area and will need to be remediated to the strictest closure criteria from Table 1 of the OCD Spill Rule.*
- *Please collect confirmation samples, representing no more than 200 ft<sup>2</sup>. All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Sidewall samples should be*

XTO Energy, Inc.  
Closure Request  
James Ranch Unit 108H

*delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release.*

- All background samples should be collected in 1-foot increments down to the depth equivalent to the deepest depth of the excavation. The five background numbers at a depth of 1 foot should be averaged. The five background numbers at a depth of 2 feet should be averaged and so on. The composite numbers will be used for the final background numbers.*
- The work will need to occur in 90 days after the work plan has been reviewed.*

## SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site was characterized to assess the applicability of Table I, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29 (19.15.29) 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.

Based on the results of the Site Characterization and the conditions of approval, the following NMOCD Table I Closure Criteria (Closure Criteria) were applied:

- Benzene: 10 mg/kg
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- TPH: 100 mg/kg
- Chloride: 600 mg/kg

## BACKGROUND CHLORIDE INVESTIGATION

Chloride concentrations in soil exceeding 600 mg/kg were collected from BG01 on October 20, 2022, and presented in the approved *Work Plan*. The extended distance between BG01 and the release suggested the possibility of naturally occurring chloride in native soils, and Ensolum proposed investigation of background conditions in four additional locations (BG02 through BG05). On September 11, 2023, three potholes were advanced via backhoe in approved off-pad areas undisturbed by oil and gas production operations. The original BG01 location was extended vertically, and BG02 and BG05 were advanced as proposed. One sample was collected from BG01 at 7 feet bgs. Soil samples were collected every 2 feet from BG02 and BG05 and field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and for chloride utilizing Hach® chloride QuanTab® test strips. The terminal soil sample in BG01 and two soil samples each from BG02 and BG05 were submitted for laboratory analysis. 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 under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of the following contaminants of concern (COCs): 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. Observations and field screening results were logged on lithologic/soil sampling logs, which are included in Appendix A. The background pothole locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted with previously collected delineation samples on Figure 2. Photographic documentation is presented in a photographic log in Appendix B.

Following an on-site review of the field screening results from samples collected from potholes BG01, BG02, and BG05, it was determined that naturally occurring chlorides were not present. As such, proposed background potholes BG03 and BG04 were not advanced. Soil containing elevated chloride in the vicinity of BG01 was likely an isolated occurrence, unrelated to the release or naturally occurring conditions. XTO proceeded with delineation and excavation of impacted soil using 600 mg/kg as the

XTO Energy, Inc.  
Closure Request  
James Ranch Unit 108H

site-specific Closure Criteria for chloride. Laboratory analytical results from background soil samples confirmed this conclusion.

## DELINEATION ACTIVITIES

On September 12, 2023, Ensolum personnel advanced four delineation potholes (PH03 through PH06) in the four cardinal directions immediately surrounding the location of pothole BG01, to a maximum depth of 6 feet bgs. Soil samples were field screened for VOCs and chloride and documented with observations on lithologic/soil sampling logs, which are included in Appendix A. Discrete delineation soil samples were collected from each pothole at depths ranging from 0.5 feet to 6 feet bgs. The delineation soil samples were handled as described above and analyzed at Eurofins.

Laboratory analytical results for the delineation soil samples collected from potholes PH03 through PH06, indicated all COCs were compliant with the Closure Criteria and laterally defined the extent of chloride-impacted soil observed in BG01. The laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included in Appendix C.

## EXCAVATION ACTIVITIES

Between September 14, 2023 and October 13, 2023, impacted soil was excavated from the release area as indicated by laboratory analytical results. In addition, though unrelated to the release, impacted soil observed in BG01 was excavated. Excavation activities were performed using a backhoe, track hoe and transport vehicles. To direct excavation activities, soil was field screened for VOCs and chloride. The release excavation was completed to depths ranging from 1 foot to 8 feet bgs. The excavation in the vicinity of BG01 was completed to a depth of 6 feet bgs.

Following removal of the impacted soil, 5-point composite soil samples were collected at least every 200 square feet from the floor and sidewalls of the excavation extents. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. The excavation soil samples were collected, handled, and analyzed as described above. The excavation extents and excavation soil sample locations are presented on Figure 3.

Floor samples FS01 through FS10 were collected from the floor of the release excavation at depths of 1-foot to 8 feet bgs. Sidewall samples SW01 through SW08 were collected from the sidewalls of the release excavation at depths ranging from ground surface to 8 feet bgs. The excavation area measured approximately 1,970 square feet. Approximately 500 cubic yards of impacted soil were removed during the excavation activities.

Floor sample FS11 and sidewall samples SW09 and SW10 were collected from the floor and sidewalls of the excavation completed to address chloride impacted soil observed in BG01. The excavation area measured approximately 50 square feet. Confirmation sidewall soil sample SW09 collected from ground surface to 6 feet bgs indicated TPH concentrations exceeded the Site Closure Criteria. On October 17, 2023, Ensolum returned to the Site to remove additional soil and recollect a confirmation soil sample in near SW09. One 5-point composite soil sample (SW09A) was collected following scrapping of additional soil at depths ranging from ground surface to 6 feet bgs. The soil sample was collected, field screened, handled, and analyzed as described above.

Laboratory analytical results for all final confirmation soil samples indicated all COC concentrations were compliant with the Closure Criteria. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included in Appendix C.

XTO Energy, Inc.  
Closure Request  
James Ranch Unit 108H

A total of approximately 515 cubic yards of impacted soil was removed during all excavation activities. The impacted soil was transported and disposed of at R360 Landfill Facility in Hobbs, New Mexico.

## CLOSURE REQUEST

XTO performed a limited background investigation but did not identify naturally occurring elevated chloride concentrations. As such, XTO proceeded with removal of impacted soil to the strictest Table I Closure Criteria. Laboratory analytical results for all final confirmation soil samples collected from the final excavation extents indicated all COC concentrations were compliant with the Site Closure Criteria. XTO backfilled the southern excavation area on October 13, 2023, with material purchased locally and recontoured the Site to match pre-existing Site conditions. The smaller northern excavation will be backfilled in the same manner described above. The backfilled area and the areas affected by the release will be reseeded with an approved BLM seed mixture.

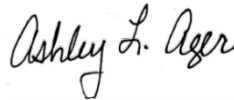
Remedial actions completed at the Site have addressed soil impacted June 2022 release of produced water and crude oil. As such, XTO is respectfully requesting no further action for Incident Number nAPP2217931599.

If you have any questions or comments, please contact Mr. Ben Belill at (989) 854-0852 or bbelill@ensolum.com.

Sincerely,  
**Ensolum, LLC**



Benjamin J. Belill  
Project Geologist



Ashley L. Ager, MS, PG  
Principal

cc: Garrett Green, XTO  
Tommee Lambert, XTO  
BLM

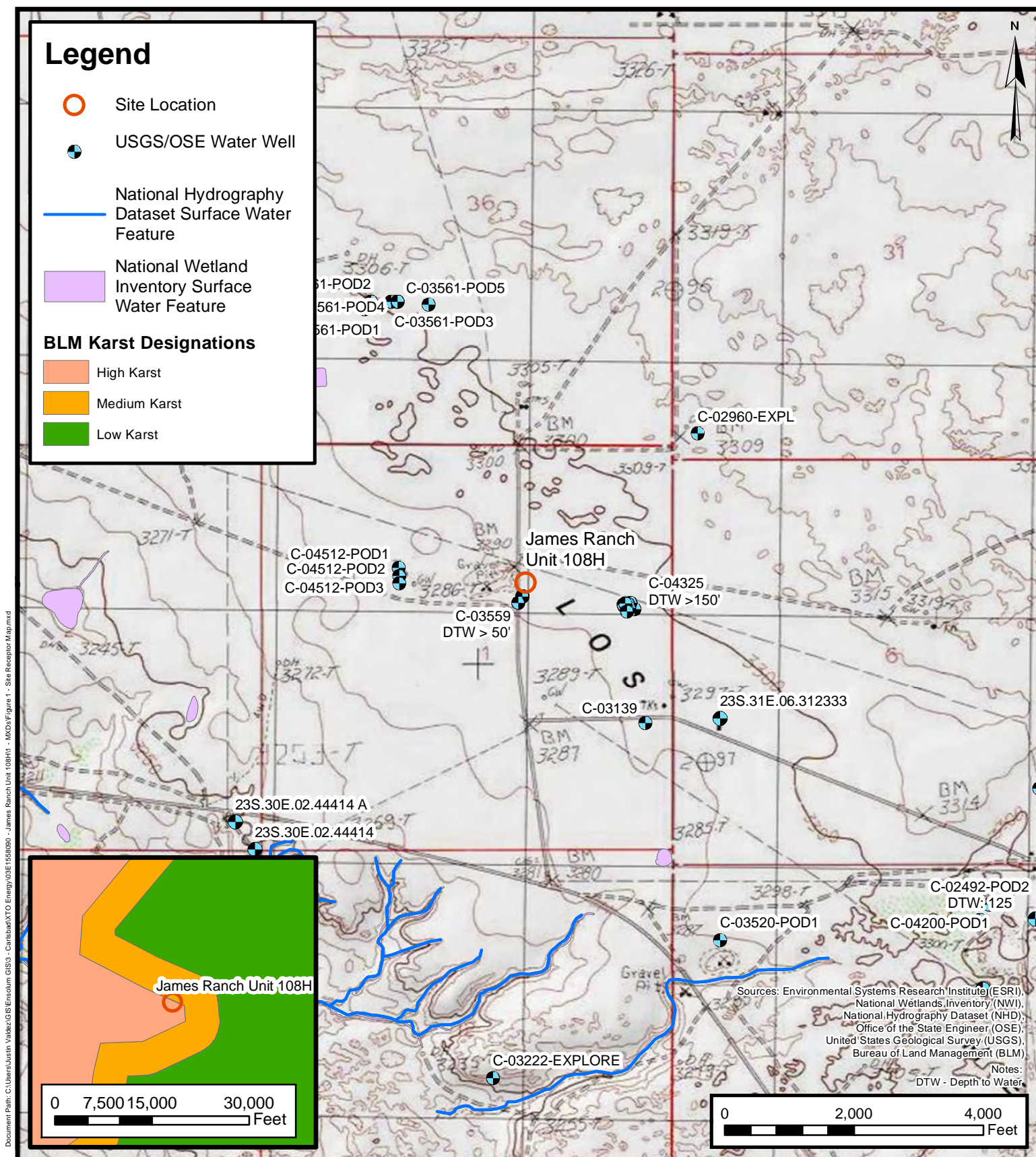
### Appendices:

Figure 1	Site Receptor Map
Figure 2	Delineation Soil Sample Locations
Figure 3	Excavation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Lithologic/soil sampling Logs
Appendix B	Photographic Log
Appendix C	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix D	NMOCD Notifications
Appendix E	Remediation Work Plan December 19, 2022



FIGURES





## Site Receptor Map

XTO Energy Inc.  
James Ranch Unit 108H  
Incident Number: nAPP2217931599  
Unit G, Sec 1, T 23S, R 30E  
Eddy County, New Mexico

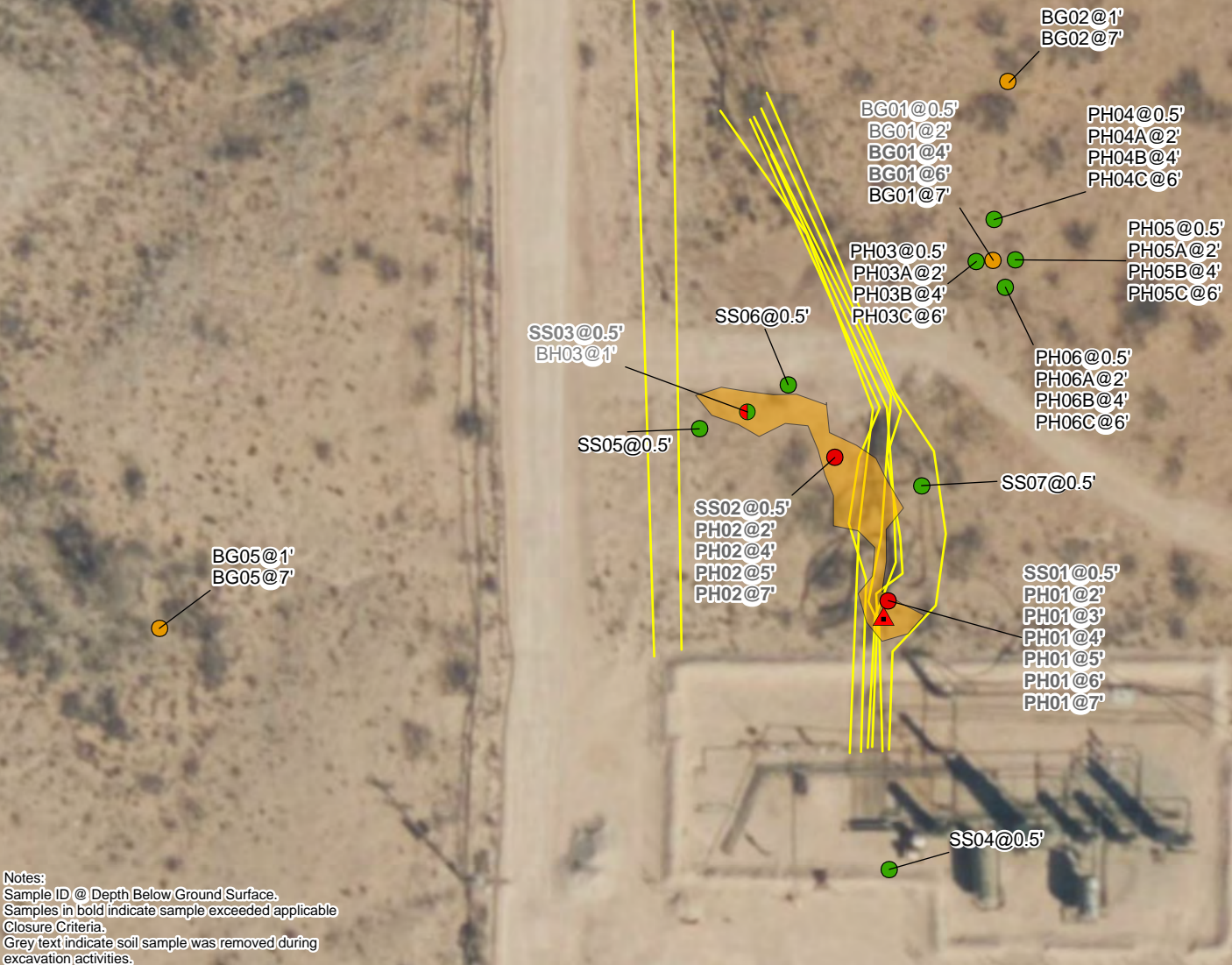
**FIGURE**  
**1**

**ENSOLUM**  
Environmental, Engineering and  
Hydrogeologic Consultants



**Legend**

- Background Delineation Pothole
- Delineation Soil Sample in Compliance with Closure Criteria
- Delineation Soil Sample with Concentrations Previously Exceeding Closure Criteria
- Delineation Soil Sample with Concentrations Exceeding Closure Criteria
- Oil and Gas Utility Line
- ▲ Release Point
- Release Extent



0 12.5 25 50 75 100  
 Feet

Sources: Environmental Systems Research Institute (ESRI)

## Delineation Soil Sample Locations

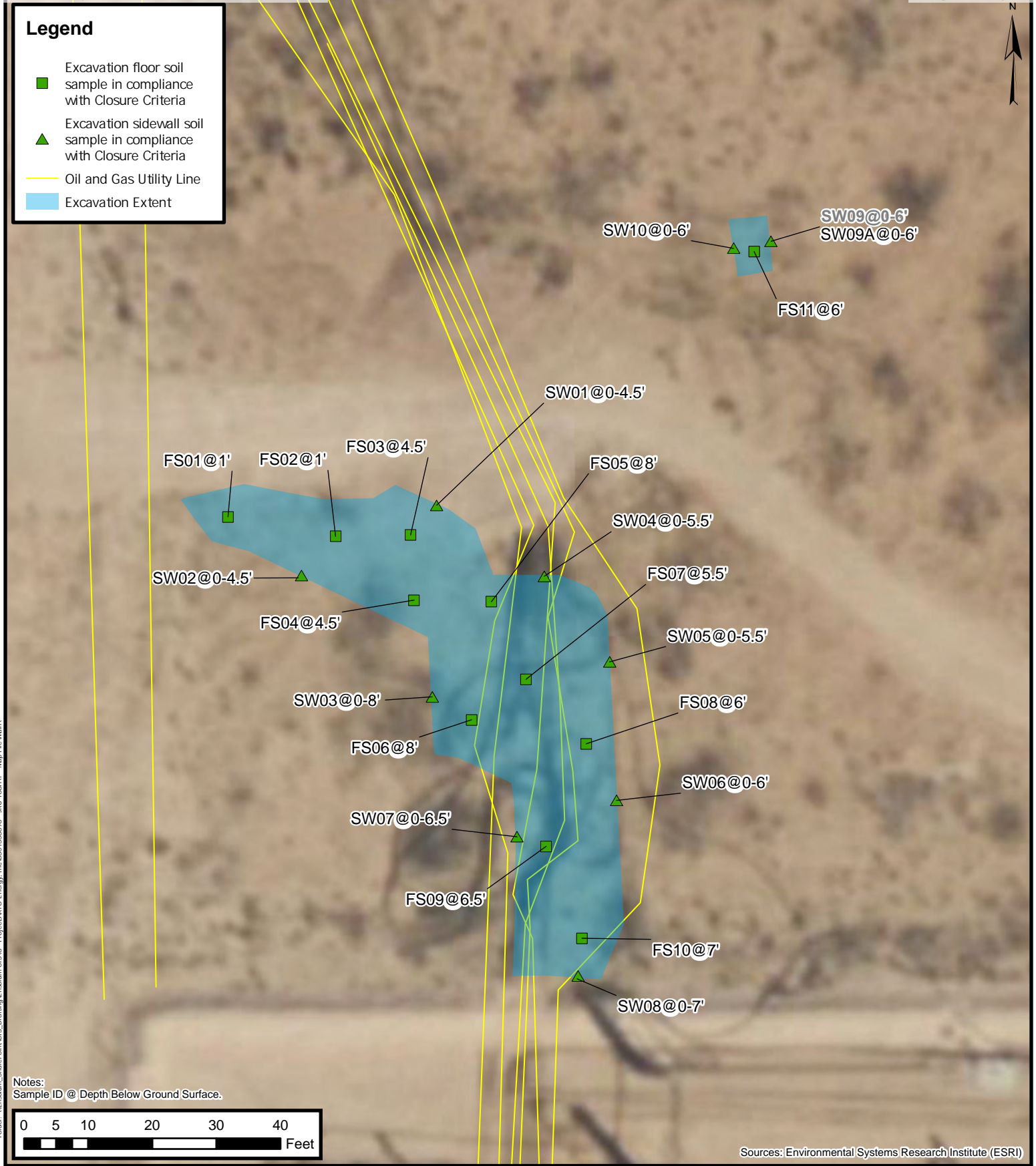
XTO Energy Inc.  
 James Ranch Unit 108H  
 Incident Number: nAPP2217931599  
 Unit G, Sec 1, T 23S, R 30E  
 Eddy County, New Mexico

**FIGURE**

**2**







## Excavation Soil Sample Locations

XTO Energy INC.  
James Ranch Unit 108H  
Incident Number: nAPP2217931599  
Unit G, Sec 1, T 23S, R 30E  
Eddy County, New Mexico

FIGURE

3





TABLES



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
 James Ranch Unit 108H  
 XTO Energy, Inc  
 Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Background Delineation Soil Samples										
BG01	10/20/2022	0.5	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	10.4
BG01	09/11/2023	2	<0.00199	<0.00398	<49.6	<49.6	<49.6	<49.6	<49.6	62.1
BG01	10/20/2022	4	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	4,860
BG01	10/20/2022	6	0.00216	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	4,650
BG01	09/11/2023	7	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	156
BG02	09/11/2023	1	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	103
BG02	09/11/2023	7	<0.00200	<0.00399	<50.3	<50.3	<50.3	<50.3	<50.3	181
BG05	09/11/2023	1	<0.00201	<0.00402	<50.2	<50.2	<50.2	<50.2	<50.2	113
BG05	09/11/2023	7	<0.00202	<0.00404	<50.4	<50.4	<50.4	<50.4	<50.4	358
Delineation Soil Samples										
PH03	09/12/2023	0.5	<0.00202	<0.00404	<49.6	<49.6	<49.6	<49.6	<49.6	101
PH03A	09/12/2023	2	<0.00202	<0.00403	<50.0	<50.0	<50.0	<50.0	<50.0	40.2
PH03B	09/12/2023	4	<0.00199	<0.00398	<50.2	<50.2	<50.2	<50.2	<50.2	35.4
PH03C	09/12/2023	6	<0.00198	<0.00396	<50.4	<50.4	<50.4	<50.4	<50.4	111
PH04	09/12/2023	0.5	<0.00201	<0.00402	<50.2	<50.2	<50.2	<50.2	<50.2	106
PH04A	09/12/2023	2	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	124
PH04B	09/12/2023	4	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	142
PH04C	09/12/2023	6	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	105
PH05	09/12/2023	0.5	<0.00198	<0.00396	<50.3	<50.3	<50.3	<50.3	<50.3	67.3
PH05A	09/12/2023	2	<0.00202	<0.00403	<50.1	<50.1	<50.1	<50.1	<50.1	68.4
PH05B	09/12/2023	4	<0.00199	<0.00398	<50.4	<50.4	<50.4	<50.4	<50.4	48.3
PH05C	09/12/2023	6	<0.00198	<0.00397	<49.9	<49.9	<49.9	<49.9	<49.9	55.2
PH06	09/12/2023	0.5	<0.00199	<0.00398	<50.1	<50.1	<50.1	<50.1	<50.1	41.7
PH06A	09/12/2023	2	<0.00200	<0.00400	<49.8	<49.8	<49.8	<49.8	<49.8	57.2
PH06B	09/12/2023	4	<0.00202	<0.00403	<49.7	<49.7	<49.7	<49.7	<49.7	100
PH06C	09/12/2023	6	<0.00202	<0.00404	<50.5	<50.5	<50.5	<50.5	<50.5	103

**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
James Ranch Unit 108H  
XTO Energy, Inc  
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Floor Soil Samples										
FS01	09/14/2023	1	<0.00199	<0.00398	<50.3	<50.3	<50.3	<50.3	<50.3	510
FS02	09/18/2023	1	<0.00199	<0.00398	<50.1	53.8	<50.1	53.8	53.8	169
FS03	09/18/2023	4.5	<0.00201	<0.00402	<50.2	<50.2	<50.2	<50.2	<50.2	184
FS04	09/18/2023	4.5	<0.00202	<0.00403	<50.5	59.4	<50.5	59.4	59.4	212
FS05	09/18/2023	8	<0.00199	<0.00398	<49.8	72.9	<49.8	72.9	72.9	556
FS06	09/18/2023	8	<0.00198	<0.00396	<49.9	58.8	<49.9	58.8	58.8	216
FS07	09/18/2023	5.5	<0.00200	<0.00400	<49.6	64.4	<49.6	64.4	64.4	473
FS08	09/18/2023	6	<0.00198	<0.00397	<50.2	<50.2	<50.2	<50.2	<50.2	186
FS09	09/18/2023	6.5	<0.00200	<0.00399	<50.5	52.8	<50.5	52.8	52.8	245
FS10	09/18/2023	7	<0.00201	<0.00402	<50.3	<50.3	<50.3	<50.3	<50.3	328
FS11	10/13/2023	6	<0.00198	<0.00396	<49.9	<49.9	<49.9	<49.9	<49.9	379
Sidewall Soil Samples										
SW01	09/18/2023	0 - 4.5	<0.00201	<0.00402	<49.8	<49.8	<49.8	<49.8	<49.8	207
SW02	09/18/2023	0 - 4.5	<0.00199	<0.00398	<49.6	<49.6	<49.6	<49.6	<49.6	102
SW03	09/18/2023	0 - 8	<0.00200	<0.00399	<49.5	55.0	<49.5	55	55.0	327
SW04	09/18/2023	0 - 5.5	<0.00201	<0.00402	<49.6	57.2	<49.6	57.2	57.2	199
SW05	09/18/2023	0 - 5.5	<0.00201	<0.00402	<50.5	51.4	<50.5	51.4	51.4	106
SW06	09/18/2023	0 - 6	<0.00199	<0.00398	<50.5	<50.5	<50.5	<50.5	<50.5	45.8
SW07	09/18/2023	0 - 6.5	<0.00199	<0.00398	<50.2	60.3	<50.2	60.3	60.3	408
SW08	09/18/2023	0 - 7	<0.00200	<0.00401	<49.8	71.8	<49.8	71.8	71.8	103



TABLE 1  
SOIL SAMPLE ANALYTICAL RESULTS  
James Ranch Unit 108H  
XTO Energy, Inc  
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
SW09	10/13/2023	0 - 6	<0.00199	<0.00399	<50.3	475	<50.3	475	475	427
SW09A	10/17/2023	0 - 6	<0.00200	<0.00399	<50.1	<50.1	<50.1	<50.1	<50.1	116
SW10	10/13/2023	0 - 6	<0.00200	<0.00399	<50.5	<50.5	<50.5	<50.5	<50.5	119

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

Concentrations in **bold** exceed the NMOCD Table I Closure Criteria or reclamation standard where applicable.

