Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2219649599
District RP	
Facility ID	
Application ID	

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: _01/05/2023_____

email: __garrett.green@exxonmobil.com_____ Telephone: ____575-200-0729_____

OCD Only

Received by: Jocelyn Harimon Date: 01/06/2023

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

Signature: Robert Hamlet Date: 5/9/2023

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	NAPP2219649599
District RP	
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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 32.38042 Longitude -103.88429

(NAD 83 in decimal degrees to 5 decimal places)

Site Name James Ranch Unit 163H	Site Type Production Well
Date Release Discovered 07/11/2022	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
G	21	22S	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)

☒ Crude Oil	Volume Released (bbls) 4.82	Volume Recovered (bbls) 2.50
☒ Produced Water	Volume Released (bbls) 14.45	Volume Recovered (bbls) 7.50
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: Corrosion caused a 4" steel flowline to release fluids to ground. All free fluids were recovered. A third-party contractor has been retained for remediation purposes.

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release? 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

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

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

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

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Printed Name: Garrett Green
Title: SSHE Coordinator
Signature: 
Date: 07/15/2022
email: garrett.green@exxonmobil.com
Telephone: 575-200-0729

OCD Only

Received by: Jocelyn Harimon
Date: 07/15/2022

Incident ID	NAPP2219649599
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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?	> 100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☒ Yes ☐ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☒ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

State of New Mexico
Oil Conservation Division

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Printed Name: _Garrett Green_____ Title: _Environmental Coordinator_____

Signature:_____ Date: ____01/05/2023_____

email: _garrett.green@exxonmobil.com_____ Telephone: ____575-200-0729_____

OCD Only

Received by: Jocelyn Harimon Date: 01/06/2023

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Printed Name: ____Garrett Green_____ Title: __Environmental Coordinator_____

Signature: _____ Date: _01/05/2023_____

email: __garrett.green@exxonmobil.com_____ Telephone: ____575-200-0729_____

OCD Only

Received by: Jocelyn Harimon Date: 01/06/2023

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

Signature: _____ Date: _____

ENSOLUM

January 5, 2023

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

Re: Deferral Request
James Ranch Unit 163H
Incident Number NAPP2219649599
Eddy County, New Mexico

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared this *Deferral Request* to document site assessment, delineaition, excavation, and soil sampling activities at the James Ranch Unit 163H (Site). The purpose of the site assessment and soil sampling activities was to assess for the presence or absence of impacts to soil following a release of crude oil and produced water. Based on field observations and soil sample laboratory analytical results, XTO is submitting this *Deferral Request*, describing site assessment, delineation, and excavation activities that have occurred and requesting deferral of final remediation for Incident Number NAPP2219649599 until the Site is reconstructed, and/or the well pad is abandoned.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit G, Section 21, Township 22 South, Range 30 East, in Eddy County, New Mexico (32.38042°N, 103.88429°W) and is associated with oil and gas exploration and production operations on federal land managed by the Bureau of Land Management (BLM).

On July 11, 2022, corrosion of a steel flowline resulted in the release of approximately 4.82 barrels (bbls) of crude oil and 14.45 bbls of produced water onto the surface of the well pad and around active pipelines. A vacuum truck was immediately dispatched to