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon


Samples in **Grey** indicate soil sample was removed during excavation activities.




## APPENDIX A


### Lithologic Soil Sampling Logs


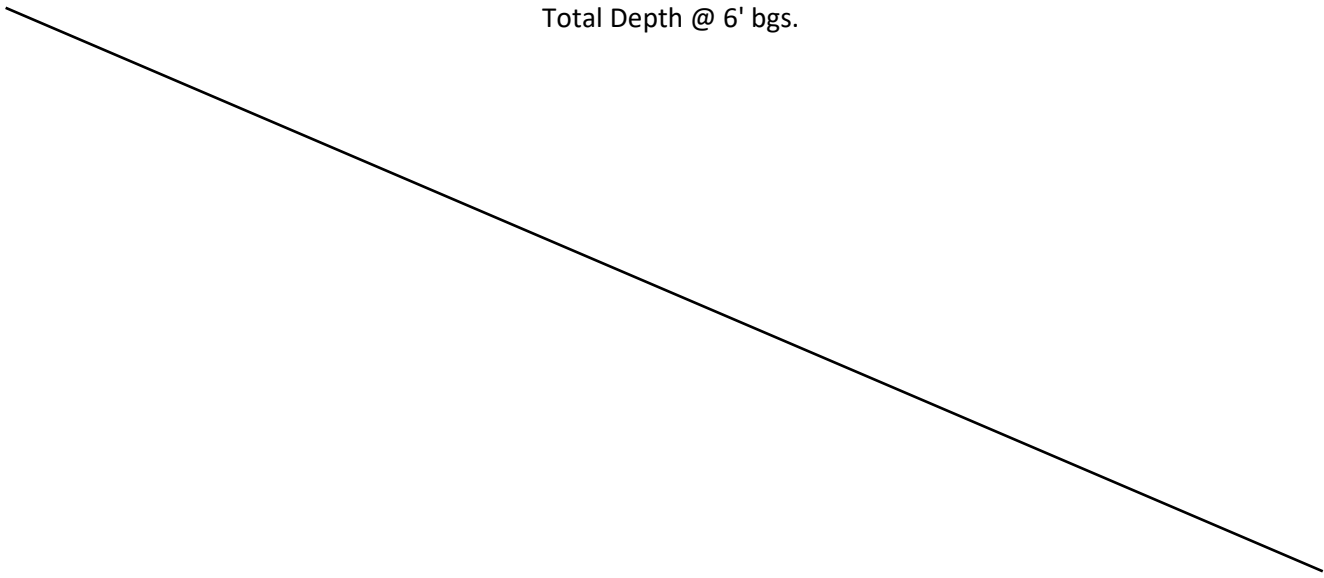
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 <b>ENSOLUM</b> Environmental, Engineering and Hydrogeologic Consultants					Sample Name: BG01		Date: 9/11/2023	
					Site Name: JRU 108H			
					Incident Number: nAPP2217931594			
					Job Number: 03C1558090			
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>					Logged By: Connor Whitman		Method: Backhoe	
Coordinates: 32.336626, -103.831714					Hole Diameter: 2 FT		Total Depth: 7 FT	
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% error factor is included in all chloride screenings.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
Dry	<168	0.0	N	BG01	0.5		SP	SAND, veryfine, brown, poorly sorted, with silt. No stain or odor.
Dry	<168	0.0	N		1	1		
Dry	<168	0.0	N	BG01	2	2		SAND, brown, poorly sorted, with silt and trace caliche. No Stain, no odor
Dry	<168	0	N		3	3	CCHE	CALICHE, white, very indurated. No stain, no odor.
Dry	<168	0.0	N	BG01	4	4		
Dry	<168	0.0	N		5	5		
Dry	<168	0.0	N	BG01	5	6		
Dry	<168	0.0	N	BG01	7	7		
Total depth @ 7 feet bgs.								


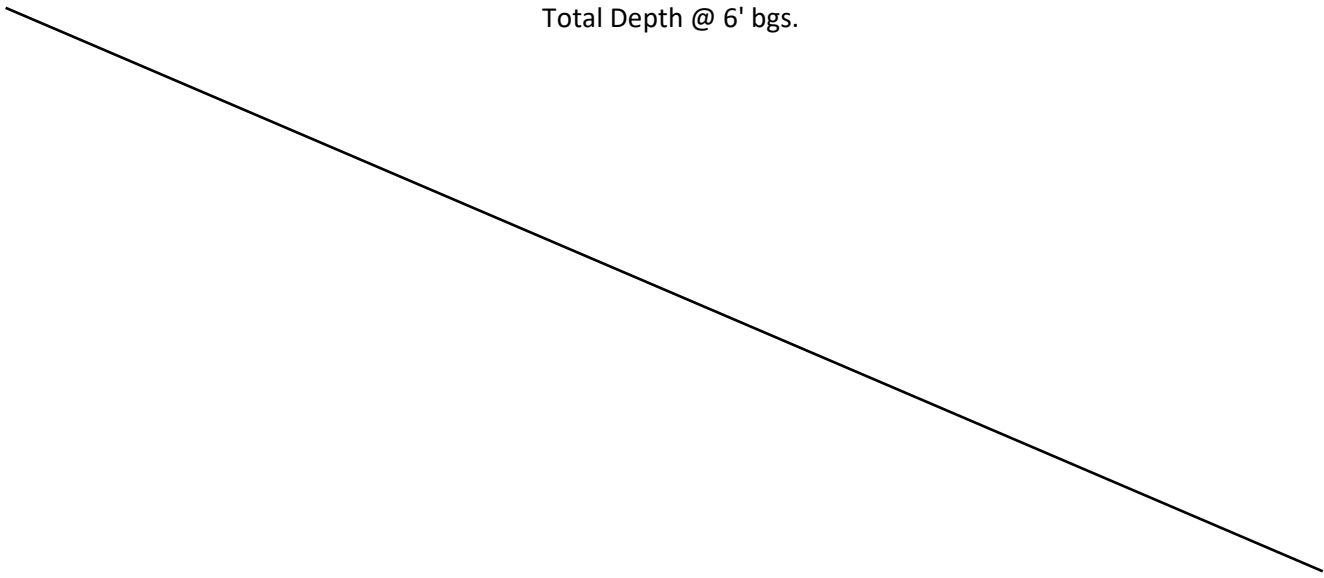
 <b>ENSOLUM</b> Environmental, Engineering and Hydrogeologic Consultants					Sample Name: BG02		Date: 9/11/2023	
					Site Name: JRU 108H			
					Incident Number: nAPP2217931594			
					Job Number: 03C1558090			
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>					Logged By: Connor Whitman		Method: Backhoe	
Coordinates: 32.336626, -103.831714					Hole Diameter: 2 FT		Total Depth: 7 FT	
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% error factor is included in all chloride screenings.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
Drv	<168	0.3	N	BG02	0.5		SP	SAND, veryfine, brown, poorly sorted, with silt. No stain or odor.
Drv	<168	0.2	N		1	1		
Drv	<168	0.2	N		2	2		
Drv	<168	0.1	N		3	3	CCHE	CALICHE, white, very indurated. No stain, no odor.
Drv	<168	0.0	N		4	4		
Drv	<168	0.0	N		5	5		
Drv	<168	0.0	N	6	6			
Drv	<168	0.0	N	BG02	7	7		
Total depth @ 7 feet bgs.								




 <b>ENSOLUM</b> Environmental, Engineering and Hydrogeologic Consultants					Sample Name: BG05		Date: 9/11/2023	
					Site Name: JRU 108H			
					Incident Number: nAPP2217931594			
					Job Number: 03C1558090			
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>					Logged By: Connor Whitman		Method: Backhoe	
Coordinates: 32.336626, -103.831714					Hole Diameter: 2 FT		Total Depth: 7 FT	
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% error factor is included in all chloride screenings.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
Dry	<168	0.3	N	BG05	0.5		SP	SAND, veryfine, brown, poorly sorted, with silt. No stain or odor.
Dry	<168	0.2	N		1	1		
Dry	<168	0.2	N		2	2		
Dry	<168	0.1	N		3	3		
Dry	156	0.0	N	BG05	4	4	CCHE	CALICHE, with very fine tan sand. No stain, no odor.  CALICHE with tan sand and silt. No stain, no odor.
Dry	268	0.0	N		5	5		
Dry	268	0.0	N		6	6		
Dry	229	0.0	N		7	7		
Total depth @ 7 feet bgs.								

 <b>ENSOLUM</b> Environmental, Engineering and Hydrogeologic Consultants		Sample Name: PH03		Date: 9/12/2023				
		Site Name: James Ranch Unit 108H						
		Incident Number: nAPP2217931599						
		Job Number: 03C1558090						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								
Coordinates: 32.336626, -103.831714			Logged By: M. O'Dell		Method: Backhoe			
			Hole Diameter: N/A		Total Depth: 6'			
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. All chloride calculations were conducted with a +4-% correction factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
D	<173.6	0	N	PH03	0.5	1	SW	Sand. Reddish brown, very fine to fine grained, well graded, dry.
D	<173.6	0	N	PH03A	2	2		
						3		
D	<173.6	0	N	PH03B	4	4	CCHE	CCHE. Tan - light tan, trace sand.
						5		
D	<173.6	0	N	PH03C	6	6		
<div style="text-align: right;">Total Depth @ 6' bgs.</div> 								

 <b>ENSOLUM</b> Environmental, Engineering and Hydrogeologic Consultants		Sample Name: PH04		Date: 9/12/2023				
		Site Name: James Ranch Unit 108H						
		Incident Number: nAPP2217931599						
		Job Number: 03C1558090						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								
Coordinates: 32.336661, -103.831696			Logged By: M. O'Dell		Method: Backhoe			
			Hole Diameter: N/A		Total Depth: 6'			
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. All chloride calculations were conducted with a +4-% correction factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
D	<173.6	0	N	PH04	0.5	1	SW	Sand. Reddish brown, very fine to fine grained, well graded, trace caliche, dry.
D	<173.6	0	N	PH04A	2	2		
						3		
D	<173.6	0	N	PH04B	4	4	CCHE	Caliche. Tan - light tan, trace sand.
						5		
D	<173.6	0	N	PH04C	6	6		
Total Depth @ 6' bgs.								

 <b>ENSOLUM</b> Environmental, Engineering and Hydrogeologic Consultants		Sample Name: PH05		Date: 9/12/2023				
		Site Name: James Ranch Unit 108H						
		Incident Number: nAPP2217931599						
		Job Number: 03C1558090						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								
Coordinates: 32.336627, -103.831676			Logged By: M. O'Dell		Method: Backhoe			
			Hole Diameter: N/A		Total Depth: 6'			
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. All chloride calculations were conducted with a+4-% correction factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
D	<173.6	0	N	PH05	0.5	1	SW	Sand. Reddish brown, very fine to fine grained, well graded, trace caliche, dry.
D	<173.6	0	N	PH05A	2	2		
						3		
D	<173.6	0	N	PH05B	4	4	CCHE	CCHE. Tan - light tan, trace sand.
						5		
D	<173.6	0	N	PH05C	6	6		
<div style="text-align: right;">Total Depth @ 6' bgs.</div> 								

 <b>ENSOLUM</b> Environmental, Engineering and Hydrogeologic Consultants		Sample Name: PH06		Date: 9/12/2023				
		Site Name: James Ranch Unit 108H						
		Incident Number: nAPP2217931599						
		Job Number: 03C1558090						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								
Coordinates: 32.336605, -103.831686			Logged By: M. O'Dell		Method: Backhoe			
			Hole Diameter: N/A		Total Depth: 6'			
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. All chloride calculations were conducted with a+4-% correction factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
D	<173.6	0	N	PH06	0.5	1	SW	Sand. Reddish brown, very fine to fine grained, well graded, dry.
D	<173.6	0	N	PH06A	2	2		
						3		
D	<173.6	0	N	PH06B	4	4	CCHE	CCHE. Tan - light tan.
						5		
D	<173.6	0	N	PH06C	6	6		
<div style="text-align: right;">Total Depth @ 6' bgs.</div>								



## APPENDIX B

### Photographic Log

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## Photographic Log

XTO Energy, Inc

James Ranch Unit 108H

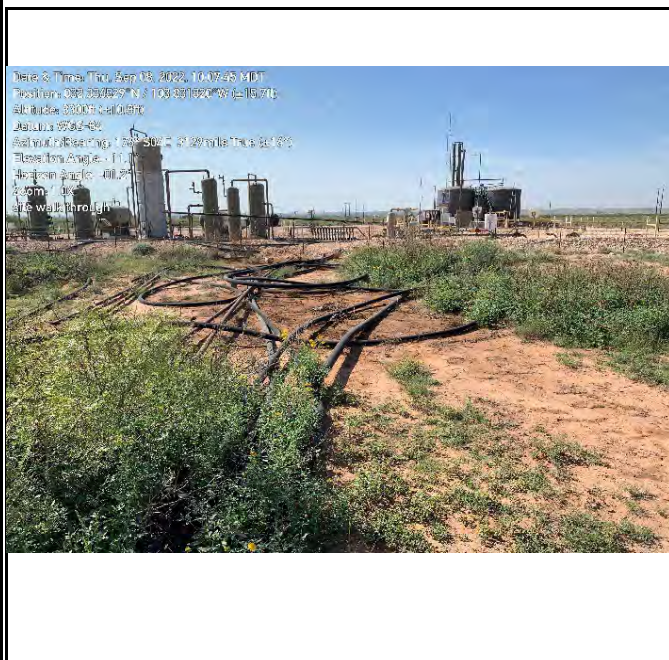
Incident Number nAPP2217931599



Photograph 1 Date: 7/26/2022  
Description: Site assessment activities, release extent  
View: Southwest



Photograph 2 Date: 9/8/2022  
Description: Delineation activities, release extent  
View: Northwest



Photograph 3 Date: 9/8/2022  
Description: Delineation activities, release extent  
View: South



Photograph 4 Date: 10/20/2022  
Description: Delineation activities, PH01  
View: East





## Photographic Log

XTO Energy, Inc

James Ranch Unit 108H

Incident Number nAPP2217931599

Date & Time: Thu, Sep 14, 2023 at 15:14:15 MDT  
 Position: +032.3364528, -103.831731 (+23.9W)  
 Altitude: 3201ft (+97.5W)  
 Datum: WGS-84  
 Azimuth/Bearing: 102° S 22W 1001mils True (+12°)  
 Elevation Angle: -01.5°  
 Horizon Angle: -01.5°  
 Zoom: 1.0X  
 JRU 108, cribbing



Photograph 5 Date: 9/14/2023  
 Description: Excavation activities, cribbing setup.  
 View: North

Sep 18, 2023 at 08:15:21  
 +32.336482, -103.831915  
 154° SE  
 Altitude: 3299.4ft  
 Speed: 1.4mph



Photograph 6 Date: 9/18/2023  
 Description: Excavation extent  
 View: North

Sep 18, 2023 at 15:19:55  
 +32.336352, -103.831892  
 339° N  
 Altitude: 3303.8ft  
 Speed: 0.9mph



Photograph 7 Date: 9/18/2023  
 Description: Excavation extent.  
 View: North

Date & Time: Fri, Oct 13, 2023 at 11:18:52 MDT  
 Position: +032.336527, -103.831830 (+297.2W)  
 Altitude: 3268ft (+12.8W)  
 Datum: WGS-84  
 Azimuth/Bearing: 126° S 32E 2596mils True (+13°)  
 Elevation Angle: -05.2°  
 Horizon Angle: -01.9°  
 Zoom: 1.0X  
 JRU 108H, backfill



Photograph 8 Date: 10/13/2023  
 Description: Excavation backfilled.  
 View: Northwest





## APPENDIX C

### Laboratory Analytical Reports & Chain of Custody Documentation

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ben Belill

Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 9/21/2023 1:39:46 PM

## JOB DESCRIPTION

JRU 108H

SDG NUMBER 03C1558090

## JOB NUMBER

890-5272-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

# Eurofins Carlsbad

## Job Notes

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

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

## Authorization



Generated  
9/21/2023 1:39:46 PM

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

Client: Ensolum  
Project/Site: JRU 108H

Laboratory Job ID: 890-5272-1  
SDG: 03C1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

## Qualifiers

## GC VOA

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

## GC Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low 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: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

**Job ID: 890-5272-1****Laboratory: Eurofins Carlsbad****Narrative****Job Narrative  
890-5272-1**

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

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

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

**Receipt**

The sample was received on 9/14/2023 4:40 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: FS01 (890-5272-1).

**GC VOA**

Method 8021B: Surrogate recovery for the following sample was outside control limits: FS01 (890-5272-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-62674 and analytical batch 880-62672 was outside the control limits.

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

**GC Semi VOA**

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-62709 and analytical batch 880-62666 was outside the control limits.

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

**HPLC/IC**

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

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

Client Sample ID: FS01

Lab Sample ID: 890-5272-1

Date Collected: 09/14/23 14:50

Matrix: Solid

Date Received: 09/14/23 16:40

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/18/23 15:08	09/19/23 00:39	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/18/23 15:08	09/19/23 00:39	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/18/23 15:08	09/19/23 00:39	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/18/23 15:08	09/19/23 00:39	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/18/23 15:08	09/19/23 00:39	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/18/23 15:08	09/19/23 00:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130	09/18/23 15:08	09/19/23 00:39	1
1,4-Difluorobenzene (Surr)	56	S1-	70 - 130	09/18/23 15:08	09/19/23 00:39	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/19/23 00:39	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.3	U	50.3	mg/Kg			09/18/23 17:08	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3	mg/Kg		09/18/23 10:20	09/18/23 17:08	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3	mg/Kg		09/18/23 10:20	09/18/23 17:08	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		09/18/23 10:20	09/18/23 17:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	118		70 - 130	09/18/23 10:20	09/18/23 17:08	1
o-Terphenyl	127		70 - 130	09/18/23 10:20	09/18/23 17:08	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	510		4.96	mg/Kg			09/20/23 20:25	1

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## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-5272-1	FS01	98	56 S1-
890-5274-A-21-A MS	Matrix Spike	102	115
890-5274-A-21-B MSD	Matrix Spike Duplicate	99	106
LCS 880-62599/1-A	Lab Control Sample	100	115
LCSD 880-62599/2-A	Lab Control Sample Dup	100	106
MB 880-62599/5-A	Method Blank	71	98
MB 880-62674/5-A	Method Blank	69 S1-	97
<b>Surrogate Legend</b>			
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)
890-5272-1	FS01	118	127
890-5278-A-10-F MS	Matrix Spike	111	108
890-5278-A-10-G MSD	Matrix Spike Duplicate	105	101
LCS 880-62709/2-A	Lab Control Sample	97	107
LCSD 880-62709/3-A	Lab Control Sample Dup	91	100
MB 880-62709/1-A	Method Blank	67 S1-	73
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

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

Lab Sample ID: MB 880-62599/5-A

Matrix: Solid

Analysis Batch: 62672

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62599

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/18/23 15:08	09/18/23 21:54	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/18/23 15:08	09/18/23 21:54	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/18/23 15:08	09/18/23 21:54	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/18/23 15:08	09/18/23 21:54	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/18/23 15:08	09/18/23 21:54	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/18/23 15:08	09/18/23 21:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		70 - 130	09/18/23 15:08	09/18/23 21:54	1
1,4-Difluorobenzene (Surr)	98		70 - 130	09/18/23 15:08	09/18/23 21:54	1

Lab Sample ID: LCS 880-62599/1-A

Matrix: Solid

Analysis Batch: 62672

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 62599

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07810		mg/Kg		78	70 - 130
Toluene	0.100	0.08476		mg/Kg		85	70 - 130
Ethylbenzene	0.100	0.08259		mg/Kg		83	70 - 130
m-Xylene & p-Xylene	0.200	0.1713		mg/Kg		86	70 - 130
o-Xylene	0.100	0.08671		mg/Kg		87	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,4-Difluorobenzene (Surr)	115		70 - 130

Lab Sample ID: LCSD 880-62599/2-A

Matrix: Solid

Analysis Batch: 62672

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 62599

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08604		mg/Kg		86	70 - 130	10	35
Toluene	0.100	0.08846		mg/Kg		88	70 - 130	4	35
Ethylbenzene	0.100	0.08613		mg/Kg		86	70 - 130	4	35
m-Xylene & p-Xylene	0.200	0.1791		mg/Kg		90	70 - 130	4	35
o-Xylene	0.100	0.09090		mg/Kg		91	70 - 130	5	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: 890-5274-A-21-A MS

Matrix: Solid

Analysis Batch: 62672

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 62599

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.0998	0.08115		mg/Kg		81	70 - 130
Toluene	<0.00199	U	0.0998	0.08570		mg/Kg		86	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

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

Lab Sample ID: 890-5274-A-21-A MS

Matrix: Solid

Analysis Batch: 62672

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 62599

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U	0.0998	0.08302		mg/Kg		83	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1706		mg/Kg		85	70 - 130
o-Xylene	<0.00199	U	0.0998	0.08580		mg/Kg		86	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	115		70 - 130

Lab Sample ID: 890-5274-A-21-B MSD

Matrix: Solid

Analysis Batch: 62672

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 62599

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.0996	0.07875		mg/Kg		79	70 - 130	3	35
Toluene	<0.00199	U	0.0996	0.08119		mg/Kg		82	70 - 130	5	35
Ethylbenzene	<0.00199	U	0.0996	0.07757		mg/Kg		78	70 - 130	7	35
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1592		mg/Kg		80	70 - 130	7	35
o-Xylene	<0.00199	U	0.0996	0.07997		mg/Kg		80	70 - 130	7	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: MB 880-62674/5-A

Matrix: Solid

Analysis Batch: 62672

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62674

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/18/23 08:50	09/18/23 11:16	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/18/23 08:50	09/18/23 11:16	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/18/23 08:50	09/18/23 11:16	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/18/23 08:50	09/18/23 11:16	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/18/23 08:50	09/18/23 11:16	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/18/23 08:50	09/18/23 11:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	69	S1-	70 - 130	09/18/23 08:50	09/18/23 11:16	1
1,4-Difluorobenzene (Surr)	97		70 - 130	09/18/23 08:50	09/18/23 11:16	1

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

Lab Sample ID: MB 880-62709/1-A

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62709

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/18/23 08:00	09/18/23 08:29	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

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

Lab Sample ID: MB 880-62709/1-A

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62709

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/18/23 08:00	09/18/23 08:29	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/18/23 08:00	09/18/23 08:29	1
Surrogate	MB MB		Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
1-Chlorooctane	67	S1-	70 - 130			09/18/23 08:00	09/18/23 08:29	1
o-Terphenyl	73		70 - 130			09/18/23 08:00	09/18/23 08:29	1

Lab Sample ID: LCS 880-62709/2-A

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 62709

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1032		mg/Kg		103	70 - 130
Diesel Range Organics (Over C10-C28)	1000	918.8		mg/Kg		92	70 - 130
Surrogate	LCS LCS		Limits				
	%Recovery	Qualifier					
1-Chlorooctane	97		70 - 130				
o-Terphenyl	107		70 - 130				

Lab Sample ID: LCSD 880-62709/3-A

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 62709

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	983.6		mg/Kg		98	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	1000	875.2		mg/Kg		88	70 - 130	5	20
Surrogate	LCSD LCSD		Limits						
	%Recovery	Qualifier							
1-Chlorooctane	91		70 - 130						
o-Terphenyl	100		70 - 130						

Lab Sample ID: 890-5278-A-10-F MS

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 62709

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	992	1145		mg/Kg		113	70 - 130
Diesel Range Organics (Over C10-C28)	50.6		992	871.7		mg/Kg		83	70 - 130
Surrogate	MS MS		Limits						
	%Recovery	Qualifier							
1-Chlorooctane	111		70 - 130						
o-Terphenyl	108		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

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

Lab Sample ID: 890-5278-A-10-G MSD

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 62709

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	992	1117		mg/Kg		110	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	50.6		992	819.7		mg/Kg		78	70 - 130	6	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	105		70 - 130								
o-Terphenyl	101		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-62713/1-A

Matrix: Solid

Analysis Batch: 62902

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/20/23 17:30	1

Lab Sample ID: LCS 880-62713/2-A

Matrix: Solid

Analysis Batch: 62902

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	246.9		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-62713/3-A

Matrix: Solid

Analysis Batch: 62902

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	246.8		mg/Kg		99	90 - 110	0	20

Lab Sample ID: 880-33333-A-11-B MS

Matrix: Solid

Analysis Batch: 62902

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	103		250	353.1		mg/Kg		100	90 - 110

Lab Sample ID: 880-33333-A-11-C MSD

Matrix: Solid

Analysis Batch: 62902

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	103		250	352.8		mg/Kg		100	90 - 110	0	20

Eurofins Carlsbad

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

## GC VOA

## Prep Batch: 62599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5272-1	FS01	Total/NA	Solid	5035	
MB 880-62599/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-62599/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-62599/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5274-A-21-A MS	Matrix Spike	Total/NA	Solid	5035	
890-5274-A-21-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 62672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5272-1	FS01	Total/NA	Solid	8021B	62599
MB 880-62599/5-A	Method Blank	Total/NA	Solid	8021B	62599
MB 880-62674/5-A	Method Blank	Total/NA	Solid	8021B	62674
LCS 880-62599/1-A	Lab Control Sample	Total/NA	Solid	8021B	62599
LCSD 880-62599/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	62599
890-5274-A-21-A MS	Matrix Spike	Total/NA	Solid	8021B	62599
890-5274-A-21-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	62599

## Prep Batch: 62674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-62674/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 62800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5272-1	FS01	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 62666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5272-1	FS01	Total/NA	Solid	8015B NM	62709
MB 880-62709/1-A	Method Blank	Total/NA	Solid	8015B NM	62709
LCS 880-62709/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	62709
LCSD 880-62709/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	62709
890-5278-A-10-F MS	Matrix Spike	Total/NA	Solid	8015B NM	62709
890-5278-A-10-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	62709

## Prep Batch: 62709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5272-1	FS01	Total/NA	Solid	8015NM Prep	
MB 880-62709/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-62709/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-62709/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5278-A-10-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-5278-A-10-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 62827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5272-1	FS01	Total/NA	Solid	8015 NM	

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QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

HPLC/IC

Leach Batch: 62713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5272-1	FS01	Soluble	Solid	DI Leach	
MB 880-62713/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-62713/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-62713/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-33333-A-11-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-33333-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 62902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5272-1	FS01	Soluble	Solid	300.0	62713
MB 880-62713/1-A	Method Blank	Soluble	Solid	300.0	62713
LCS 880-62713/2-A	Lab Control Sample	Soluble	Solid	300.0	62713
LCSD 880-62713/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	62713
880-33333-A-11-B MS	Matrix Spike	Soluble	Solid	300.0	62713
880-33333-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	62713



Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

Client Sample ID: FS01  
Date Collected: 09/14/23 14:50  
Date Received: 09/14/23 16:40

Lab Sample ID: 890-5272-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	62599	09/18/23 15:08	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	62672	09/19/23 00:39	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			62800	09/19/23 00:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			62827	09/18/23 17:08	SM	EET MID
Total/NA	Prep	8015NM Prep			9.95 g	10 mL	62709	09/18/23 10:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62666	09/18/23 17:08	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	62713	09/18/23 11:01	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	62902	09/20/23 20:25	SMC	EET MID

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

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

Laboratory: Eurofins Midland

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

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

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5272-1  
SDG: 03C1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5272-1	FS01	Solid	09/14/23 14:50	09/14/23 16:40	1

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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

Chain of Custody

Work Order No: \_\_\_\_\_

www.xenco.com Page \_\_\_\_\_ of \_\_\_\_\_

Project Manager:	Ben Beilil	Bill to: (if different)	Garrett Green
Company Name:	Ensolum	Company Name:	XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E. Green St.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	303-887-2946	Email:	Garrett.Green@ExxonMobil.com

Work Order Comments	
Program: UST/PST	<input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund
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
Deliverables: EDD	<input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:	JRU 108H	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code		ANALYSIS REQUEST		Preservative Codes
Project Number:	03C1558090	Due Date:						None: NO DI Water: H <sub>2</sub> O
Project Location:	Connor Whitman	TAT starts the day received by the lab, if received by 4:30pm						Cool: Cool MeOH: Me
Sampler's Name:								HCL: HC HNO <sub>3</sub> : HN
PO #:								H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na
SAMPLE RECEIPT	Temp Blank: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Wet Ice: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Thermometer ID: 7110007					H <sub>3</sub> PO <sub>4</sub> : HP
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Correction Factor: -0.2						NaHSO <sub>4</sub> : NABIS
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Temperature Reading: 4.4						Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Corrected Temperature: 4.2						Zn Acetate+NaOH: Zn
Total Containers:								NaOH+Ascorbic Acid: SAPC
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab Comp	# of Cont		Sample Comments
	FSOI	5/14/23	145	1'	C	1		Incident ID: NAPP2217931599
								Cost Center: 1139071001
								A/E: _____

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO<sub>2</sub> 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 \$95.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>Caribby</i>	<i>adrian</i>	9.14.23			
3					
5					

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5272-1

SDG Number: 03C1558090

Login Number: 5272

List Number: 1

Creator: Lopez, Abraham

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5272-1

SDG Number: 03C1558090

Login Number: 5272

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/18/23 08:43 AM

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





Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ben Belill

Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 9/22/2023 10:28:27 AM

## JOB DESCRIPTION

JRU 108H

SDG NUMBER 03C1558090

## JOB NUMBER

890-5273-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

# Eurofins Carlsbad

## Job Notes

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

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

## Authorization



Generated  
9/22/2023 10:28:27 AM

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

Client: Ensolum  
Project/Site: JRU 108H

Laboratory Job ID: 890-5273-1  
SDG: 03C1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

## Qualifiers

## GC VOA

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

## GC Semi VOA

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

## HPLC/IC

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

## Glossary

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

## Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

## Job ID: 890-5273-1

## Laboratory: Eurofins Carlsbad

## Narrative

Job Narrative  
890-5273-1

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

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

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

## Receipt

The samples were received on 9/14/2023 4:40 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

## Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BG01 (890-5273-1), BG01 (890-5273-2), BG02 (890-5273-3), BG02 (890-5273-4), BG05 (890-5273-5) and BG05 (890-5273-6).

## GC VOA

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-62964 recovered above the upper control limit for m-Xylene & p-Xylene and o-Xylene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported

Method 8021B: Surrogate recovery for the following sample was outside control limits: (890-5273-A-1-F MS). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following sample was outside control limits: BG01 (890-5273-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following sample was outside control limits: BG02 (890-5273-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

## GC Semi VOA

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-62709 and analytical batch 880-62666 was outside the control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: BG01 (890-5273-2), BG02 (890-5273-3) and BG05 (890-5273-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

## HPLC/IC

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

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

Client Sample ID: BG01

Lab Sample ID: 890-5273-1

Date Collected: 09/11/23 02:05

Matrix: Solid

Date Received: 09/14/23 16:40

Sample Depth: 7

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 22:07	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 22:07	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 22:07	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		09/19/23 09:19	09/21/23 22:07	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 22:07	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		09/19/23 09:19	09/21/23 22:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130	09/19/23 09:19	09/21/23 22:07	1
1,4-Difluorobenzene (Surr)	71		70 - 130	09/19/23 09:19	09/21/23 22:07	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			09/21/23 22:07	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			09/18/23 17:29	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/18/23 10:20	09/18/23 17:29	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		09/18/23 10:20	09/18/23 17:29	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/18/23 10:20	09/18/23 17:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	122		70 - 130	09/18/23 10:20	09/18/23 17:29	1
o-Terphenyl	126		70 - 130	09/18/23 10:20	09/18/23 17:29	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	156		5.02	mg/Kg			09/20/23 19:17	1

Client Sample ID: BG01

Lab Sample ID: 890-5273-2

Date Collected: 09/11/23 15:00

Matrix: Solid

Date Received: 09/14/23 16:40

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/19/23 09:19	09/21/23 22:27	1
Toluene	0.00304		0.00199	mg/Kg		09/19/23 09:19	09/21/23 22:27	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/19/23 09:19	09/21/23 22:27	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/19/23 09:19	09/21/23 22:27	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/19/23 09:19	09/21/23 22:27	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/19/23 09:19	09/21/23 22:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	64	S1-	70 - 130	09/19/23 09:19	09/21/23 22:27	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

Client Sample ID: BG01

Lab Sample ID: 890-5273-2

Date Collected: 09/11/23 15:00

Matrix: Solid

Date Received: 09/14/23 16:40

Sample Depth: 2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	101		70 - 130	09/19/23 09:19	09/21/23 22:27	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/21/23 22:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.6	U	49.6	mg/Kg			09/18/23 17:51	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6	mg/Kg		09/18/23 10:20	09/18/23 17:51	1
Diesel Range Organics (Over C10-C28)	<49.6	U	49.6	mg/Kg		09/18/23 10:20	09/18/23 17:51	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		09/18/23 10:20	09/18/23 17:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	134	S1+	70 - 130			09/18/23 10:20	09/18/23 17:51	1
o-Terphenyl	139	S1+	70 - 130			09/18/23 10:20	09/18/23 17:51	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	62.1		5.04	mg/Kg			09/20/23 19:37	1

Client Sample ID: BG02

Lab Sample ID: 890-5273-3

Date Collected: 09/11/23 12:40

Matrix: Solid

Date Received: 09/14/23 16:40

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/19/23 09:19	09/21/23 22:48	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/19/23 09:19	09/21/23 22:48	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/19/23 09:19	09/21/23 22:48	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/19/23 09:19	09/21/23 22:48	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/19/23 09:19	09/21/23 22:48	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/19/23 09:19	09/21/23 22:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		70 - 130	09/19/23 09:19	09/21/23 22:48	1
1,4-Difluorobenzene (Surr)	75		70 - 130	09/19/23 09:19	09/21/23 22:48	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/21/23 22:48	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			09/18/23 18:13	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

Client Sample ID: BG02

Lab Sample ID: 890-5273-3

Date Collected: 09/11/23 12:40

Matrix: Solid

Date Received: 09/14/23 16:40

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/18/23 10:20	09/18/23 18:13	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/18/23 10:20	09/18/23 18:13	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/18/23 10:20	09/18/23 18:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	137	S1+	70 - 130			09/18/23 10:20	09/18/23 18:13	1
o-Terphenyl	143	S1+	70 - 130			09/18/23 10:20	09/18/23 18:13	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	103		5.03	mg/Kg			09/20/23 19:43	1

Client Sample ID: BG02

Lab Sample ID: 890-5273-4

Date Collected: 09/11/23 11:00

Matrix: Solid

Date Received: 09/14/23 16:40

Sample Depth: 7

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 23:08	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 23:08	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 23:08	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		09/19/23 09:19	09/21/23 23:08	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 23:08	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		09/19/23 09:19	09/21/23 23:08	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		70 - 130			09/19/23 09:19	09/21/23 23:08	1
1,4-Difluorobenzene (Surr)	64	S1-	70 - 130			09/19/23 09:19	09/21/23 23:08	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			09/21/23 23:08	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.3	U	50.3	mg/Kg			09/18/23 18:34	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3	mg/Kg		09/18/23 10:20	09/18/23 18:34	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3	mg/Kg		09/18/23 10:20	09/18/23 18:34	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		09/18/23 10:20	09/18/23 18:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	121		70 - 130			09/18/23 10:20	09/18/23 18:34	1
o-Terphenyl	126		70 - 130			09/18/23 10:20	09/18/23 18:34	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

## Client Sample ID: BG02

Lab Sample ID: 890-5273-4

Date Collected: 09/11/23 11:00

Matrix: Solid

Date Received: 09/14/23 16:40

Sample Depth: 7

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	181		5.05	mg/Kg			09/20/23 20:03	1

## Client Sample ID: BG05

Lab Sample ID: 890-5273-5

Date Collected: 09/11/23 10:40

Matrix: Solid

Date Received: 09/14/23 16:40

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		09/19/23 09:19	09/21/23 23:28	1
Toluene	<0.00201	U	0.00201	mg/Kg		09/19/23 09:19	09/21/23 23:28	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		09/19/23 09:19	09/21/23 23:28	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		09/19/23 09:19	09/21/23 23:28	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		09/19/23 09:19	09/21/23 23:28	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		09/19/23 09:19	09/21/23 23:28	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130			09/19/23 09:19	09/21/23 23:28	1
1,4-Difluorobenzene (Surr)	75		70 - 130			09/19/23 09:19	09/21/23 23:28	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			09/21/23 23:28	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.2	U	50.2	mg/Kg			09/18/23 18:56	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	50.2	mg/Kg		09/18/23 10:20	09/18/23 18:56	1
Diesel Range Organics (Over C10-C28)	<50.2	U	50.2	mg/Kg		09/18/23 10:20	09/18/23 18:56	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2	mg/Kg		09/18/23 10:20	09/18/23 18:56	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	116		70 - 130			09/18/23 10:20	09/18/23 18:56	1
o-Terphenyl	119		70 - 130			09/18/23 10:20	09/18/23 18:56	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	113		5.01	mg/Kg			09/20/23 20:10	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

Client Sample ID: BG05

Lab Sample ID: 890-5273-6

Date Collected: 09/11/23 11:10

Matrix: Solid

Date Received: 09/14/23 16:40

Sample Depth: 7

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		09/19/23 09:19	09/21/23 23:49	1
Toluene	<0.00202	U	0.00202	mg/Kg		09/19/23 09:19	09/21/23 23:49	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		09/19/23 09:19	09/21/23 23:49	1
m-Xylene & p-Xylene	<0.00404	U	0.00404	mg/Kg		09/19/23 09:19	09/21/23 23:49	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		09/19/23 09:19	09/21/23 23:49	1
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		09/19/23 09:19	09/21/23 23:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130	09/19/23 09:19	09/21/23 23:49	1
1,4-Difluorobenzene (Surr)	74		70 - 130	09/19/23 09:19	09/21/23 23:49	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404	mg/Kg			09/21/23 23:49	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.4	U	50.4	mg/Kg			09/18/23 19:18	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.4	U	50.4	mg/Kg		09/18/23 10:20	09/18/23 19:18	1
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4	mg/Kg		09/18/23 10:20	09/18/23 19:18	1
Oil Range Organics (Over C28-C36)	<50.4	U	50.4	mg/Kg		09/18/23 10:20	09/18/23 19:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	126		70 - 130	09/18/23 10:20	09/18/23 19:18	1
o-Terphenyl	131	S1+	70 - 130	09/18/23 10:20	09/18/23 19:18	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	358		4.99	mg/Kg			09/20/23 20:17	1

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## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-5273-1	BG01	90	71
890-5273-1 MS	BG01	134 S1+	93
890-5273-1 MSD	BG01	127	98
890-5273-2	BG01	64 S1-	101
890-5273-3	BG02	82	75
890-5273-4	BG02	91	64 S1-
890-5273-5	BG05	95	75
890-5273-6	BG05	93	74
LCS 880-62786/1-A	Lab Control Sample	128	100
LCSD 880-62786/2-A	Lab Control Sample Dup	130	97
MB 880-62786/5-A	Method Blank	73	90
MB 880-62886/5-A	Method Blank	72	94
<b>Surrogate Legend</b>			
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)
890-5273-1	BG01	122	126
890-5273-2	BG01	134 S1+	139 S1+
890-5273-3	BG02	137 S1+	143 S1+
890-5273-4	BG02	121	126
890-5273-5	BG05	116	119
890-5273-6	BG05	126	131 S1+
890-5278-A-10-F MS	Matrix Spike	111	108
890-5278-A-10-G MSD	Matrix Spike Duplicate	105	101
LCS 880-62709/2-A	Lab Control Sample	97	107
LCSD 880-62709/3-A	Lab Control Sample Dup	91	100
MB 880-62709/1-A	Method Blank	67 S1-	73
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

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

Lab Sample ID: MB 880-62786/5-A

Matrix: Solid

Analysis Batch: 62964

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62786

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 21:45	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 21:45	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 21:45	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/19/23 09:19	09/21/23 21:45	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/19/23 09:19	09/21/23 21:45	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/19/23 09:19	09/21/23 21:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		70 - 130	09/19/23 09:19	09/21/23 21:45	1
1,4-Difluorobenzene (Surr)	90		70 - 130	09/19/23 09:19	09/21/23 21:45	1

Lab Sample ID: LCS 880-62786/1-A

Matrix: Solid

Analysis Batch: 62964

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 62786

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07199		mg/Kg		72	70 - 130
Toluene	0.100	0.08136		mg/Kg		81	70 - 130
Ethylbenzene	0.100	0.09307		mg/Kg		93	70 - 130
m-Xylene & p-Xylene	0.200	0.1937		mg/Kg		97	70 - 130
o-Xylene	0.100	0.09886		mg/Kg		99	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	128		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: LCSD 880-62786/2-A

Matrix: Solid

Analysis Batch: 62964

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 62786

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08444		mg/Kg		84	70 - 130	16	35
Toluene	0.100	0.09277		mg/Kg		93	70 - 130	13	35
Ethylbenzene	0.100	0.1113		mg/Kg		111	70 - 130	18	35
m-Xylene & p-Xylene	0.200	0.1928		mg/Kg		96	70 - 130	0	35
o-Xylene	0.100	0.1158		mg/Kg		116	70 - 130	16	35

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

Lab Sample ID: 890-5273-1 MS

Matrix: Solid

Analysis Batch: 62964

Client Sample ID: BG01

Prep Type: Total/NA

Prep Batch: 62786

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.0998	0.09211		mg/Kg		92	70 - 130
Toluene	<0.00200	U	0.0998	0.1089		mg/Kg		109	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

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

Lab Sample ID: 890-5273-1 MS

Matrix: Solid

Analysis Batch: 62964

Client Sample ID: BG01

Prep Type: Total/NA

Prep Batch: 62786

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.0998	0.1241		mg/Kg		124	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.2561		mg/Kg		128	70 - 130
o-Xylene	<0.00200	U	0.0998	0.1259		mg/Kg		126	70 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
4-Bromofluorobenzene (Surr)	134	S1+	70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: 890-5273-1 MSD

Matrix: Solid

Analysis Batch: 62964

Client Sample ID: BG01

Prep Type: Total/NA

Prep Batch: 62786

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0990	0.08842		mg/Kg		89	70 - 130	4	35
Toluene	<0.00200	U	0.0990	0.09962		mg/Kg		101	70 - 130	9	35
Ethylbenzene	<0.00200	U	0.0990	0.1120		mg/Kg		113	70 - 130	10	35
m-Xylene & p-Xylene	<0.00401	U	0.198	0.2284		mg/Kg		115	70 - 130	11	35
o-Xylene	<0.00200	U	0.0990	0.1117		mg/Kg		113	70 - 130	12	35

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene (Surr)	127		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: MB 880-62886/5-A

Matrix: Solid

Analysis Batch: 62964

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62886

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/20/23 10:13	09/21/23 11:12	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/20/23 10:13	09/21/23 11:12	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/20/23 10:13	09/21/23 11:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/20/23 10:13	09/21/23 11:12	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/20/23 10:13	09/21/23 11:12	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/20/23 10:13	09/21/23 11:12	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		70 - 130	09/20/23 10:13	09/21/23 11:12	1
1,4-Difluorobenzene (Surr)	94		70 - 130	09/20/23 10:13	09/21/23 11:12	1

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

Lab Sample ID: MB 880-62709/1-A

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62709

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/18/23 08:00	09/18/23 08:29	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

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

Lab Sample ID: MB 880-62709/1-A

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62709

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/18/23 08:00	09/18/23 08:29	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/18/23 08:00	09/18/23 08:29	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	67	S1-	70 - 130			09/18/23 08:00	09/18/23 08:29	1
o-Terphenyl	73		70 - 130			09/18/23 08:00	09/18/23 08:29	1

Lab Sample ID: LCS 880-62709/2-A

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 62709

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1032		mg/Kg		103	70 - 130
Diesel Range Organics (Over C10-C28)	1000	918.8		mg/Kg		92	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	97		70 - 130				
o-Terphenyl	107		70 - 130				

Lab Sample ID: LCSD 880-62709/3-A

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 62709

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	983.6		mg/Kg		98	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	1000	875.2		mg/Kg		88	70 - 130	5	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	91		70 - 130						
o-Terphenyl	100		70 - 130						

Lab Sample ID: 890-5278-A-10-F MS

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 62709

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	992	1145		mg/Kg		113	70 - 130
Diesel Range Organics (Over C10-C28)	50.6		992	871.7		mg/Kg		83	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	111		70 - 130						
o-Terphenyl	108		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

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

Lab Sample ID: 890-5278-A-10-G MSD

Matrix: Solid

Analysis Batch: 62666

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 62709

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	992	1117		mg/Kg		110	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	50.6		992	819.7		mg/Kg		78	70 - 130	6	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	105		70 - 130								
o-Terphenyl	101		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-62761/1-A

Matrix: Solid

Analysis Batch: 62905

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/20/23 17:23	1

Lab Sample ID: LCS 880-62761/2-A

Matrix: Solid

Analysis Batch: 62905

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	245.4		mg/Kg		98	90 - 110

Lab Sample ID: LCSD 880-62761/3-A

Matrix: Solid

Analysis Batch: 62905

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	245.9		mg/Kg		98	90 - 110	0	20

Lab Sample ID: 890-5273-1 MS

Matrix: Solid

Analysis Batch: 62905

Client Sample ID: BG01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	156		251	407.1		mg/Kg		100	90 - 110

Lab Sample ID: 890-5273-1 MSD

Matrix: Solid

Analysis Batch: 62905

Client Sample ID: BG01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	156		251	407.9		mg/Kg		100	90 - 110	0	20

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

## GC VOA

## Prep Batch: 62786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5273-1	BG01	Total/NA	Solid	5035	
890-5273-2	BG01	Total/NA	Solid	5035	
890-5273-3	BG02	Total/NA	Solid	5035	
890-5273-4	BG02	Total/NA	Solid	5035	
890-5273-5	BG05	Total/NA	Solid	5035	
890-5273-6	BG05	Total/NA	Solid	5035	
MB 880-62786/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-62786/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-62786/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5273-1 MS	BG01	Total/NA	Solid	5035	
890-5273-1 MSD	BG01	Total/NA	Solid	5035	

## Prep Batch: 62886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-62886/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 62964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5273-1	BG01	Total/NA	Solid	8021B	62786
890-5273-2	BG01	Total/NA	Solid	8021B	62786
890-5273-3	BG02	Total/NA	Solid	8021B	62786
890-5273-4	BG02	Total/NA	Solid	8021B	62786
890-5273-5	BG05	Total/NA	Solid	8021B	62786
890-5273-6	BG05	Total/NA	Solid	8021B	62786
MB 880-62786/5-A	Method Blank	Total/NA	Solid	8021B	62786
MB 880-62886/5-A	Method Blank	Total/NA	Solid	8021B	62886
LCS 880-62786/1-A	Lab Control Sample	Total/NA	Solid	8021B	62786
LCSD 880-62786/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	62786
890-5273-1 MS	BG01	Total/NA	Solid	8021B	62786
890-5273-1 MSD	BG01	Total/NA	Solid	8021B	62786

## Analysis Batch: 63050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5273-1	BG01	Total/NA	Solid	Total BTEX	
890-5273-2	BG01	Total/NA	Solid	Total BTEX	
890-5273-3	BG02	Total/NA	Solid	Total BTEX	
890-5273-4	BG02	Total/NA	Solid	Total BTEX	
890-5273-5	BG05	Total/NA	Solid	Total BTEX	
890-5273-6	BG05	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 62666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5273-1	BG01	Total/NA	Solid	8015B NM	62709
890-5273-2	BG01	Total/NA	Solid	8015B NM	62709
890-5273-3	BG02	Total/NA	Solid	8015B NM	62709
890-5273-4	BG02	Total/NA	Solid	8015B NM	62709
890-5273-5	BG05	Total/NA	Solid	8015B NM	62709
890-5273-6	BG05	Total/NA	Solid	8015B NM	62709
MB 880-62709/1-A	Method Blank	Total/NA	Solid	8015B NM	62709

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

## GC Semi VOA (Continued)

## Analysis Batch: 62666 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-62709/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	62709
LCSD 880-62709/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	62709
890-5278-A-10-F MS	Matrix Spike	Total/NA	Solid	8015B NM	62709
890-5278-A-10-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	62709

## Prep Batch: 62709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5273-1	BG01	Total/NA	Solid	8015NM Prep	
890-5273-2	BG01	Total/NA	Solid	8015NM Prep	
890-5273-3	BG02	Total/NA	Solid	8015NM Prep	
890-5273-4	BG02	Total/NA	Solid	8015NM Prep	
890-5273-5	BG05	Total/NA	Solid	8015NM Prep	
890-5273-6	BG05	Total/NA	Solid	8015NM Prep	
MB 880-62709/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-62709/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-62709/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5278-A-10-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-5278-A-10-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 62828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5273-1	BG01	Total/NA	Solid	8015 NM	
890-5273-2	BG01	Total/NA	Solid	8015 NM	
890-5273-3	BG02	Total/NA	Solid	8015 NM	
890-5273-4	BG02	Total/NA	Solid	8015 NM	
890-5273-5	BG05	Total/NA	Solid	8015 NM	
890-5273-6	BG05	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 62761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5273-1	BG01	Soluble	Solid	DI Leach	
890-5273-2	BG01	Soluble	Solid	DI Leach	
890-5273-3	BG02	Soluble	Solid	DI Leach	
890-5273-4	BG02	Soluble	Solid	DI Leach	
890-5273-5	BG05	Soluble	Solid	DI Leach	
890-5273-6	BG05	Soluble	Solid	DI Leach	
MB 880-62761/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-62761/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-62761/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-5273-1 MS	BG01	Soluble	Solid	DI Leach	
890-5273-1 MSD	BG01	Soluble	Solid	DI Leach	

## Analysis Batch: 62905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5273-1	BG01	Soluble	Solid	300.0	62761
890-5273-2	BG01	Soluble	Solid	300.0	62761
890-5273-3	BG02	Soluble	Solid	300.0	62761
890-5273-4	BG02	Soluble	Solid	300.0	62761
890-5273-5	BG05	Soluble	Solid	300.0	62761

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QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

HPLC/IC (Continued)

Analysis Batch: 62905 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5273-6	BG05	Soluble	Solid	300.0	62761
MB 880-62761/1-A	Method Blank	Soluble	Solid	300.0	62761
LCS 880-62761/2-A	Lab Control Sample	Soluble	Solid	300.0	62761
LCSD 880-62761/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	62761
890-5273-1 MS	BG01	Soluble	Solid	300.0	62761
890-5273-1 MSD	BG01	Soluble	Solid	300.0	62761

## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

Client Sample ID: BG01

Lab Sample ID: 890-5273-1

Date Collected: 09/11/23 02:05

Matrix: Solid

Date Received: 09/14/23 16:40

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	62786	09/19/23 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	62964	09/21/23 22:07	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63050	09/21/23 22:07	SM	EET MID
Total/NA	Analysis	8015 NM		1			62828	09/18/23 17:29	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	62709	09/18/23 10:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62666	09/18/23 17:29	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	62761	09/18/23 14:41	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	62905	09/20/23 19:17	SMC	EET MID

Client Sample ID: BG01

Lab Sample ID: 890-5273-2

Date Collected: 09/11/23 15:00

Matrix: Solid

Date Received: 09/14/23 16:40

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	62786	09/19/23 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	62964	09/21/23 22:27	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63050	09/21/23 22:27	SM	EET MID
Total/NA	Analysis	8015 NM		1			62828	09/18/23 17:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.08 g	10 mL	62709	09/18/23 10:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62666	09/18/23 17:51	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	62761	09/18/23 14:41	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	62905	09/20/23 19:37	SMC	EET MID

Client Sample ID: BG02

Lab Sample ID: 890-5273-3

Date Collected: 09/11/23 12:40

Matrix: Solid

Date Received: 09/14/23 16:40

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	62786	09/19/23 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	62964	09/21/23 22:48	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63050	09/21/23 22:48	SM	EET MID
Total/NA	Analysis	8015 NM		1			62828	09/18/23 18:13	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	62709	09/18/23 10:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62666	09/18/23 18:13	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	62761	09/18/23 14:41	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	62905	09/20/23 19:43	SMC	EET MID

Client Sample ID: BG02

Lab Sample ID: 890-5273-4

Date Collected: 09/11/23 11:00

Matrix: Solid

Date Received: 09/14/23 16:40

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	62786	09/19/23 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	62964	09/21/23 23:08	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63050	09/21/23 23:08	SM	EET MID

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## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

Client Sample ID: BG02

Lab Sample ID: 890-5273-4

Date Collected: 09/11/23 11:00

Matrix: Solid

Date Received: 09/14/23 16:40

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			62828	09/18/23 18:34	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	62709	09/18/23 10:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62666	09/18/23 18:34	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	62761	09/18/23 14:41	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	62905	09/20/23 20:03	SMC	EET MID

Client Sample ID: BG05

Lab Sample ID: 890-5273-5

Date Collected: 09/11/23 10:40

Matrix: Solid

Date Received: 09/14/23 16:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	62786	09/19/23 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	62964	09/21/23 23:28	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63050	09/21/23 23:28	SM	EET MID
Total/NA	Analysis	8015 NM		1			62828	09/18/23 18:56	SM	EET MID
Total/NA	Prep	8015NM Prep			9.97 g	10 mL	62709	09/18/23 10:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62666	09/18/23 18:56	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	62761	09/18/23 14:41	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	62905	09/20/23 20:10	SMC	EET MID

Client Sample ID: BG05

Lab Sample ID: 890-5273-6

Date Collected: 09/11/23 11:10

Matrix: Solid

Date Received: 09/14/23 16:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	62786	09/19/23 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	62964	09/21/23 23:49	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63050	09/21/23 23:49	SM	EET MID
Total/NA	Analysis	8015 NM		1			62828	09/18/23 19:18	SM	EET MID
Total/NA	Prep	8015NM Prep			9.93 g	10 mL	62709	09/18/23 10:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62666	09/18/23 19:18	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	62761	09/18/23 14:41	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	62905	09/20/23 20:17	SMC	EET MID

## Laboratory References:

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

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Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

Laboratory: Eurofins Midland

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

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

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5273-1  
SDG: 03C1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5273-1	BG01	Solid	09/11/23 02:05	09/14/23 16:40	7
890-5273-2	BG01	Solid	09/11/23 15:00	09/14/23 16:40	2
890-5273-3	BG02	Solid	09/11/23 12:40	09/14/23 16:40	1
890-5273-4	BG02	Solid	09/11/23 11:00	09/14/23 16:40	7
890-5273-5	BG05	Solid	09/11/23 10:40	09/14/23 16:40	1
890-5273-6	BG05	Solid	09/11/23 11:10	09/14/23 16:40	7







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

## Chain of Custody

Work Order No: \_\_\_\_\_

www.xenco.com Page 1 of 1

Project Manager:	Ben Bellill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum	Company Name:	XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E. Green St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	303-887-2946	Email:	Garrett.Green@ExxonMobil.com

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

Project Name:	JRU 108H	Turn Around	Pres. Code	ANALYSIS REQUEST		Preservative Codes
Project Number:	03C1558090	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush				None NO DI Water: H <sub>2</sub> O
Project Location:	Connor Whitman	Due Date:				Cool: Cool MeOH: Me
Sampler's Name:		TAT starts the day received by the lab, if received by 4:30pm				HCL: HC HNO <sub>3</sub> : HN
PO #:						H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na
SAMPLE RECEIPT	Temp Blank: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				H <sub>3</sub> PO <sub>4</sub> : HP
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID:				NaHSO <sub>4</sub> : NABIS
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor:				Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Temperature Reading:				Zn Acetate+NaOH: Zn
Total Containers:		Corrected Temperature:				NaOH+Ascorbic Acid: SAPC
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont
B601	S	9/11/23	2:05	7'	G	1
B602			1:50	2'		1
B602			12:40	1'		1
B602			11:00	7'		1
B605			10:40	1'		1
B605			11:10	7'		1
CHLORIDES (EPA: 3000.0)						
TPH (8015)						
BTX (8021)						
890-5273 Chain of Custody						
Incident ID: NAPP2217931599						
Cost Center: 1139071001						
AFE:						

Total 200.7 / 6010 200.8 / 6020:

Circle Method(s) and Metal(s) to be analyzed

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO<sub>2</sub> Na Sr Ti Sn U V Zn  
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 \$35.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>Chen</i>	<i>Chen</i>	16:40 9/14	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev 2020.2

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5273-1

SDG Number: 03C1558090

Login Number: 5273

List Number: 1

Creator: Lopez, Abraham

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5273-1

SDG Number: 03C1558090

Login Number: 5273

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/18/23 08:43 AM

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



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ben Belill  
Ensolum  
601 N. Marienfeld St.  
Suite 400  
Midland, Texas 79701

Generated 10/9/2023 11:59:07 AM Revision 1

## JOB DESCRIPTION

JRU 108H  
SDG NUMBER 03C1558090

## JOB NUMBER

890-5296-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

# Eurofins Carlsbad

## Job Notes

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

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

## Authorization



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

Generated  
10/9/2023 11:59:07 AM  
Revision 1

Client: Ensolum  
Project/Site: JRU 108H

Laboratory Job ID: 890-5296-1  
SDG: 03C1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

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

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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

Eurofins Carlsbad

## Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

**Job ID: 890-5296-1**

**Laboratory: Eurofins Carlsbad**

**Narrative**

**Job Narrative  
890-5296-1**

REVISION

The report being provided is a revision of the original report sent on 9/27/2023. The report (revision 1) is being revised due to Per client email, requesting re runs on samples.

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

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

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

**Receipt**

The samples were received on 9/19/2023 4:16 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.6°C

**Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: FS02 (890-5296-1), FS03 (890-5296-2), FS04 (890-5296-3), FS05 (890-5296-4), FS06 (890-5296-5), FS07 (890-5296-6), FS08 (890-5296-7), FS09 (890-5296-8), FS10 (890-5296-9), SW01 (890-5296-10), SW02 (890-5296-11), SW03 (890-5296-12), SW04 (890-5296-13), SW05 (890-5296-14), SW06 (890-5296-15), SW07 (890-5296-16) and SW08 (890-5296-17).

**GC VOA**

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-62998 and analytical batch 880-63152 was outside the upper control limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: SW07 (890-5296-16). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The surrogate recovery for the blank associated with analytical batch 880-63183 was outside the upper control limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-33481-A-1-D). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-63021 and analytical batch 880-63283 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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

**GC Semi VOA**

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-62999 and analytical batch 880-62961 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: FS10 (890-5296-9), SW01



## Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

### Job ID: 890-5296-1 (Continued)

#### Laboratory: Eurofins Carlsbad (Continued)

(890-5296-10), SW02 (890-5296-11), SW03 (890-5296-12) and SW04 (890-5296-13). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-62999 and analytical batch 880-62961 was outside control limits. Sample non-homogeneity is suspected.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: (880-33751-A-21-E MS) and (880-33751-A-21-F MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-63538 and analytical batch 880-63575 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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

#### HPLC/IC

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

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: FS02

Lab Sample ID: 890-5296-1

Date Collected: 09/18/23 13:30

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/21/23 14:25	09/24/23 18:29	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/21/23 14:25	09/24/23 18:29	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/21/23 14:25	09/24/23 18:29	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/21/23 14:25	09/24/23 18:29	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/21/23 14:25	09/24/23 18:29	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/21/23 14:25	09/24/23 18:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		70 - 130	09/21/23 14:25	09/24/23 18:29	1
1,4-Difluorobenzene (Surr)	100		70 - 130	09/21/23 14:25	09/24/23 18:29	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/24/23 18:29	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	53.8		50.1	mg/Kg			09/21/23 22:32	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.1	U	50.1	mg/Kg		09/21/23 14:25	09/21/23 22:32	1
Diesel Range Organics (Over C10-C28)	53.8		50.1	mg/Kg		09/21/23 14:25	09/21/23 22:32	1
Oil Range Organics (Over C28-C36)	<50.1	U	50.1	mg/Kg		09/21/23 14:25	09/21/23 22:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130	09/21/23 14:25	09/21/23 22:32	1
o-Terphenyl	108		70 - 130	09/21/23 14:25	09/21/23 22:32	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	169		4.95	mg/Kg			09/22/23 14:33	1

Client Sample ID: FS03

Lab Sample ID: 890-5296-2

Date Collected: 09/18/23 13:35

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 4.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 18:50	1
Toluene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 18:50	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 18:50	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		09/21/23 14:25	09/24/23 18:50	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 18:50	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		09/21/23 14:25	09/24/23 18:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	09/21/23 14:25	09/24/23 18:50	1

Eurofins Carlsbad

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: FS03

Lab Sample ID: 890-5296-2

Date Collected: 09/18/23 13:35

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 4.5

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	101		70 - 130	09/21/23 14:25	09/24/23 18:50	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			09/24/23 18:50	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.2	U	50.2	mg/Kg			09/21/23 22:53	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	50.2	mg/Kg		09/21/23 14:25	09/21/23 22:53	1
Diesel Range Organics (Over C10-C28)	<50.2	U	50.2	mg/Kg		09/21/23 14:25	09/21/23 22:53	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2	mg/Kg		09/21/23 14:25	09/21/23 22:53	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130			09/21/23 14:25	09/21/23 22:53	1
o-Terphenyl	106		70 - 130			09/21/23 14:25	09/21/23 22:53	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	184		4.99	mg/Kg			09/22/23 14:40	1

Client Sample ID: FS04

Lab Sample ID: 890-5296-3

Date Collected: 09/18/23 13:40

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 4.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		09/21/23 14:25	09/24/23 19:10	1
Toluene	<0.00202	U	0.00202	mg/Kg		09/21/23 14:25	09/24/23 19:10	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		09/21/23 14:25	09/24/23 19:10	1
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		09/21/23 14:25	09/24/23 19:10	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		09/21/23 14:25	09/24/23 19:10	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		09/21/23 14:25	09/24/23 19:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 130	09/21/23 14:25	09/24/23 19:10	1
1,4-Difluorobenzene (Surr)	110		70 - 130	09/21/23 14:25	09/24/23 19:10	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			09/24/23 19:10	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	59.4		50.5	mg/Kg			09/21/23 23:14	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: FS04

Lab Sample ID: 890-5296-3

Date Collected: 09/18/23 13:40

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 4.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5	mg/Kg		09/21/23 14:25	09/21/23 23:14	1
<b>Diesel Range Organics (Over C10-C28)</b>	<b>59.4</b>		50.5	mg/Kg		09/21/23 14:25	09/21/23 23:14	1
Oil Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		09/21/23 14:25	09/21/23 23:14	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130			09/21/23 14:25	09/21/23 23:14	1
o-Terphenyl	118		70 - 130			09/21/23 14:25	09/21/23 23:14	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	212		4.98	mg/Kg			09/22/23 15:00	1

Client Sample ID: FS05

Lab Sample ID: 890-5296-4

Date Collected: 09/18/23 13:45

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 8

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/21/23 14:25	09/24/23 19:31	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/21/23 14:25	09/24/23 19:31	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/21/23 14:25	09/24/23 19:31	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/21/23 14:25	09/24/23 19:31	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/21/23 14:25	09/24/23 19:31	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/21/23 14:25	09/24/23 19:31	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130			09/21/23 14:25	09/24/23 19:31	1
1,4-Difluorobenzene (Surr)	105		70 - 130			09/21/23 14:25	09/24/23 19:31	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/24/23 19:31	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total TPH</b>	<b>72.9</b>		49.8	mg/Kg			09/21/23 23:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		09/21/23 14:25	09/21/23 23:36	1
<b>Diesel Range Organics (Over C10-C28)</b>	<b>72.9</b>		49.8	mg/Kg		09/21/23 14:25	09/21/23 23:36	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		09/21/23 14:25	09/21/23 23:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	110		70 - 130			09/21/23 14:25	09/21/23 23:36	1
o-Terphenyl	123		70 - 130			09/21/23 14:25	09/21/23 23:36	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: FS05

Lab Sample ID: 890-5296-4

Date Collected: 09/18/23 13:45

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 8

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	556		4.96	mg/Kg			10/06/23 13:21	1

Client Sample ID: FS06

Lab Sample ID: 890-5296-5

Date Collected: 09/18/23 13:50

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 8

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		09/21/23 14:25	09/24/23 19:51	1
Toluene	<0.00198	U	0.00198	mg/Kg		09/21/23 14:25	09/24/23 19:51	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		09/21/23 14:25	09/24/23 19:51	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		09/21/23 14:25	09/24/23 19:51	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		09/21/23 14:25	09/24/23 19:51	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		09/21/23 14:25	09/24/23 19:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130			09/21/23 14:25	09/24/23 19:51	1
1,4-Difluorobenzene (Surr)	108		70 - 130			09/21/23 14:25	09/24/23 19:51	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			09/24/23 19:51	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	58.8		49.9	mg/Kg			09/21/23 23:57	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/21/23 14:25	09/21/23 23:57	1
Diesel Range Organics (Over C10-C28)	58.8		49.9	mg/Kg		09/21/23 14:25	09/21/23 23:57	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/21/23 14:25	09/21/23 23:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130			09/21/23 14:25	09/21/23 23:57	1
o-Terphenyl	110		70 - 130			09/21/23 14:25	09/21/23 23:57	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	216		4.97	mg/Kg			09/22/23 15:13	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: FS07

Lab Sample ID: 890-5296-6

Date Collected: 09/18/23 13:55

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 5.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 20:11	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 20:11	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 20:11	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/21/23 14:25	09/24/23 20:11	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 20:11	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/21/23 14:25	09/24/23 20:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		70 - 130	09/21/23 14:25	09/24/23 20:11	1
1,4-Difluorobenzene (Surr)	104		70 - 130	09/21/23 14:25	09/24/23 20:11	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			09/24/23 20:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	64.4		49.6	mg/Kg			09/22/23 00:19	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6	mg/Kg		09/21/23 14:25	09/22/23 00:19	1
Diesel Range Organics (Over C10-C28)	64.4		49.6	mg/Kg		09/21/23 14:25	09/22/23 00:19	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		09/21/23 14:25	09/22/23 00:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130	09/21/23 14:25	09/22/23 00:19	1
o-Terphenyl	107		70 - 130	09/21/23 14:25	09/22/23 00:19	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	473		5.04	mg/Kg			09/22/23 15:20	1

Client Sample ID: FS08

Lab Sample ID: 890-5296-7

Date Collected: 09/18/23 14:00

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 6

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		09/21/23 14:25	09/24/23 20:32	1
Toluene	<0.00198	U	0.00198	mg/Kg		09/21/23 14:25	09/24/23 20:32	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		09/21/23 14:25	09/24/23 20:32	1
m-Xylene & p-Xylene	<0.00397	U	0.00397	mg/Kg		09/21/23 14:25	09/24/23 20:32	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		09/21/23 14:25	09/24/23 20:32	1
Xylenes, Total	<0.00397	U	0.00397	mg/Kg		09/21/23 14:25	09/24/23 20:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130	09/21/23 14:25	09/24/23 20:32	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: FS08

Lab Sample ID: 890-5296-7

Date Collected: 09/18/23 14:00

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 6

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	107		70 - 130	09/21/23 14:25	09/24/23 20:32	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00397	U	0.00397	mg/Kg			09/24/23 20:32	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.2	U	50.2	mg/Kg			09/22/23 00:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	50.2	mg/Kg		09/21/23 14:25	09/22/23 00:40	1
Diesel Range Organics (Over C10-C28)	<50.2	U	50.2	mg/Kg		09/21/23 14:25	09/22/23 00:40	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2	mg/Kg		09/21/23 14:25	09/22/23 00:40	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	102		70 - 130			09/21/23 14:25	09/22/23 00:40	1
o-Terphenyl	105		70 - 130			09/21/23 14:25	09/22/23 00:40	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	186		5.04	mg/Kg			09/22/23 15:26	1

Client Sample ID: FS09

Lab Sample ID: 890-5296-8

Date Collected: 09/18/23 14:05

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 6.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 20:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 20:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 20:53	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		09/21/23 14:25	09/24/23 20:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 20:53	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		09/21/23 14:25	09/24/23 20:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	09/21/23 14:25	09/24/23 20:53	1
1,4-Difluorobenzene (Surr)	108		70 - 130	09/21/23 14:25	09/24/23 20:53	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			09/24/23 20:53	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	52.8		50.5	mg/Kg			09/22/23 01:23	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

## Client Sample ID: FS09

## Lab Sample ID: 890-5296-8

Date Collected: 09/18/23 14:05

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 6.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5	mg/Kg		09/21/23 14:25	09/22/23 01:23	1
Diesel Range Organics (Over C10-C28)	52.8		50.5	mg/Kg		09/21/23 14:25	09/22/23 01:23	1
Oil Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		09/21/23 14:25	09/22/23 01:23	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130			09/21/23 14:25	09/22/23 01:23	1
o-Terphenyl	126		70 - 130			09/21/23 14:25	09/22/23 01:23	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	245		5.00	mg/Kg			09/22/23 15:33	1

## Client Sample ID: FS10

## Lab Sample ID: 890-5296-9

Date Collected: 09/18/23 14:10

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 7

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 21:13	1
Toluene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 21:13	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 21:13	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		09/21/23 14:25	09/24/23 21:13	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 21:13	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		09/21/23 14:25	09/24/23 21:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130			09/21/23 14:25	09/24/23 21:13	1
1,4-Difluorobenzene (Surr)	107		70 - 130			09/21/23 14:25	09/24/23 21:13	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			09/24/23 21:13	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.3	U	50.3	mg/Kg			09/22/23 01:45	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3	mg/Kg		09/21/23 14:25	09/22/23 01:45	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3	mg/Kg		09/21/23 14:25	09/22/23 01:45	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		09/21/23 14:25	09/22/23 01:45	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	143	S1+	70 - 130			09/21/23 14:25	09/22/23 01:45	1
o-Terphenyl	160	S1+	70 - 130			09/21/23 14:25	09/22/23 01:45	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: FS10

Lab Sample ID: 890-5296-9

Date Collected: 09/18/23 14:10

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 7

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	328		4.99	mg/Kg			09/22/23 15:40	1

Client Sample ID: SW01

Lab Sample ID: 890-5296-10

Date Collected: 09/18/23 14:15

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -4.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 21:33	1
Toluene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 21:33	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 21:33	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		09/21/23 14:25	09/24/23 21:33	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		09/21/23 14:25	09/24/23 21:33	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		09/21/23 14:25	09/24/23 21:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130			09/21/23 14:25	09/24/23 21:33	1
1,4-Difluorobenzene (Surr)	108		70 - 130			09/21/23 14:25	09/24/23 21:33	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			09/24/23 21:33	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			09/22/23 02:06	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		09/21/23 14:25	09/22/23 02:06	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		09/21/23 14:25	09/22/23 02:06	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		09/21/23 14:25	09/22/23 02:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	148	S1+	70 - 130			09/21/23 14:25	09/22/23 02:06	1
o-Terphenyl	165	S1+	70 - 130			09/21/23 14:25	09/22/23 02:06	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	207		4.97	mg/Kg			09/22/23 22:28	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: SW02

Lab Sample ID: 890-5296-11

Date Collected: 09/18/23 14:20

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -4.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 17:15	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 17:15	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 17:15	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/25/23 08:39	09/25/23 17:15	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 17:15	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/25/23 08:39	09/25/23 17:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130	09/25/23 08:39	09/25/23 17:15	1
1,4-Difluorobenzene (Surr)	71		70 - 130	09/25/23 08:39	09/25/23 17:15	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/25/23 17:15	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.6	U	49.6	mg/Kg			09/22/23 02:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6	mg/Kg		09/21/23 14:25	09/22/23 02:27	1
Diesel Range Organics (Over C10-C28)	<49.6	U	49.6	mg/Kg		09/21/23 14:25	09/22/23 02:27	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		09/21/23 14:25	09/22/23 02:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	133	S1+	70 - 130	09/21/23 14:25	09/22/23 02:27	1
o-Terphenyl	134	S1+	70 - 130	09/21/23 14:25	09/22/23 02:27	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	102		5.00	mg/Kg			09/22/23 22:48	1

Client Sample ID: SW03

Lab Sample ID: 890-5296-12

Date Collected: 09/18/23 14:25

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -8

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/25/23 08:39	09/25/23 17:35	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/25/23 08:39	09/25/23 17:35	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/25/23 08:39	09/25/23 17:35	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		09/25/23 08:39	09/25/23 17:35	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/25/23 08:39	09/25/23 17:35	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		09/25/23 08:39	09/25/23 17:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130	09/25/23 08:39	09/25/23 17:35	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: SW03

Lab Sample ID: 890-5296-12

Date Collected: 09/18/23 14:25

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -8

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	82		70 - 130	09/25/23 08:39	09/25/23 17:35	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			09/25/23 17:35	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	55.0		49.5	mg/Kg			09/22/23 02:48	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.5	U	49.5	mg/Kg		09/21/23 14:25	09/22/23 02:48	1
Diesel Range Organics (Over C10-C28)	55.0		49.5	mg/Kg		09/21/23 14:25	09/22/23 02:48	1
Oil Range Organics (Over C28-C36)	<49.5	U	49.5	mg/Kg		09/21/23 14:25	09/22/23 02:48	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	139	S1+	70 - 130			09/21/23 14:25	09/22/23 02:48	1
o-Terphenyl	155	S1+	70 - 130			09/21/23 14:25	09/22/23 02:48	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	327		5.00	mg/Kg			09/22/23 22:55	1

Client Sample ID: SW04

Lab Sample ID: 890-5296-13

Date Collected: 09/18/23 14:30

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -5.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		09/25/23 08:39	09/25/23 17:56	1
Toluene	<0.00201	U	0.00201	mg/Kg		09/25/23 08:39	09/25/23 17:56	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		09/25/23 08:39	09/25/23 17:56	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		09/25/23 08:39	09/25/23 17:56	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		09/25/23 08:39	09/25/23 17:56	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		09/25/23 08:39	09/25/23 17:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130	09/25/23 08:39	09/25/23 17:56	1
1,4-Difluorobenzene (Surr)	70		70 - 130	09/25/23 08:39	09/25/23 17:56	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			09/25/23 17:56	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	57.2		49.6	mg/Kg			09/29/23 16:25	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: SW04

Lab Sample ID: 890-5296-13

Date Collected: 09/18/23 14:30

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -5.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6	mg/Kg		09/28/23 14:02	09/29/23 16:25	1
<b>Diesel Range Organics (Over C10-C28)</b>	<b>57.2</b>		49.6	mg/Kg		09/28/23 14:02	09/29/23 16:25	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		09/28/23 14:02	09/29/23 16:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	72		70 - 130			09/28/23 14:02	09/29/23 16:25	1
o-Terphenyl	80		70 - 130			09/28/23 14:02	09/29/23 16:25	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	199		5.01	mg/Kg			09/22/23 23:01	1

Client Sample ID: SW05

Lab Sample ID: 890-5296-14

Date Collected: 09/18/23 14:35

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -5.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		09/25/23 08:39	09/25/23 18:16	1
Toluene	<0.00201	U	0.00201	mg/Kg		09/25/23 08:39	09/25/23 18:16	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		09/25/23 08:39	09/25/23 18:16	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		09/25/23 08:39	09/25/23 18:16	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		09/25/23 08:39	09/25/23 18:16	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		09/25/23 08:39	09/25/23 18:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 130			09/25/23 08:39	09/25/23 18:16	1
1,4-Difluorobenzene (Surr)	91		70 - 130			09/25/23 08:39	09/25/23 18:16	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			09/25/23 18:16	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total TPH</b>	<b>51.4</b>		50.5	mg/Kg			09/22/23 03:30	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5	mg/Kg		09/21/23 14:25	09/22/23 03:30	1
<b>Diesel Range Organics (Over C10-C28)</b>	<b>51.4</b>		50.5	mg/Kg		09/21/23 14:25	09/22/23 03:30	1
Oil Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		09/21/23 14:25	09/22/23 03:30	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	111		70 - 130			09/21/23 14:25	09/22/23 03:30	1
o-Terphenyl	122		70 - 130			09/21/23 14:25	09/22/23 03:30	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: SW05

Lab Sample ID: 890-5296-14

Date Collected: 09/18/23 14:35

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -5.5

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	106		4.99	mg/Kg			09/22/23 23:08	1

Client Sample ID: SW06

Lab Sample ID: 890-5296-15

Date Collected: 09/18/23 14:40

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -6

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 18:37	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 18:37	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 18:37	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/25/23 08:39	09/25/23 18:37	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 18:37	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/25/23 08:39	09/25/23 18:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 130			09/25/23 08:39	09/25/23 18:37	1
1,4-Difluorobenzene (Surr)	89		70 - 130			09/25/23 08:39	09/25/23 18:37	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/25/23 18:37	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.5	U	50.5	mg/Kg			09/22/23 03:51	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5	mg/Kg		09/21/23 14:25	09/22/23 03:51	1
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5	mg/Kg		09/21/23 14:25	09/22/23 03:51	1
Oil Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		09/21/23 14:25	09/22/23 03:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130			09/21/23 14:25	09/22/23 03:51	1
o-Terphenyl	111		70 - 130			09/21/23 14:25	09/22/23 03:51	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	45.8		5.03	mg/Kg			09/22/23 23:15	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: SW07

Lab Sample ID: 890-5296-16

Date Collected: 09/18/23 14:45

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -6.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 18:57	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 18:57	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 18:57	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/25/23 08:39	09/25/23 18:57	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/25/23 08:39	09/25/23 18:57	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/25/23 08:39	09/25/23 18:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130	09/25/23 08:39	09/25/23 18:57	1
1,4-Difluorobenzene (Surr)	65	S1-	70 - 130	09/25/23 08:39	09/25/23 18:57	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/25/23 18:57	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	60.3		50.2	mg/Kg			09/22/23 04:12	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	50.2	mg/Kg		09/21/23 14:25	09/22/23 04:12	1
Diesel Range Organics (Over C10-C28)	60.3		50.2	mg/Kg		09/21/23 14:25	09/22/23 04:12	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2	mg/Kg		09/21/23 14:25	09/22/23 04:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130	09/21/23 14:25	09/22/23 04:12	1
o-Terphenyl	114		70 - 130	09/21/23 14:25	09/22/23 04:12	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	408		5.02	mg/Kg			09/22/23 23:21	1

Client Sample ID: SW08

Lab Sample ID: 890-5296-17

Date Collected: 09/18/23 14:50

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -7

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/26/23 08:13	09/26/23 13:20	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/26/23 08:13	09/26/23 13:20	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/26/23 08:13	09/26/23 13:20	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		09/26/23 08:13	09/26/23 13:20	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/26/23 08:13	09/26/23 13:20	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		09/26/23 08:13	09/26/23 13:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	09/26/23 08:13	09/26/23 13:20	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: SW08

Lab Sample ID: 890-5296-17

Date Collected: 09/18/23 14:50

Matrix: Solid

Date Received: 09/19/23 16:16

Sample Depth: 0 - -7

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	75		70 - 130	09/26/23 08:13	09/26/23 13:20	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			09/26/23 13:20	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	71.8		49.8	mg/Kg			09/22/23 04:33	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		09/21/23 14:25	09/22/23 04:33	1
Diesel Range Organics (Over C10-C28)	71.8		49.8	mg/Kg		09/21/23 14:25	09/22/23 04:33	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		09/21/23 14:25	09/22/23 04:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130			09/21/23 14:25	09/22/23 04:33	1
o-Terphenyl	126		70 - 130			09/21/23 14:25	09/22/23 04:33	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	103		4.97	mg/Kg			09/22/23 23:28	1

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## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		BFB1 (70-130)	DFBZ1 (70-130)
880-33481-A-1-B MS	Matrix Spike	113	114
880-33481-A-1-C MSD	Matrix Spike Duplicate	118	114
890-5296-1	FS02	78	100
890-5296-1 MS	FS02	101	113
890-5296-1 MSD	FS02	99	97
890-5296-2	FS03	99	101
890-5296-3	FS04	85	110
890-5296-4	FS05	94	105
890-5296-5	FS06	93	108
890-5296-6	FS07	91	104
890-5296-7	FS08	93	107
890-5296-8	FS09	97	108
890-5296-9	FS10	92	107
890-5296-10	SW01	93	108
890-5296-11	SW02	93	71
890-5296-12	SW03	93	82
890-5296-13	SW04	93	70
890-5296-14	SW05	85	91
890-5296-15	SW06	85	89
890-5296-16	SW07	94	65 S1-
890-5296-17	SW08	92	75
890-5322-A-1-A MS	Matrix Spike	115	85
890-5322-A-1-B MSD	Matrix Spike Duplicate	113	102
LCS 880-62998/1-A	Lab Control Sample	95	91
LCS 880-63021/1-A	Lab Control Sample	109	121
LCS 880-63187/1-A	Lab Control Sample	112	100
LCSD 880-62998/2-A	Lab Control Sample Dup	88	103
LCSD 880-63021/2-A	Lab Control Sample Dup	107	112
LCSD 880-63187/2-A	Lab Control Sample Dup	109	99
MB 880-62998/5-A	Method Blank	121	152 S1+
MB 880-63021/5-A	Method Blank	73	94
MB 880-63187/5-A	Method Blank	73	94

## 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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		1CO1 (70-130)	OTPH1 (70-130)
880-33478-A-1-D MS	Matrix Spike	120	120
880-33478-A-1-E MSD	Matrix Spike Duplicate	109	104
880-33751-A-21-E MS	Matrix Spike	64 S1-	60 S1-
880-33751-A-21-F MSD	Matrix Spike Duplicate	64 S1-	60 S1-
890-5296-1	FS02	100	108
890-5296-2	FS03	97	106
890-5296-3	FS04	108	118

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## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

**Matrix: Solid**

**Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-5296-4	FS05	110	123
890-5296-5	FS06	104	110
890-5296-6	FS07	100	107
890-5296-7	FS08	102	105
890-5296-8	FS09	113	126
890-5296-9	FS10	143 S1+	160 S1+
890-5296-10	SW01	148 S1+	165 S1+
890-5296-11	SW02	133 S1+	134 S1+
890-5296-12	SW03	139 S1+	155 S1+
890-5296-13	SW04	72	80
890-5296-14	SW05	111	122
890-5296-15	SW06	105	111
890-5296-16	SW07	106	114
890-5296-17	SW08	114	126
LCS 880-62999/2-A	Lab Control Sample	85	96
LCS 880-63538/2-A	Lab Control Sample	104	112
LCSD 880-62999/3-A	Lab Control Sample Dup	82	94
LCSD 880-63538/3-A	Lab Control Sample Dup	96	102
MB 880-62999/1-A	Method Blank	170 S1+	198 S1+
MB 880-63538/1-A	Method Blank	97	118

**Surrogate Legend**

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

Lab Sample ID: MB 880-62998/5-A

Matrix: Solid

Analysis Batch: 63152

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62998

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 18:00	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 18:00	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 18:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/21/23 14:25	09/24/23 18:00	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/21/23 14:25	09/24/23 18:00	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/21/23 14:25	09/24/23 18:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	121		70 - 130	09/21/23 14:25	09/24/23 18:00	1
1,4-Difluorobenzene (Surr)	152	S1+	70 - 130	09/21/23 14:25	09/24/23 18:00	1

Lab Sample ID: LCS 880-62998/1-A

Matrix: Solid

Analysis Batch: 63152

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 62998

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.08428		mg/Kg		84	70 - 130
Toluene	0.100	0.09334		mg/Kg		93	70 - 130
Ethylbenzene	0.100	0.08708		mg/Kg		87	70 - 130
m-Xylene & p-Xylene	0.200	0.1893		mg/Kg		95	70 - 130
o-Xylene	0.100	0.09135		mg/Kg		91	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: LCSD 880-62998/2-A

Matrix: Solid

Analysis Batch: 63152

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 62998

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09787		mg/Kg		98	70 - 130	15	35
Toluene	0.100	0.08582		mg/Kg		86	70 - 130	8	35
Ethylbenzene	0.100	0.07781		mg/Kg		78	70 - 130	11	35
m-Xylene & p-Xylene	0.200	0.1615		mg/Kg		81	70 - 130	16	35
o-Xylene	0.100	0.08327		mg/Kg		83	70 - 130	9	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	88		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: 890-5296-1 MS

Matrix: Solid

Analysis Batch: 63152

Client Sample ID: FS02

Prep Type: Total/NA

Prep Batch: 62998

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.0990	0.1022		mg/Kg		103	70 - 130
Toluene	<0.00199	U	0.0990	0.07929		mg/Kg		80	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

Lab Sample ID: 890-5296-1 MS

Matrix: Solid

Analysis Batch: 63152

Client Sample ID: FS02

Prep Type: Total/NA

Prep Batch: 62998

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U	0.0990	0.07844		mg/Kg		79	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.198	0.1887		mg/Kg		95	70 - 130
o-Xylene	<0.00199	U	0.0990	0.09297		mg/Kg		93	70 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	113		70 - 130

Lab Sample ID: 890-5296-1 MSD

Matrix: Solid

Analysis Batch: 63152

Client Sample ID: FS02

Prep Type: Total/NA

Prep Batch: 62998

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.100	0.09342		mg/Kg		93	70 - 130	9	35
Toluene	<0.00199	U	0.100	0.08279		mg/Kg		83	70 - 130	4	35
Ethylbenzene	<0.00199	U	0.100	0.07973		mg/Kg		80	70 - 130	2	35
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1825		mg/Kg		91	70 - 130	3	35
o-Xylene	<0.00199	U	0.100	0.09028		mg/Kg		90	70 - 130	3	35

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: MB 880-63021/5-A

Matrix: Solid

Analysis Batch: 63283

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 63021

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/21/23 17:03	09/26/23 11:27	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/21/23 17:03	09/26/23 11:27	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/21/23 17:03	09/26/23 11:27	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/21/23 17:03	09/26/23 11:27	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/21/23 17:03	09/26/23 11:27	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/21/23 17:03	09/26/23 11:27	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		70 - 130	09/21/23 17:03	09/26/23 11:27	1
1,4-Difluorobenzene (Surr)	94		70 - 130	09/21/23 17:03	09/26/23 11:27	1

Lab Sample ID: LCS 880-63021/1-A

Matrix: Solid

Analysis Batch: 63283

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 63021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09513		mg/Kg		95	70 - 130
Toluene	0.100	0.1016		mg/Kg		102	70 - 130
Ethylbenzene	0.100	0.1029		mg/Kg		103	70 - 130
m-Xylene & p-Xylene	0.200	0.2159		mg/Kg		108	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

Lab Sample ID: LCS 880-63021/1-A

Matrix: Solid

Analysis Batch: 63283

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 63021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
o-Xylene	0.100	0.1049		mg/Kg		105	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,4-Difluorobenzene (Surr)	121		70 - 130

Lab Sample ID: LCSD 880-63021/2-A

Matrix: Solid

Analysis Batch: 63283

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 63021

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.09430		mg/Kg		94	70 - 130	1	35
Toluene	0.100	0.09809		mg/Kg		98	70 - 130	4	35
Ethylbenzene	0.100	0.09792		mg/Kg		98	70 - 130	5	35
m-Xylene & p-Xylene	0.200	0.2068		mg/Kg		103	70 - 130	4	35
o-Xylene	0.100	0.1005		mg/Kg		101	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		70 - 130
1,4-Difluorobenzene (Surr)	112		70 - 130

Lab Sample ID: 880-33481-A-1-B MS

Matrix: Solid

Analysis Batch: 63283

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 63021

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.0196	F1	0.0998	0.07601	F1	mg/Kg		57	70 - 130
Toluene	0.605	E	0.0998	0.08313	4	mg/Kg		-523	70 - 130
Ethylbenzene	0.0307	F1	0.0998	0.08771	F1	mg/Kg		57	70 - 130
m-Xylene & p-Xylene	0.0880	F1	0.200	0.1789	F1	mg/Kg		46	70 - 130
o-Xylene	0.0394	F1	0.0998	0.08847	F1	mg/Kg		49	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	114		70 - 130

Lab Sample ID: 880-33481-A-1-C MSD

Matrix: Solid

Analysis Batch: 63283

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 63021

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.0196	F1	0.0990	0.08338	F1	mg/Kg		64	70 - 130	9	35
Toluene	0.605	E	0.0990	0.09076	4	mg/Kg		-519	70 - 130	9	35
Ethylbenzene	0.0307	F1	0.0990	0.09700	F1	mg/Kg		67	70 - 130	10	35
m-Xylene & p-Xylene	0.0880	F1	0.198	0.1980	F1	mg/Kg		56	70 - 130	10	35
o-Xylene	0.0394	F1	0.0990	0.09753	F1	mg/Kg		59	70 - 130	10	35

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

Lab Sample ID: 880-33481-A-1-C MSD

Matrix: Solid

Analysis Batch: 63283

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 63021

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	118		70 - 130
1,4-Difluorobenzene (Surr)	114		70 - 130

Lab Sample ID: MB 880-63187/5-A

Matrix: Solid

Analysis Batch: 63183

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 63187

Analyte	MB	MB							
	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil	Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/25/23 08:39	09/25/23 11:24	1	
Toluene	<0.00200	U	0.00200	mg/Kg		09/25/23 08:39	09/25/23 11:24	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/25/23 08:39	09/25/23 11:24	1	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/25/23 08:39	09/25/23 11:24	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/25/23 08:39	09/25/23 11:24	1	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/25/23 08:39	09/25/23 11:24	1	

	MB	MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil	Fac		
4-Bromofluorobenzene (Surr)	73		70 - 130	09/25/23 08:39	09/25/23 11:24	1			
1,4-Difluorobenzene (Surr)	94		70 - 130	09/25/23 08:39	09/25/23 11:24	1			

Lab Sample ID: LCS 880-63187/1-A

Matrix: Solid

Analysis Batch: 63183

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 63187

Analyte	Spike	LCS	LCS						
	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Benzene	0.100	0.09824		mg/Kg		98	70 - 130		
Toluene	0.100	0.1035		mg/Kg		104	70 - 130		
Ethylbenzene	0.100	0.1031		mg/Kg		103	70 - 130		
m-Xylene & p-Xylene	0.200	0.2213		mg/Kg		111	70 - 130		
o-Xylene	0.100	0.1090		mg/Kg		109	70 - 130		

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

Lab Sample ID: LCSD 880-63187/2-A

Matrix: Solid

Analysis Batch: 63183

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 63187

Analyte	Spike	LCSD	LCSD							
	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.09053		mg/Kg		91	70 - 130	8	35	
Toluene	0.100	0.09587		mg/Kg		96	70 - 130	8	35	
Ethylbenzene	0.100	0.09682		mg/Kg		97	70 - 130	6	35	
m-Xylene & p-Xylene	0.200	0.2050		mg/Kg		103	70 - 130	8	35	
o-Xylene	0.100	0.1012		mg/Kg		101	70 - 130	7	35	

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

Lab Sample ID: LCSD 880-63187/2-A

Matrix: Solid

Analysis Batch: 63183

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 63187

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

Lab Sample ID: 890-5322-A-1-A MS

Matrix: Solid

Analysis Batch: 63183

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 63187

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.0998	0.08472		mg/Kg		85	70 - 130
Toluene	<0.00200	U	0.0998	0.09480		mg/Kg		95	70 - 130
Ethylbenzene	<0.00200	U	0.0998	0.09506		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.2009		mg/Kg		101	70 - 130
o-Xylene	<0.00200	U	0.0998	0.09958		mg/Kg		100	70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	115		70 - 130
1,4-Difluorobenzene (Surr)	85		70 - 130

Lab Sample ID: 890-5322-A-1-B MSD

Matrix: Solid

Analysis Batch: 63183

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 63187

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	<0.00200	U	0.0990	0.08138		mg/Kg		82	70 - 130	4	35
Toluene	<0.00200	U	0.0990	0.09016		mg/Kg		91	70 - 130	5	35
Ethylbenzene	<0.00200	U	0.0990	0.09062		mg/Kg		92	70 - 130	5	35
m-Xylene & p-Xylene	<0.00401	U	0.198	0.1926		mg/Kg		97	70 - 130	4	35
o-Xylene	<0.00200	U	0.0990	0.09519		mg/Kg		96	70 - 130	4	35

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

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

Lab Sample ID: MB 880-62999/1-A

Matrix: Solid

Analysis Batch: 62961

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 62999

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/21/23 14:25	09/21/23 19:43	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/21/23 14:25	09/21/23 19:43	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/21/23 14:25	09/21/23 19:43	1

	MB	MB						
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
1-Chlorooctane	170	S1+	70 - 130	09/21/23 14:25	09/21/23 19:43	1		
o-Terphenyl	198	S1+	70 - 130	09/21/23 14:25	09/21/23 19:43	1		

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

Lab Sample ID: LCS 880-62999/2-A

Matrix: Solid

Analysis Batch: 62961

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 62999

Analyte			Spike	LCS	LCS	Unit	D	%Rec	%Rec		
			Added	Result	Qualifier			Limits	Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	884.8		mg/Kg		88		70 - 130	
Diesel Range Organics (Over C10-C28)			1000	866.0		mg/Kg		87		70 - 130	
Surrogate	LCS	LCS	Limits								
	%Recovery	Qualifier									
1-Chlorooctane	85		70 - 130								
o-Terphenyl	96		70 - 130								

Lab Sample ID: LCSD 880-62999/3-A

Matrix: Solid

Analysis Batch: 62961

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 62999

Analyte			Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	RPD
			Added	Result	Qualifier				Limits		Limit
Gasoline Range Organics (GRO)-C6-C10			1000	880.5		mg/Kg		88	70 - 130	0	20
Diesel Range Organics (Over C10-C28)			1000	835.3		mg/Kg		84	70 - 130	4	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits								
1-Chlorooctane	82		70 - 130								
o-Terphenyl	94		70 - 130								

Lab Sample ID: 880-33478-A-1-D MS

Matrix: Solid

Analysis Batch: 62961

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 62999

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec		
	Result	Qualifier	Added	Result	Qualifier			Limits	Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.6	U F2	997	1282		mg/Kg		126	70 - 130		
Diesel Range Organics (Over C10-C28)	75.9		997	1142		mg/Kg		107	70 - 130		
Surrogate	MS	MS									
	%Recovery	Qualifier	Limits								
1-Chlorooctane	120		70 - 130								
o-Terphenyl	120		70 - 130								

Lab Sample ID: 880-33478-A-1-E MSD

Matrix: Solid

Analysis Batch: 62961

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 62999

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.6	U F2	997	868.4	F2	mg/Kg	-	84	70 - 130	38	20
Diesel Range Organics (Over C10-C28)	75.9		997	990.3		mg/Kg		92	70 - 130	14	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	109		70 - 130								

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

Lab Sample ID: 880-33478-A-1-E MSD

Matrix: Solid

Analysis Batch: 62961

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 62999

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	104		70 - 130

Lab Sample ID: MB 880-63538/1-A

Matrix: Solid

Analysis Batch: 63575

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 63538

	MB	MB							
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/28/23 14:02	09/29/23 07:54	1	
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/28/23 14:02	09/29/23 07:54	1	
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/28/23 14:02	09/29/23 07:54	1	
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	97		70 - 130			09/28/23 14:02	09/29/23 07:54	1	
<i>o</i> -Terphenyl	118		70 - 130			09/28/23 14:02	09/29/23 07:54	1	

Lab Sample ID: LCS 880-63538/2-A

Matrix: Solid

Analysis Batch: 63575

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 63538

		Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C6-C10		1000	1130		mg/Kg		113	70 - 130	
Diesel Range Organics (Over C10-C28)		1000	1110		mg/Kg		111	70 - 130	
	LCS	LCS							
Surrogate	%Recovery	Qualifier	Limits						
1-Chlorooctane	104		70 - 130						
<i>o</i> -Terphenyl	112		70 - 130						

Lab Sample ID: LCSD 880-63538/3-A

Matrix: Solid

Analysis Batch: 63575

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 63538

		Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10		1000	953.1		mg/Kg		95	70 - 130	17	20
Diesel Range Organics (Over C10-C28)		1000	1082		mg/Kg		108	70 - 130	3	20
	LCSD	LCSD								
Surrogate	%Recovery	Qualifier	Limits							
1-Chlorooctane	96		70 - 130							
<i>o</i> -Terphenyl	102		70 - 130							

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

Lab Sample ID: 880-33751-A-21-E MS

Matrix: Solid

Analysis Batch: 63575

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 63538

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.6	U F1	1010	641.7	F1	mg/Kg		62	70 - 130
Diesel Range Organics (Over C10-C28)	<49.6	U F1	1010	603.8	F1	mg/Kg		56	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	64	S1-	70 - 130						
o-Terphenyl	60	S1-	70 - 130						

Lab Sample ID: 880-33751-A-21-F MSD

Matrix: Solid

Analysis Batch: 63575

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 63538

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.6	U F1	1010	630.6	F1	mg/Kg		60	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.6	U F1	1010	610.1	F1	mg/Kg		57	70 - 130	1	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	64	S1-	70 - 130								
o-Terphenyl	60	S1-	70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-62978/1-A

Matrix: Solid

Analysis Batch: 63069

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/22/23 12:21	1

Lab Sample ID: LCS 880-62978/2-A

Matrix: Solid

Analysis Batch: 63069

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	257.9		mg/Kg		103	90 - 110

Lab Sample ID: LCSD 880-62978/3-A

Matrix: Solid

Analysis Batch: 63069

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	256.8		mg/Kg		103	90 - 110	0	20

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-5295-A-1-B MS

Matrix: Solid

Analysis Batch: 63069

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	4260		2520	6889		mg/Kg		104	90 - 110

Lab Sample ID: 890-5295-A-1-C MSD

Matrix: Solid

Analysis Batch: 63069

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	4260		2520	6871		mg/Kg		104	90 - 110	0	20

Lab Sample ID: MB 880-62838/1-A

Matrix: Solid

Analysis Batch: 63122

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/22/23 20:09	1

Lab Sample ID: LCS 880-62838/2-A

Matrix: Solid

Analysis Batch: 63122

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	250.2		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 880-62838/3-A

Matrix: Solid

Analysis Batch: 63122

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	250.7		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 880-33428-A-5-B MS

Matrix: Solid

Analysis Batch: 63122

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	472		253	703.7		mg/Kg		92	90 - 110

Lab Sample ID: 880-33428-A-5-C MSD

Matrix: Solid

Analysis Batch: 63122

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	472		253	704.0		mg/Kg		92	90 - 110	0	20

Lab Sample ID: MB 880-64083/1-A

Matrix: Solid

Analysis Batch: 64134

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			10/06/23 08:41	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCS 880-64083/2-A

Matrix: Solid

Analysis Batch: 64134

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	252.5		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64083/3-A

Matrix: Solid

Analysis Batch: 64134

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	253.4		mg/Kg		101	90 - 110	0	20

Lab Sample ID: 880-34084-A-3-B MS

Matrix: Solid

Analysis Batch: 64134

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	1360		1250	2562		mg/Kg		96	90 - 110

Lab Sample ID: 880-34084-A-3-C MSD

Matrix: Solid

Analysis Batch: 64134

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	1360		1250	2557		mg/Kg		96	90 - 110	0	20

## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

## GC VOA

## Prep Batch: 62998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-1	FS02	Total/NA	Solid	5035	
890-5296-2	FS03	Total/NA	Solid	5035	
890-5296-3	FS04	Total/NA	Solid	5035	
890-5296-4	FS05	Total/NA	Solid	5035	
890-5296-5	FS06	Total/NA	Solid	5035	
890-5296-6	FS07	Total/NA	Solid	5035	
890-5296-7	FS08	Total/NA	Solid	5035	
890-5296-8	FS09	Total/NA	Solid	5035	
890-5296-9	FS10	Total/NA	Solid	5035	
890-5296-10	SW01	Total/NA	Solid	5035	
MB 880-62998/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-62998/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-62998/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5296-1 MS	FS02	Total/NA	Solid	5035	
890-5296-1 MSD	FS02	Total/NA	Solid	5035	

## Prep Batch: 63021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-17	SW08	Total/NA	Solid	5035	
MB 880-63021/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-63021/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-63021/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-33481-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-33481-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 63152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-1	FS02	Total/NA	Solid	8021B	62998
890-5296-2	FS03	Total/NA	Solid	8021B	62998
890-5296-3	FS04	Total/NA	Solid	8021B	62998
890-5296-4	FS05	Total/NA	Solid	8021B	62998
890-5296-5	FS06	Total/NA	Solid	8021B	62998
890-5296-6	FS07	Total/NA	Solid	8021B	62998
890-5296-7	FS08	Total/NA	Solid	8021B	62998
890-5296-8	FS09	Total/NA	Solid	8021B	62998
890-5296-9	FS10	Total/NA	Solid	8021B	62998
890-5296-10	SW01	Total/NA	Solid	8021B	62998
MB 880-62998/5-A	Method Blank	Total/NA	Solid	8021B	62998
LCS 880-62998/1-A	Lab Control Sample	Total/NA	Solid	8021B	62998
LCSD 880-62998/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	62998
890-5296-1 MS	FS02	Total/NA	Solid	8021B	62998
890-5296-1 MSD	FS02	Total/NA	Solid	8021B	62998

## Analysis Batch: 63183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-11	SW02	Total/NA	Solid	8021B	63187
890-5296-12	SW03	Total/NA	Solid	8021B	63187
890-5296-13	SW04	Total/NA	Solid	8021B	63187
890-5296-14	SW05	Total/NA	Solid	8021B	63187
890-5296-15	SW06	Total/NA	Solid	8021B	63187
890-5296-16	SW07	Total/NA	Solid	8021B	63187

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

## GC VOA (Continued)

## Analysis Batch: 63183 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-63187/5-A	Method Blank	Total/NA	Solid	8021B	63187
LCS 880-63187/1-A	Lab Control Sample	Total/NA	Solid	8021B	63187
LCSD 880-63187/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	63187
890-5322-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	63187
890-5322-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	63187

## Prep Batch: 63187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-11	SW02	Total/NA	Solid	5035	
890-5296-12	SW03	Total/NA	Solid	5035	
890-5296-13	SW04	Total/NA	Solid	5035	
890-5296-14	SW05	Total/NA	Solid	5035	
890-5296-15	SW06	Total/NA	Solid	5035	
890-5296-16	SW07	Total/NA	Solid	5035	
MB 880-63187/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-63187/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-63187/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5322-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
890-5322-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 63239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-1	FS02	Total/NA	Solid	Total BTEX	
890-5296-2	FS03	Total/NA	Solid	Total BTEX	
890-5296-3	FS04	Total/NA	Solid	Total BTEX	
890-5296-4	FS05	Total/NA	Solid	Total BTEX	
890-5296-5	FS06	Total/NA	Solid	Total BTEX	
890-5296-6	FS07	Total/NA	Solid	Total BTEX	
890-5296-7	FS08	Total/NA	Solid	Total BTEX	
890-5296-8	FS09	Total/NA	Solid	Total BTEX	
890-5296-9	FS10	Total/NA	Solid	Total BTEX	
890-5296-10	SW01	Total/NA	Solid	Total BTEX	
890-5296-11	SW02	Total/NA	Solid	Total BTEX	
890-5296-12	SW03	Total/NA	Solid	Total BTEX	
890-5296-13	SW04	Total/NA	Solid	Total BTEX	
890-5296-14	SW05	Total/NA	Solid	Total BTEX	
890-5296-15	SW06	Total/NA	Solid	Total BTEX	
890-5296-16	SW07	Total/NA	Solid	Total BTEX	
890-5296-17	SW08	Total/NA	Solid	Total BTEX	

## Analysis Batch: 63283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-17	SW08	Total/NA	Solid	8021B	63021
MB 880-63021/5-A	Method Blank	Total/NA	Solid	8021B	63021
LCS 880-63021/1-A	Lab Control Sample	Total/NA	Solid	8021B	63021
LCSD 880-63021/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	63021
880-33481-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	63021
880-33481-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	63021

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

## GC Semi VOA

## Analysis Batch: 62961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-1	FS02	Total/NA	Solid	8015B NM	62999
890-5296-2	FS03	Total/NA	Solid	8015B NM	62999
890-5296-3	FS04	Total/NA	Solid	8015B NM	62999
890-5296-4	FS05	Total/NA	Solid	8015B NM	62999
890-5296-5	FS06	Total/NA	Solid	8015B NM	62999
890-5296-6	FS07	Total/NA	Solid	8015B NM	62999
890-5296-7	FS08	Total/NA	Solid	8015B NM	62999
890-5296-8	FS09	Total/NA	Solid	8015B NM	62999
890-5296-9	FS10	Total/NA	Solid	8015B NM	62999
890-5296-10	SW01	Total/NA	Solid	8015B NM	62999
890-5296-11	SW02	Total/NA	Solid	8015B NM	62999
890-5296-12	SW03	Total/NA	Solid	8015B NM	62999
890-5296-14	SW05	Total/NA	Solid	8015B NM	62999
890-5296-15	SW06	Total/NA	Solid	8015B NM	62999
890-5296-16	SW07	Total/NA	Solid	8015B NM	62999
890-5296-17	SW08	Total/NA	Solid	8015B NM	62999
MB 880-62999/1-A	Method Blank	Total/NA	Solid	8015B NM	62999
LCS 880-62999/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	62999
LCSD 880-62999/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	62999
880-33478-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	62999
880-33478-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	62999

## Prep Batch: 62999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-1	FS02	Total/NA	Solid	8015NM Prep	
890-5296-2	FS03	Total/NA	Solid	8015NM Prep	
890-5296-3	FS04	Total/NA	Solid	8015NM Prep	
890-5296-4	FS05	Total/NA	Solid	8015NM Prep	
890-5296-5	FS06	Total/NA	Solid	8015NM Prep	
890-5296-6	FS07	Total/NA	Solid	8015NM Prep	
890-5296-7	FS08	Total/NA	Solid	8015NM Prep	
890-5296-8	FS09	Total/NA	Solid	8015NM Prep	
890-5296-9	FS10	Total/NA	Solid	8015NM Prep	
890-5296-10	SW01	Total/NA	Solid	8015NM Prep	
890-5296-11	SW02	Total/NA	Solid	8015NM Prep	
890-5296-12	SW03	Total/NA	Solid	8015NM Prep	
890-5296-14	SW05	Total/NA	Solid	8015NM Prep	
890-5296-15	SW06	Total/NA	Solid	8015NM Prep	
890-5296-16	SW07	Total/NA	Solid	8015NM Prep	
890-5296-17	SW08	Total/NA	Solid	8015NM Prep	
MB 880-62999/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-62999/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-62999/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-33478-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-33478-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 63085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-1	FS02	Total/NA	Solid	8015 NM	
890-5296-2	FS03	Total/NA	Solid	8015 NM	
890-5296-3	FS04	Total/NA	Solid	8015 NM	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

## GC Semi VOA (Continued)

## Analysis Batch: 63085 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-4	FS05	Total/NA	Solid	8015 NM	
890-5296-5	FS06	Total/NA	Solid	8015 NM	
890-5296-6	FS07	Total/NA	Solid	8015 NM	
890-5296-7	FS08	Total/NA	Solid	8015 NM	
890-5296-8	FS09	Total/NA	Solid	8015 NM	
890-5296-9	FS10	Total/NA	Solid	8015 NM	
890-5296-10	SW01	Total/NA	Solid	8015 NM	
890-5296-11	SW02	Total/NA	Solid	8015 NM	
890-5296-12	SW03	Total/NA	Solid	8015 NM	
890-5296-13	SW04	Total/NA	Solid	8015 NM	
890-5296-14	SW05	Total/NA	Solid	8015 NM	
890-5296-15	SW06	Total/NA	Solid	8015 NM	
890-5296-16	SW07	Total/NA	Solid	8015 NM	
890-5296-17	SW08	Total/NA	Solid	8015 NM	

## Prep Batch: 63538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-13	SW04	Total/NA	Solid	8015NM Prep	
MB 880-63538/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-63538/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-63538/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-33751-A-21-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-33751-A-21-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 63575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-13	SW04	Total/NA	Solid	8015B NM	63538
MB 880-63538/1-A	Method Blank	Total/NA	Solid	8015B NM	63538
LCS 880-63538/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	63538
LCSD 880-63538/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	63538
880-33751-A-21-E MS	Matrix Spike	Total/NA	Solid	8015B NM	63538
880-33751-A-21-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	63538

## HPLC/IC

## Leach Batch: 62838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-10	SW01	Soluble	Solid	DI Leach	
890-5296-11	SW02	Soluble	Solid	DI Leach	
890-5296-12	SW03	Soluble	Solid	DI Leach	
890-5296-13	SW04	Soluble	Solid	DI Leach	
890-5296-14	SW05	Soluble	Solid	DI Leach	
890-5296-15	SW06	Soluble	Solid	DI Leach	
890-5296-16	SW07	Soluble	Solid	DI Leach	
890-5296-17	SW08	Soluble	Solid	DI Leach	
MB 880-62838/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-62838/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-62838/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-33428-A-5-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-33428-A-5-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

## HPLC/IC

## Leach Batch: 62978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-1	FS02	Soluble	Solid	DI Leach	
890-5296-2	FS03	Soluble	Solid	DI Leach	
890-5296-3	FS04	Soluble	Solid	DI Leach	
890-5296-5	FS06	Soluble	Solid	DI Leach	
890-5296-6	FS07	Soluble	Solid	DI Leach	
890-5296-7	FS08	Soluble	Solid	DI Leach	
890-5296-8	FS09	Soluble	Solid	DI Leach	
890-5296-9	FS10	Soluble	Solid	DI Leach	
MB 880-62978/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-62978/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-62978/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-5295-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-5295-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 63069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-1	FS02	Soluble	Solid	300.0	62978
890-5296-2	FS03	Soluble	Solid	300.0	62978
890-5296-3	FS04	Soluble	Solid	300.0	62978
890-5296-5	FS06	Soluble	Solid	300.0	62978
890-5296-6	FS07	Soluble	Solid	300.0	62978
890-5296-7	FS08	Soluble	Solid	300.0	62978
890-5296-8	FS09	Soluble	Solid	300.0	62978
890-5296-9	FS10	Soluble	Solid	300.0	62978
MB 880-62978/1-A	Method Blank	Soluble	Solid	300.0	62978
LCS 880-62978/2-A	Lab Control Sample	Soluble	Solid	300.0	62978
LCSD 880-62978/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	62978
890-5295-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	62978
890-5295-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	62978

## Analysis Batch: 63122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-10	SW01	Soluble	Solid	300.0	62838
890-5296-11	SW02	Soluble	Solid	300.0	62838
890-5296-12	SW03	Soluble	Solid	300.0	62838
890-5296-13	SW04	Soluble	Solid	300.0	62838
890-5296-14	SW05	Soluble	Solid	300.0	62838
890-5296-15	SW06	Soluble	Solid	300.0	62838
890-5296-16	SW07	Soluble	Solid	300.0	62838
890-5296-17	SW08	Soluble	Solid	300.0	62838
MB 880-62838/1-A	Method Blank	Soluble	Solid	300.0	62838
LCS 880-62838/2-A	Lab Control Sample	Soluble	Solid	300.0	62838
LCSD 880-62838/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	62838
880-33428-A-5-B MS	Matrix Spike	Soluble	Solid	300.0	62838
880-33428-A-5-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	62838

## Leach Batch: 64083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-4	FS05	Soluble	Solid	DI Leach	
MB 880-64083/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64083/2-A	Lab Control Sample	Soluble	Solid	DI Leach	

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QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

HPLC/IC (Continued)

Leach Batch: 64083 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-64083/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34084-A-3-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34084-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 64134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5296-4	FS05	Soluble	Solid	300.0	64083
MB 880-64083/1-A	Method Blank	Soluble	Solid	300.0	64083
LCS 880-64083/2-A	Lab Control Sample	Soluble	Solid	300.0	64083
LCSD 880-64083/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64083
880-34084-A-3-B MS	Matrix Spike	Soluble	Solid	300.0	64083
880-34084-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64083

## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: FS02

Lab Sample ID: 890-5296-1

Date Collected: 09/18/23 13:30

Matrix: Solid

Date Received: 09/19/23 16:16

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	62998	09/21/23 14:25	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63152	09/24/23 18:29	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/24/23 18:29	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/21/23 22:32	SM	EET MID
Total/NA	Prep	8015NM Prep			9.99 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/21/23 22:32	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	62978	09/21/23 11:12	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63069	09/22/23 14:33	SMC	EET MID

Client Sample ID: FS03

Lab Sample ID: 890-5296-2

Date Collected: 09/18/23 13:35

Matrix: Solid

Date Received: 09/19/23 16:16

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	62998	09/21/23 14:25	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63152	09/24/23 18:50	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/24/23 18:50	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/21/23 22:53	SM	EET MID
Total/NA	Prep	8015NM Prep			9.96 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/21/23 22:53	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	62978	09/21/23 11:12	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63069	09/22/23 14:40	SMC	EET MID

Client Sample ID: FS04

Lab Sample ID: 890-5296-3

Date Collected: 09/18/23 13:40

Matrix: Solid

Date Received: 09/19/23 16:16

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	62998	09/21/23 14:25	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63152	09/24/23 19:10	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/24/23 19:10	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/21/23 23:14	SM	EET MID
Total/NA	Prep	8015NM Prep			9.90 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/21/23 23:14	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	62978	09/21/23 11:12	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63069	09/22/23 15:00	SMC	EET MID

Client Sample ID: FS05

Lab Sample ID: 890-5296-4

Date Collected: 09/18/23 13:45

Matrix: Solid

Date Received: 09/19/23 16:16

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	62998	09/21/23 14:25	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63152	09/24/23 19:31	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/24/23 19:31	SM	EET MID

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## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

**Client Sample ID: FS05****Date Collected: 09/18/23 13:45****Date Received: 09/19/23 16:16****Lab Sample ID: 890-5296-4****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			63085	09/21/23 23:36	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/21/23 23:36	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	64083	10/06/23 09:12	AG	EET MID
Soluble	Analysis	300.0		1			64134	10/06/23 13:21	CH	EET MID

**Client Sample ID: FS06****Date Collected: 09/18/23 13:50****Date Received: 09/19/23 16:16****Lab Sample ID: 890-5296-5****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	62998	09/21/23 14:25	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63152	09/24/23 19:51	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/24/23 19:51	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/21/23 23:57	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/21/23 23:57	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	62978	09/21/23 11:12	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63069	09/22/23 15:13	SMC	EET MID

**Client Sample ID: FS07****Date Collected: 09/18/23 13:55****Date Received: 09/19/23 16:16****Lab Sample ID: 890-5296-6****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	62998	09/21/23 14:25	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63152	09/24/23 20:11	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/24/23 20:11	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/22/23 00:19	SM	EET MID
Total/NA	Prep	8015NM Prep			10.08 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 00:19	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	62978	09/21/23 11:12	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63069	09/22/23 15:20	SMC	EET MID

**Client Sample ID: FS08****Date Collected: 09/18/23 14:00****Date Received: 09/19/23 16:16****Lab Sample ID: 890-5296-7****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	62998	09/21/23 14:25	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63152	09/24/23 20:32	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/24/23 20:32	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/22/23 00:40	SM	EET MID
Total/NA	Prep	8015NM Prep			9.97 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 00:40	SM	EET MID

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## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

**Client Sample ID: FS08****Date Collected: 09/18/23 14:00****Date Received: 09/19/23 16:16****Lab Sample ID: 890-5296-7****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	62978	09/21/23 11:12	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63069	09/22/23 15:26	SMC	EET MID

**Client Sample ID: FS09****Date Collected: 09/18/23 14:05****Date Received: 09/19/23 16:16****Lab Sample ID: 890-5296-8****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	62998	09/21/23 14:25	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63152	09/24/23 20:53	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/24/23 20:53	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/22/23 01:23	SM	EET MID
Total/NA	Prep	8015NM Prep			9.91 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 01:23	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	62978	09/21/23 11:12	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63069	09/22/23 15:33	SMC	EET MID

**Client Sample ID: FS10****Date Collected: 09/18/23 14:10****Date Received: 09/19/23 16:16****Lab Sample ID: 890-5296-9****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	62998	09/21/23 14:25	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63152	09/24/23 21:13	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/24/23 21:13	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/22/23 01:45	SM	EET MID
Total/NA	Prep	8015NM Prep			9.95 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 01:45	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	62978	09/21/23 11:12	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63069	09/22/23 15:40	SMC	EET MID

**Client Sample ID: SW01****Date Collected: 09/18/23 14:15****Date Received: 09/19/23 16:16****Lab Sample ID: 890-5296-10****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	62998	09/21/23 14:25	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63152	09/24/23 21:33	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/24/23 21:33	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/22/23 02:06	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 02:06	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	62838	09/22/23 10:50	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63122	09/22/23 22:28	CH	EET MID

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## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

**Client Sample ID: SW02****Lab Sample ID: 890-5296-11****Date Collected: 09/18/23 14:20****Matrix: Solid****Date Received: 09/19/23 16:16**

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	63187	09/25/23 08:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63183	09/25/23 17:15	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/25/23 17:15	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/22/23 02:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 02:27	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	62838	09/22/23 10:50	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63122	09/22/23 22:48	CH	EET MID

**Client Sample ID: SW03****Lab Sample ID: 890-5296-12****Date Collected: 09/18/23 14:25****Matrix: Solid****Date Received: 09/19/23 16:16**

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	63187	09/25/23 08:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63183	09/25/23 17:35	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/25/23 17:35	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/22/23 02:48	SM	EET MID
Total/NA	Prep	8015NM Prep			10.10 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 02:48	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	62838	09/22/23 10:50	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63122	09/22/23 22:55	CH	EET MID

**Client Sample ID: SW04****Lab Sample ID: 890-5296-13****Date Collected: 09/18/23 14:30****Matrix: Solid****Date Received: 09/19/23 16:16**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	63187	09/25/23 08:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63183	09/25/23 17:56	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/25/23 17:56	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/29/23 16:25	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	63538	09/28/23 14:02	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63575	09/29/23 16:25	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	62838	09/22/23 10:50	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63122	09/22/23 23:01	CH	EET MID

**Client Sample ID: SW05****Lab Sample ID: 890-5296-14****Date Collected: 09/18/23 14:35****Matrix: Solid****Date Received: 09/19/23 16:16**

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	63187	09/25/23 08:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63183	09/25/23 18:16	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/25/23 18:16	SM	EET MID

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## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: SW05

Lab Sample ID: 890-5296-14

Date Collected: 09/18/23 14:35

Matrix: Solid

Date Received: 09/19/23 16:16

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			63085	09/22/23 03:30	SM	EET MID
Total/NA	Prep	8015NM Prep			9.90 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 03:30	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	62838	09/22/23 10:50	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63122	09/22/23 23:08	CH	EET MID

Client Sample ID: SW06

Lab Sample ID: 890-5296-15

Date Collected: 09/18/23 14:40

Matrix: Solid

Date Received: 09/19/23 16:16

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	63187	09/25/23 08:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63183	09/25/23 18:37	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/25/23 18:37	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/22/23 03:51	SM	EET MID
Total/NA	Prep	8015NM Prep			9.91 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 03:51	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	62838	09/22/23 10:50	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63122	09/22/23 23:15	CH	EET MID

Client Sample ID: SW07

Lab Sample ID: 890-5296-16

Date Collected: 09/18/23 14:45

Matrix: Solid

Date Received: 09/19/23 16:16

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	63187	09/25/23 08:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63183	09/25/23 18:57	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/25/23 18:57	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/22/23 04:12	SM	EET MID
Total/NA	Prep	8015NM Prep			9.96 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 04:12	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	62838	09/22/23 10:50	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63122	09/22/23 23:21	CH	EET MID

Client Sample ID: SW08

Lab Sample ID: 890-5296-17

Date Collected: 09/18/23 14:50

Matrix: Solid

Date Received: 09/19/23 16:16

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	63021	09/26/23 08:13	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63283	09/26/23 13:20	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63239	09/26/23 13:20	SM	EET MID
Total/NA	Analysis	8015 NM		1			63085	09/22/23 04:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	62999	09/21/23 14:25	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	62961	09/22/23 04:33	SM	EET MID

Eurofins Carlsbad



Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Client Sample ID: SW08  
Date Collected: 09/18/23 14:50  
Date Received: 09/19/23 16:16

Lab Sample ID: 890-5296-17  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.03 g	50 mL	62838	09/22/23 10:50	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63122	09/22/23 23:28	CH	EET MID

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

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Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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

Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

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

Protocol References:

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

Laboratory References:

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

## Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5296-1  
SDG: 03C1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5296-1	FS02	Solid	09/18/23 13:30	09/19/23 16:16	1
890-5296-2	FS03	Solid	09/18/23 13:35	09/19/23 16:16	4.5
890-5296-3	FS04	Solid	09/18/23 13:40	09/19/23 16:16	4.5
890-5296-4	FS05	Solid	09/18/23 13:45	09/19/23 16:16	8
890-5296-5	FS06	Solid	09/18/23 13:50	09/19/23 16:16	8
890-5296-6	FS07	Solid	09/18/23 13:55	09/19/23 16:16	5.5
890-5296-7	FS08	Solid	09/18/23 14:00	09/19/23 16:16	6
890-5296-8	FS09	Solid	09/18/23 14:05	09/19/23 16:16	6.5
890-5296-9	FS10	Solid	09/18/23 14:10	09/19/23 16:16	7
890-5296-10	SW01	Solid	09/18/23 14:15	09/19/23 16:16	0 - -4.5
890-5296-11	SW02	Solid	09/18/23 14:20	09/19/23 16:16	0 - -4.5
890-5296-12	SW03	Solid	09/18/23 14:25	09/19/23 16:16	0 - -8
890-5296-13	SW04	Solid	09/18/23 14:30	09/19/23 16:16	0 - -5.5
890-5296-14	SW05	Solid	09/18/23 14:35	09/19/23 16:16	0 - -5.5
890-5296-15	SW06	Solid	09/18/23 14:40	09/19/23 16:16	0 - -6
890-5296-16	SW07	Solid	09/18/23 14:45	09/19/23 16:16	0 - -6.5
890-5296-17	SW08	Solid	09/18/23 14:50	09/19/23 16:16	0 - -7

## 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  
 Xenco

Work Order No: \_\_\_\_\_

www.xenco.com Page 1 of 2

Project Manager:	Ben Bell	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy, Inc.
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	989-854-0852	Email:	bbell@ensolum.com

Project Name:	JRU 108H	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush
Project Number:	03C1558090	Due Date:	TJM007
Project Location:	32.33641, -103.83181	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Rowers	Temp Blank:	Yes No
P.O. #:		Thermometer ID:	-0.1
		Correction Factor:	1.8
		Temperature Reading:	
		Corrected Temperature:	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	Parameters	Pres. Code	ANALYSIS REQUEST	Preservative Codes
FS02	S	9/18/23	1330	1'	C	1	BTX			None: NO
FS03			1335	4.5'			Chlorides			Cool: Cool
FS04			1340	4.5'			TPH			HCL: HC
FS05			1345	8'						HNO <sub>3</sub> : HN
FS06			1350	8'						H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub>
FS07			1355	5.5'						H <sub>3</sub> PO <sub>4</sub> : HP
FS08			1400	6'						NaHSO <sub>4</sub> : NABIS
FS09			1405	6.5'						Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>
FS10			1410	7'						Zn Acetate+NaOH: Zn
SW01			1415	0-4.5'						NaOH+Ascorbic Acid: SAPC

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 SiO <sub>2</sub> Na Sr Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed	TCLP/SPLP 6010 : 8RCRA	Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	Hg: 1631 / 245.1 / 7470 / 7471

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>Meredith Rowers</i>	<i>SA</i>	9/19/16/16			

Revised Date: 08/25/2020 Rev. 2002



## 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  
Xenco

Work Order No:

www.xenco.com Page of

Project Manager:	Ben Bell	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy, Inc
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	989-854-0852	Email:	bbell@ensolum.com

Project Name:	JRU 108H	Program:	UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
Project Number:	0301558090	State of Project:	Level I <input type="checkbox"/> Level II <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/>
Project Location:	32.3341-103.83181	Reporting:	Level I <input type="checkbox"/> Level II <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/>
Sampler's Name:	Meredith Roberts	Deliverables:	EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

ANALYSIS REQUEST										Preservative Codes	
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	Parameters	Pre Code	Preservative Codes	Sample Comments	
SW02	S	9/18/23	1420	0-4.5'	C	1	BTX		None: NO	Incident #: n APP22179 31599	
SW03	I		1425	0-8'	I	1	Chlorides		Cool: Cool		
SW04	I		1430	0-5.5'	I	1	TPH		HCL: HC		
SW05	I		1435	0-5.5'	I	1			HNO <sub>3</sub> : HN		
SW06	I		1440	0-6'	I	1			H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub>		
SW07	I		1445	0-6.5'	I	1			H <sub>3</sub> PO <sub>4</sub> : HP		
SW08	I		1450	0-7'	I	1			NaHSO <sub>4</sub> : NABIS		
									Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>		
									Zn Acetate+NaOH: Zn		
									NaOH+Ascorbic Acid: SACP		
										Cost Center: 1139071001	
										mroberts@ensolum.com	

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM Texas 11	Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO <sub>2</sub> 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 costs of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>[Signature]</i>	2 <i>[Signature]</i>	9/19 1616			
3 <i>[Signature]</i>	4 <i>[Signature]</i>				
5 <i>[Signature]</i>	6 <i>[Signature]</i>				

Revised Date: 08/25/2020 Rev. 20202

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5296-1

SDG Number: 03C1558090

Login Number: 5296

List Number: 1

Creator: Lopez, Abraham

List Source: Eurofins Carlsbad

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



## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5296-1

SDG Number: 03C1558090

Login Number: 5296

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/21/23 10:54 AM

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



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ben Belill

Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 10/17/2023 10:39:08 AM

## JOB DESCRIPTION

JRU 108H

SDG NUMBER 03C1558090

## JOB NUMBER

890-5457-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

See page two for job notes and contact information.

# Eurofins Carlsbad

## Job Notes

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

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

## Authorization



Generated  
10/17/2023 10:39:08 AM

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

Client: Ensolum  
Project/Site: JRU 108H

Laboratory Job ID: 890-5457-1  
SDG: 03C1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

## Qualifiers

## GC VOA

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

## GC Semi VOA

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

## HPLC/IC

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

## Glossary

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

## Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

**Job ID: 890-5457-1**

**Laboratory: Eurofins Carlsbad**

**Narrative****Job Narrative  
890-5457-1**

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

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

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

**Receipt**

The samples were received on 10/13/2023 2:23 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C

**Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: FS11 (890-5457-1), SW09 (890-5457-2) and SW10 (890-5457-3).

**GC VOA**

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

**GC Semi VOA**

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

**HPLC/IC**

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-64789 and analytical batch 880-64805 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

Client Sample ID: FS11

Lab Sample ID: 890-5457-1

Date Collected: 10/10/23 10:00

Matrix: Solid

Date Received: 10/13/23 14:23

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		10/16/23 08:37	10/16/23 12:22	1
Toluene	<0.00198	U	0.00198	mg/Kg		10/16/23 08:37	10/16/23 12:22	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		10/16/23 08:37	10/16/23 12:22	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		10/16/23 08:37	10/16/23 12:22	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		10/16/23 08:37	10/16/23 12:22	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		10/16/23 08:37	10/16/23 12:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130	10/16/23 08:37	10/16/23 12:22	1
1,4-Difluorobenzene (Surr)	76		70 - 130	10/16/23 08:37	10/16/23 12:22	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			10/16/23 12:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			10/16/23 13:08	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		10/16/23 10:59	10/16/23 13:08	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		10/16/23 10:59	10/16/23 13:08	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		10/16/23 10:59	10/16/23 13:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	76		70 - 130	10/16/23 10:59	10/16/23 13:08	1
o-Terphenyl	82		70 - 130	10/16/23 10:59	10/16/23 13:08	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	379		5.04	mg/Kg			10/16/23 15:32	1

Client Sample ID: SW09

Lab Sample ID: 890-5457-2

Date Collected: 10/10/23 10:30

Matrix: Solid

Date Received: 10/13/23 14:23

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		10/16/23 08:37	10/16/23 12:43	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/16/23 08:37	10/16/23 12:43	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/16/23 08:37	10/16/23 12:43	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/16/23 08:37	10/16/23 12:43	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/16/23 08:37	10/16/23 12:43	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/16/23 08:37	10/16/23 12:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		70 - 130	10/16/23 08:37	10/16/23 12:43	1
1,4-Difluorobenzene (Surr)	72		70 - 130	10/16/23 08:37	10/16/23 12:43	1

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## Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

Client Sample ID: SW09

Lab Sample ID: 890-5457-2

Date Collected: 10/10/23 10:30

Matrix: Solid

Date Received: 10/13/23 14:23

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/16/23 12:43	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	475		50.3	mg/Kg			10/16/23 14:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3	mg/Kg		10/16/23 10:59	10/16/23 14:17	1
Diesel Range Organics (Over C10-C28)	475		50.3	mg/Kg		10/16/23 10:59	10/16/23 14:17	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		10/16/23 10:59	10/16/23 14:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130			10/16/23 10:59	10/16/23 14:17	1
o-Terphenyl	99		70 - 130			10/16/23 10:59	10/16/23 14:17	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	127		5.05	mg/Kg			10/16/23 15:49	1

Client Sample ID: SW10

Lab Sample ID: 890-5457-3

Date Collected: 10/10/23 10:40

Matrix: Solid

Date Received: 10/13/23 14:23

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/16/23 08:37	10/16/23 13:04	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/16/23 08:37	10/16/23 13:04	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/16/23 08:37	10/16/23 13:04	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		10/16/23 08:37	10/16/23 13:04	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/16/23 08:37	10/16/23 13:04	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		10/16/23 08:37	10/16/23 13:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130			10/16/23 08:37	10/16/23 13:04	1
1,4-Difluorobenzene (Surr)	79		70 - 130			10/16/23 08:37	10/16/23 13:04	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			10/16/23 13:04	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.5	U	50.5	mg/Kg			10/16/23 14:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5	mg/Kg		10/16/23 10:59	10/16/23 14:40	1
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5	mg/Kg		10/16/23 10:59	10/16/23 14:40	1

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Client Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

Client Sample ID: SW10  
Date Collected: 10/10/23 10:40  
Date Received: 10/13/23 14:23

Lab Sample ID: 890-5457-3  
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
OII Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		10/16/23 10:59	10/16/23 14:40	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	92		70 - 130			10/16/23 10:59	10/16/23 14:40	1	
o-Terphenyl	96		70 - 130			10/16/23 10:59	10/16/23 14:40	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	119		5.03	mg/Kg			10/16/23 15:55	1	

## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

## 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)
890-5455-A-1-A MS	Matrix Spike	119	94
890-5455-A-1-B MSD	Matrix Spike Duplicate	113	113
890-5457-1	FS11	95	76
890-5457-2	SW09	89	72
890-5457-3	SW10	94	79
LCS 880-64769/1-A	Lab Control Sample	119	112
LCSD 880-64769/2-A	Lab Control Sample Dup	112	114
MB 880-64769/5-A	Method Blank	78	90

## 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)
890-5457-1	FS11	76	82
890-5457-1 MS	FS11	82	72
890-5457-1 MSD	FS11	82	71
890-5457-2	SW09	97	99
890-5457-3	SW10	92	96
LCS 880-64788/2-A	Lab Control Sample	97	99
LCSD 880-64788/3-A	Lab Control Sample Dup	99	93
MB 880-64788/1-A	Method Blank	93	98

## Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

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

Lab Sample ID: MB 880-64769/5-A

Matrix: Solid

Analysis Batch: 64759

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64769

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/16/23 08:37	10/16/23 11:20	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/16/23 08:37	10/16/23 11:20	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/16/23 08:37	10/16/23 11:20	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/16/23 08:37	10/16/23 11:20	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/16/23 08:37	10/16/23 11:20	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/16/23 08:37	10/16/23 11:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		70 - 130	10/16/23 08:37	10/16/23 11:20	1
1,4-Difluorobenzene (Surr)	90		70 - 130	10/16/23 08:37	10/16/23 11:20	1

Lab Sample ID: LCS 880-64769/1-A

Matrix: Solid

Analysis Batch: 64759

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64769

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09322		mg/Kg		93	70 - 130
Toluene	0.100	0.09263		mg/Kg		93	70 - 130
Ethylbenzene	0.100	0.1010		mg/Kg		101	70 - 130
m-Xylene & p-Xylene	0.200	0.2221		mg/Kg		111	70 - 130
o-Xylene	0.100	0.1104		mg/Kg		110	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	119		70 - 130
1,4-Difluorobenzene (Surr)	112		70 - 130

Lab Sample ID: LCSD 880-64769/2-A

Matrix: Solid

Analysis Batch: 64759

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64769

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09816		mg/Kg		98	70 - 130	5	35
Toluene	0.100	0.09206		mg/Kg		92	70 - 130	1	35
Ethylbenzene	0.100	0.09430		mg/Kg		94	70 - 130	7	35
m-Xylene & p-Xylene	0.200	0.2044		mg/Kg		102	70 - 130	8	35
o-Xylene	0.100	0.1021		mg/Kg		102	70 - 130	8	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	112		70 - 130
1,4-Difluorobenzene (Surr)	114		70 - 130

Lab Sample ID: 890-5455-A-1-A MS

Matrix: Solid

Analysis Batch: 64759

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64769

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.0998	0.1041		mg/Kg		104	70 - 130
Toluene	<0.00201	U	0.0998	0.1002		mg/Kg		100	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

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

Lab Sample ID: 890-5455-A-1-A MS

Matrix: Solid

Analysis Batch: 64759

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64769

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.0998	0.1051		mg/Kg		105	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2264		mg/Kg		113	70 - 130
o-Xylene	<0.00201	U	0.0998	0.1122		mg/Kg		112	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	119		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-5455-A-1-B MSD

Matrix: Solid

Analysis Batch: 64759

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64769

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.100	0.08916		mg/Kg		89	70 - 130	15	35
Toluene	<0.00201	U	0.100	0.08403		mg/Kg		84	70 - 130	18	35
Ethylbenzene	<0.00201	U	0.100	0.08680		mg/Kg		87	70 - 130	19	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1859		mg/Kg		93	70 - 130	20	35
o-Xylene	<0.00201	U	0.100	0.09348		mg/Kg		93	70 - 130	18	35

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

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

Lab Sample ID: MB 880-64788/1-A

Matrix: Solid

Analysis Batch: 64753

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64788

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		10/16/23 08:00	10/16/23 08:49	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/16/23 08:00	10/16/23 08:49	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/16/23 08:00	10/16/23 08:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	93		70 - 130	10/16/23 08:00	10/16/23 08:49	1
o-Terphenyl	98		70 - 130	10/16/23 08:00	10/16/23 08:49	1

Lab Sample ID: LCS 880-64788/2-A

Matrix: Solid

Analysis Batch: 64753

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64788

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	881.8		mg/Kg		88	70 - 130
Diesel Range Organics (Over C10-C28)	1000	915.4		mg/Kg		92	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

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

Lab Sample ID: LCS 880-64788/2-A

Matrix: Solid

Analysis Batch: 64753

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64788

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	97		70 - 130
o-Terphenyl	99		70 - 130

Lab Sample ID: LCSD 880-64788/3-A

Matrix: Solid

Analysis Batch: 64753

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64788

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	866.4		mg/Kg		87	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	1000	877.5		mg/Kg		88	70 - 130	4	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	99		70 - 130
o-Terphenyl	93		70 - 130

Lab Sample ID: 890-5457-1 MS

Matrix: Solid

Analysis Batch: 64753

Client Sample ID: FS11

Prep Type: Total/NA

Prep Batch: 64788

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	991	734.8		mg/Kg		72	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	991	703.9		mg/Kg		71	70 - 130		

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	82		70 - 130
o-Terphenyl	72		70 - 130

Lab Sample ID: 890-5457-1 MSD

Matrix: Solid

Analysis Batch: 64753

Client Sample ID: FS11

Prep Type: Total/NA

Prep Batch: 64788

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	991	733.4		mg/Kg		71	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	<49.9	U	991	712.2		mg/Kg		72	70 - 130	1	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	82		70 - 130
o-Terphenyl	71		70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64789/1-A

Matrix: Solid

Analysis Batch: 64805

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			10/16/23 13:42	1

Lab Sample ID: LCS 880-64789/2-A

Matrix: Solid

Analysis Batch: 64805

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	246.6		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-64789/3-A

Matrix: Solid

Analysis Batch: 64805

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	244.7		mg/Kg		98	90 - 110	1	20

Lab Sample ID: 880-34454-A-1-B MS

Matrix: Solid

Analysis Batch: 64805

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	10200	F1	5020	17030	F1	mg/Kg		136	90 - 110

Lab Sample ID: 880-34454-A-1-C MSD

Matrix: Solid

Analysis Batch: 64805

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	10200	F1	5020	17010	F1	mg/Kg		136	90 - 110	0	20

Eurofins Carlsbad



## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

## GC VOA

## Analysis Batch: 64759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5457-1	FS11	Total/NA	Solid	8021B	64769
890-5457-2	SW09	Total/NA	Solid	8021B	64769
890-5457-3	SW10	Total/NA	Solid	8021B	64769
MB 880-64769/5-A	Method Blank	Total/NA	Solid	8021B	64769
LCS 880-64769/1-A	Lab Control Sample	Total/NA	Solid	8021B	64769
LCSD 880-64769/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64769
890-5455-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	64769
890-5455-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64769

## Prep Batch: 64769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5457-1	FS11	Total/NA	Solid	5035	
890-5457-2	SW09	Total/NA	Solid	5035	
890-5457-3	SW10	Total/NA	Solid	5035	
MB 880-64769/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64769/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64769/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5455-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
890-5455-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5457-1	FS11	Total/NA	Solid	Total BTEX	
890-5457-2	SW09	Total/NA	Solid	Total BTEX	
890-5457-3	SW10	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5457-1	FS11	Total/NA	Solid	8015B NM	64788
890-5457-2	SW09	Total/NA	Solid	8015B NM	64788
890-5457-3	SW10	Total/NA	Solid	8015B NM	64788
MB 880-64788/1-A	Method Blank	Total/NA	Solid	8015B NM	64788
LCS 880-64788/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	64788
LCSD 880-64788/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	64788
890-5457-1 MS	FS11	Total/NA	Solid	8015B NM	64788
890-5457-1 MSD	FS11	Total/NA	Solid	8015B NM	64788

## Prep Batch: 64788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5457-1	FS11	Total/NA	Solid	8015NM Prep	
890-5457-2	SW09	Total/NA	Solid	8015NM Prep	
890-5457-3	SW10	Total/NA	Solid	8015NM Prep	
MB 880-64788/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-64788/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-64788/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5457-1 MS	FS11	Total/NA	Solid	8015NM Prep	
890-5457-1 MSD	FS11	Total/NA	Solid	8015NM Prep	

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

## GC Semi VOA

## Analysis Batch: 64870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5457-1	FS11	Total/NA	Solid	8015 NM	
890-5457-2	SW09	Total/NA	Solid	8015 NM	
890-5457-3	SW10	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5457-1	FS11	Soluble	Solid	DI Leach	
890-5457-2	SW09	Soluble	Solid	DI Leach	
890-5457-3	SW10	Soluble	Solid	DI Leach	
MB 880-64789/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64789/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64789/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34454-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34454-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 64805

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5457-1	FS11	Soluble	Solid	300.0	64789
890-5457-2	SW09	Soluble	Solid	300.0	64789
890-5457-3	SW10	Soluble	Solid	300.0	64789
MB 880-64789/1-A	Method Blank	Soluble	Solid	300.0	64789
LCS 880-64789/2-A	Lab Control Sample	Soluble	Solid	300.0	64789
LCSD 880-64789/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64789
880-34454-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	64789
880-34454-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64789

## Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

Client Sample ID: FS11

Lab Sample ID: 890-5457-1

Date Collected: 10/10/23 10:00

Matrix: Solid

Date Received: 10/13/23 14:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	64769	10/16/23 08:37	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64759	10/16/23 12:22	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64830	10/16/23 12:22	SM	EET MID
Total/NA	Analysis	8015 NM		1			64870	10/16/23 13:08	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	64788	10/16/23 10:59	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64753	10/16/23 13:08	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	64789	10/16/23 11:34	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64805	10/16/23 15:32	CH	EET MID

Client Sample ID: SW09

Lab Sample ID: 890-5457-2

Date Collected: 10/10/23 10:30

Matrix: Solid

Date Received: 10/13/23 14:23

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	64769	10/16/23 08:37	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64759	10/16/23 12:43	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64830	10/16/23 12:43	SM	EET MID
Total/NA	Analysis	8015 NM		1			64870	10/16/23 14:17	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	64788	10/16/23 10:59	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64753	10/16/23 14:17	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	64789	10/16/23 11:34	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64805	10/16/23 15:49	CH	EET MID

Client Sample ID: SW10

Lab Sample ID: 890-5457-3

Date Collected: 10/10/23 10:40

Matrix: Solid

Date Received: 10/13/23 14:23

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	64769	10/16/23 08:37	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64759	10/16/23 13:04	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64830	10/16/23 13:04	SM	EET MID
Total/NA	Analysis	8015 NM		1			64870	10/16/23 14:40	SM	EET MID
Total/NA	Prep	8015NM Prep			9.91 g	10 mL	64788	10/16/23 10:59	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64753	10/16/23 14:40	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	64789	10/16/23 11:34	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64805	10/16/23 15:55	CH	EET MID

## Laboratory References:

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

Eurofins Carlsbad

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

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

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5457-1  
SDG: 03C1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
890-5457-1	FS11	Solid	10/10/23 10:00	10/13/23 14:23
890-5457-2	SW09	Solid	10/10/23 10:30	10/13/23 14:23
890-5457-3	SW10	Solid	10/10/23 10:40	10/13/23 14:23

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## Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300  
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334  
SL 8036-TX (951) 585-5443, Lubbock, TX (806) 794-1296  
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

## Environment Testing

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



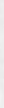
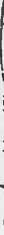
Work Order Comments											
Program:		UST/PST	<input type="checkbox"/>	PRP	<input type="checkbox"/>	Brownfields	<input type="checkbox"/>	RRC	<input type="checkbox"/>	Superfund	<input type="checkbox"/>
State of Project:											
Reporting:		Level II	<input type="checkbox"/>	Level III	<input type="checkbox"/>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

Project Manager:	Ben Beall	Bill to: (if different)	Garrett Green
Company Name:	Ensoium	Company Name:	XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E. Gatten St.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	303-487-2046	Email:	Garrett@

Project Name:	JRU 108 H		Turn Around		Pres. Code		ANALYSIS REQUEST										Preservative Codes					
Project Number:	03C1558090		<input type="checkbox"/> Routine <input checked="" type="checkbox"/> Rush		Pres. Code												None: NO DI Water: H <sub>2</sub> O					
Project Location:			Due Date: 12 Day														Cool: Cool MeOH: Me					
Sampler's Name:	Connor Whitman		TAT starts the day received by the lab, if received by 4:30pm														HCL: HC HNO <sub>3</sub> : HN					
PO #:																	H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na					
SAMPLE RECEIPT			Temp Blank:		Yes No		Wet Ice:		Yes No												H <sub>3</sub> PO <sub>4</sub> : HP	
Samples Received Intact:	Yes No		Thermometer ID:		Yes No				Yes No												NaHSO <sub>4</sub> : NABIS	
Cooler Custody Seals:	Yes No		Correction Factor:		Yes No				Yes No												Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>	
Sample Custody Seals:	Yes No		Temperature Reading:		Yes No				Yes No												Zn Acetate+NaOH: Zn	
Total Containers:			Corrected Temperature:		Yes No				Yes No												NaOH+Ascorbic Acid: SAPC	

[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 Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			10/13/22			
2						
3						
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5						
6						

Revised Date: 08/25/2020 Rev 2020.2



## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5457-1

SDG Number: 03C1558090

Login Number: 5457

List Number: 1

Creator: Bruns, Shannon

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5457-1

SDG Number: 03C1558090

Login Number: 5457

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 10/16/23 08:35 AM

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



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ben Belill

Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 10/20/2023 10:54:06 AM

## JOB DESCRIPTION

JRU 108H

SDG NUMBER 03C1558090

## JOB NUMBER

890-5473-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

See page two for job notes and contact information.

# Eurofins Carlsbad

## Job Notes

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

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

## Authorization



Generated  
10/20/2023 10:54:06 AM

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

Client: Ensolum  
Project/Site: JRU 108H

Laboratory Job ID: 890-5473-1  
SDG: 03C1558090

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## Definitions/Glossary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

## Qualifiers

## GC VOA

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

## GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

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

## Glossary

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

## Case Narrative

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

**Job ID: 890-5473-1****Laboratory: Eurofins Carlsbad****Narrative****Job Narrative  
890-5473-1**

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

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

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

**Receipt**

The sample was received on 10/17/2023 3:13 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: SW09A (890-5473-1).

**GC VOA**

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

**GC Semi VOA**

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-65041 and analytical batch 880-65018 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-65018/31), (CCV 880-65018/47) and (CCV 880-65018/58). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: (890-5474-A-1-D). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD\_NM: The method blank for preparation batch 880-65041 and analytical batch 880-65018 contained Gasoline Range Organics (GRO)-C6-C10 above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8015MOD\_NM: Spike compounds were inadvertently omitted during the extraction process for the matrix spike duplicate (MSD); therefore, matrix spike recoveries are unavailable for preparation batch 880-65041 and analytical batch 880-65018. The associated laboratory control sample (LCS) met acceptance criteria.

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

**HPLC/IC**

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: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

Client Sample ID: SW09A

Lab Sample ID: 890-5473-1

Date Collected: 10/17/23 01:15

Matrix: Solid

Date Received: 10/17/23 15:13

Sample Depth: 0'-6'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/19/23 13:06	10/19/23 22:37	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/19/23 13:06	10/19/23 22:37	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/19/23 13:06	10/19/23 22:37	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		10/19/23 13:06	10/19/23 22:37	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/19/23 13:06	10/19/23 22:37	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		10/19/23 13:06	10/19/23 22:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130	10/19/23 13:06	10/19/23 22:37	1
1,4-Difluorobenzene (Surr)	82		70 - 130	10/19/23 13:06	10/19/23 22:37	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			10/19/23 22:37	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.1	U	50.1	mg/Kg			10/20/23 02:53	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.1	U	50.1	mg/Kg		10/19/23 12:14	10/20/23 02:53	1
Diesel Range Organics (Over C10-C28)	<50.1	U	50.1	mg/Kg		10/19/23 12:14	10/20/23 02:53	1
Oil Range Organics (Over C28-C36)	<50.1	U	50.1	mg/Kg		10/19/23 12:14	10/20/23 02:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	127		70 - 130	10/19/23 12:14	10/20/23 02:53	1
o-Terphenyl	107		70 - 130	10/19/23 12:14	10/20/23 02:53	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	116		5.02	mg/Kg			10/19/23 13:06	1

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## Surrogate Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-5473-1	SW09A	90	82
890-5473-1 MS	SW09A	123	104
890-5473-1 MSD	SW09A	125	115
LCS 880-65043/1-A	Lab Control Sample	126	102
LCSD 880-65043/2-A	Lab Control Sample Dup	127	109
MB 880-64998/5-A	Method Blank	77	91
MB 880-65043/5-A	Method Blank	80	86
<b>Surrogate Legend</b>			
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)
890-5473-1	SW09A	127	107
890-5474-A-1-E MS	Matrix Spike	129	90
890-5474-A-1-F MSD	Matrix Spike Duplicate	120	94
LCS 880-65041/2-A	Lab Control Sample	92	87
LCSD 880-65041/3-A	Lab Control Sample Dup	83	74
MB 880-65041/1-A	Method Blank	198 S1+	168 S1+
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

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

Lab Sample ID: MB 880-64998/5-A

Matrix: Solid

Analysis Batch: 65025

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64998

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/18/23 15:14	10/19/23 11:37	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/18/23 15:14	10/19/23 11:37	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/18/23 15:14	10/19/23 11:37	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/18/23 15:14	10/19/23 11:37	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/18/23 15:14	10/19/23 11:37	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/18/23 15:14	10/19/23 11:37	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	77		70 - 130	10/18/23 15:14	10/19/23 11:37	1
1,4-Difluorobenzene (Surr)	91		70 - 130	10/18/23 15:14	10/19/23 11:37	1

Lab Sample ID: MB 880-65043/5-A

Matrix: Solid

Analysis Batch: 65025

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 65043

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/19/23 13:06	10/19/23 22:15	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/19/23 13:06	10/19/23 22:15	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/19/23 13:06	10/19/23 22:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/19/23 13:06	10/19/23 22:15	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/19/23 13:06	10/19/23 22:15	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/19/23 13:06	10/19/23 22:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	80		70 - 130	10/19/23 13:06	10/19/23 22:15	1
1,4-Difluorobenzene (Surr)	86		70 - 130	10/19/23 13:06	10/19/23 22:15	1

Lab Sample ID: LCS 880-65043/1-A

Matrix: Solid

Analysis Batch: 65025

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 65043

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09647		mg/Kg		96	70 - 130
Toluene	0.100	0.09660		mg/Kg		97	70 - 130
Ethylbenzene	0.100	0.1011		mg/Kg		101	70 - 130
m-Xylene & p-Xylene	0.200	0.2215		mg/Kg		111	70 - 130
o-Xylene	0.100	0.1225		mg/Kg		123	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	126		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: LCSD 880-65043/2-A

Matrix: Solid

Analysis Batch: 65025

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 65043

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1038		mg/Kg		104	70 - 130	7	35

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

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

Lab Sample ID: LCSD 880-65043/2-A

Matrix: Solid

Analysis Batch: 65025

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 65043

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.1051		mg/Kg		105	70 - 130	8	35
Ethylbenzene	0.100	0.1105		mg/Kg		110	70 - 130	9	35
m-Xylene & p-Xylene	0.200	0.2397		mg/Kg		120	70 - 130	8	35
o-Xylene	0.100	0.1260		mg/Kg		126	70 - 130	3	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	127		70 - 130
1,4-Difluorobenzene (Surr)	109		70 - 130

Lab Sample ID: 890-5473-1 MS

Matrix: Solid

Analysis Batch: 65025

Client Sample ID: SW09A

Prep Type: Total/NA

Prep Batch: 65043

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.0996	0.09411		mg/Kg		94	70 - 130
Toluene	<0.00200	U	0.0996	0.09123		mg/Kg		92	70 - 130
Ethylbenzene	<0.00200	U	0.0996	0.09820		mg/Kg		99	70 - 130
m-Xylene & p-Xylene	<0.00399	U	0.199	0.2086		mg/Kg		105	70 - 130
o-Xylene	<0.00200	U	0.0996	0.1075		mg/Kg		108	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	123		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: 890-5473-1 MSD

Matrix: Solid

Analysis Batch: 65025

Client Sample ID: SW09A

Prep Type: Total/NA

Prep Batch: 65043

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.100	0.09236		mg/Kg		92	70 - 130	2	35
Toluene	<0.00200	U	0.100	0.08705		mg/Kg		87	70 - 130	5	35
Ethylbenzene	<0.00200	U	0.100	0.09523		mg/Kg		95	70 - 130	3	35
m-Xylene & p-Xylene	<0.00399	U	0.200	0.2005		mg/Kg		100	70 - 130	4	35
o-Xylene	<0.00200	U	0.100	0.1035		mg/Kg		103	70 - 130	4	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	125		70 - 130
1,4-Difluorobenzene (Surr)	115		70 - 130

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

Lab Sample ID: MB 880-65041/1-A

Matrix: Solid

Analysis Batch: 65018

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 65041

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		10/19/23 12:14	10/19/23 19:30	1

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

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

Lab Sample ID: MB 880-65041/1-A

Matrix: Solid

Analysis Batch: 65018

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 65041

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/19/23 12:14	10/19/23 19:30	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/19/23 12:14	10/19/23 19:30	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	198	S1+	70 - 130			10/19/23 12:14	10/19/23 19:30	1
o-Terphenyl	168	S1+	70 - 130			10/19/23 12:14	10/19/23 19:30	1

Lab Sample ID: LCS 880-65041/2-A

Matrix: Solid

Analysis Batch: 65018

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 65041

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	977.6		mg/Kg		98	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1002		mg/Kg		100	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	92		70 - 130				
o-Terphenyl	87		70 - 130				

Lab Sample ID: LCSD 880-65041/3-A

Matrix: Solid

Analysis Batch: 65018

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 65041

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	927.1		mg/Kg		93	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	1000	987.6		mg/Kg		99	70 - 130	1	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	83		70 - 130						
o-Terphenyl	74		70 - 130						

Lab Sample ID: 890-5474-A-1-E MS

Matrix: Solid

Analysis Batch: 65018

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 65041

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<81.0	U F1 F2	1300	1174		mg/Kg		87	70 - 130
Diesel Range Organics (Over C10-C28)	<81.0	U F1 F2	1300	1559		mg/Kg		118	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	129		70 - 130						
o-Terphenyl	90		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

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

Lab Sample ID: 890-5474-A-1-F MSD

Matrix: Solid

Analysis Batch: 65018

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 65041

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	<81.0	U F1 F2	1300	116.4	F1 F2	mg/Kg		5	70 - 130	164	20
Diesel Range Organics (Over C10-C28)	<81.0	U F1 F2	1300	<64.9	U F1 F2	mg/Kg		-0.1	70 - 130	194	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	120		70 - 130								
o-Terphenyl	94		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-65038/1-A

Matrix: Solid

Analysis Batch: 65042

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			10/19/23 12:49	1

Lab Sample ID: LCS 880-65038/2-A

Matrix: Solid

Analysis Batch: 65042

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	246.4		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-65038/3-A

Matrix: Solid

Analysis Batch: 65042

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	246.9		mg/Kg		99	90 - 110	0	20

Lab Sample ID: 890-5473-1 MS

Matrix: Solid

Analysis Batch: 65042

Client Sample ID: SW09A

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	116		251	350.3		mg/Kg		93	90 - 110

Lab Sample ID: 890-5473-1 MSD

Matrix: Solid

Analysis Batch: 65042

Client Sample ID: SW09A

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	116		251	350.5		mg/Kg		93	90 - 110	0	20

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## QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

## GC VOA

## Prep Batch: 64998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-64998/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 65025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5473-1	SW09A	Total/NA	Solid	8021B	65043
MB 880-64998/5-A	Method Blank	Total/NA	Solid	8021B	64998
MB 880-65043/5-A	Method Blank	Total/NA	Solid	8021B	65043
LCS 880-65043/1-A	Lab Control Sample	Total/NA	Solid	8021B	65043
LCSD 880-65043/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	65043
890-5473-1 MS	SW09A	Total/NA	Solid	8021B	65043
890-5473-1 MSD	SW09A	Total/NA	Solid	8021B	65043

## Prep Batch: 65043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5473-1	SW09A	Total/NA	Solid	5035	
MB 880-65043/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-65043/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-65043/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5473-1 MS	SW09A	Total/NA	Solid	5035	
890-5473-1 MSD	SW09A	Total/NA	Solid	5035	

## Analysis Batch: 65197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5473-1	SW09A	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 65018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5473-1	SW09A	Total/NA	Solid	8015B NM	65041
MB 880-65041/1-A	Method Blank	Total/NA	Solid	8015B NM	65041
LCS 880-65041/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	65041
LCSD 880-65041/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	65041
890-5474-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	65041
890-5474-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	65041

## Prep Batch: 65041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5473-1	SW09A	Total/NA	Solid	8015NM Prep	
MB 880-65041/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-65041/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-65041/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5474-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-5474-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 65140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5473-1	SW09A	Total/NA	Solid	8015 NM	

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QC Association Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

HPLC/IC

Leach Batch: 65038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5473-1	SW09A	Soluble	Solid	DI Leach	
MB 880-65038/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-65038/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-65038/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-5473-1 MS	SW09A	Soluble	Solid	DI Leach	
890-5473-1 MSD	SW09A	Soluble	Solid	DI Leach	

Analysis Batch: 65042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5473-1	SW09A	Soluble	Solid	300.0	65038
MB 880-65038/1-A	Method Blank	Soluble	Solid	300.0	65038
LCS 880-65038/2-A	Lab Control Sample	Soluble	Solid	300.0	65038
LCSD 880-65038/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	65038
890-5473-1 MS	SW09A	Soluble	Solid	300.0	65038
890-5473-1 MSD	SW09A	Soluble	Solid	300.0	65038

Lab Chronicle

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

Client Sample ID: SW09A  
Date Collected: 10/17/23 01:15  
Date Received: 10/17/23 15:13

Lab Sample ID: 890-5473-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	65043	10/19/23 13:06	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	65025	10/19/23 22:37	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			65197	10/19/23 22:37	SM	EET MID
Total/NA	Analysis	8015 NM		1			65140	10/20/23 02:53	SM	EET MID
Total/NA	Prep	8015NM Prep			9.98 g	10 mL	65041	10/19/23 12:14	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	65018	10/20/23 02:53	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	65038	10/19/23 10:48	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	65042	10/19/23 13:06	CH	EET MID

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

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

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

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

Sample Summary

Client: Ensolum  
Project/Site: JRU 108H

Job ID: 890-5473-1  
SDG: 03C1558090

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5473-1	SW09A	Solid	10/17/23 01:15	10/17/23 15:13	0'-6'

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



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

Chain of Custody

Work Order No: \_\_\_\_\_

www.xenco.com Page 1 of 1

Project Manager:	Ben Bell	Bill to: (if different)	Garrett Green
Company Name:	Ensolium	Company Name:	XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E. Green St.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	303-887-2946	Email:	Garrett.Green@ExxonMobil.com

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

Project Name:	JRU 108H	Turn Around	<input type="checkbox"/> Routine <input checked="" type="checkbox"/> Rush	Pres. Code	
Project Number:	03C1558090	Due Date:	2-4H		
Project Location:	Connor Whitman	TAT starts the day received by the lab, if received by 4:30pm			
Sampler's Name:					
PO #:					
SAMPLE RECEIPT		Temp Blank:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Thermometer ID:	7111000
Samples Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wet Ice:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:			
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Temperature Reading:	1.4		
Total Containers:		Corrected Temperature:	1.2		
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp
5445 SW 02A	S	10/17/22	1:15	0-6	C 1
Parameters					
CHLORIDES (EPA: 3000.0)					
TPH (8015)					
BTEX (8021)					
ANALYSIS REQUEST					
PRESERVATIVE CODES					
None: NO DI Water: H <sub>2</sub> O					
Cool: Me MeOH: Me					
CL: HC HNO <sub>3</sub> : HN					
SOD: H <sub>2</sub> NaOH: Na					
PO <sub>4</sub> : HP					
aHSO <sub>4</sub> : NABIS					
a <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>					
Zn Acetate+NaOH: Zn					
NaOH+Ascorbic Acid: SAPC					
Sample Comments					
Incident ID: NAPP2217931599					
Cost Center: 1139071001					
AFE:					

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO<sub>2</sub> 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 \$2 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	10-17-22			

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5473-1

SDG Number: 03C1558090

Login Number: 5473

List Number: 1

Creator: Bruns, Shannon

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5473-1

SDG Number: 03C1558090

Login Number: 5473

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 10/19/23 10:38 AM

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



**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 279353

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 279353
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
scott.rodgers	This Remediation Closure Report is approved. Areas reasonably needed for production or subsequent drilling operations will need to be reclaimed and revegetated as soon as they are no longer reasonably needed. A report for reclamation and revegetation will need to be submitted and approved prior to this incident receiving the final status of "Restoration Complete".	3/11/2024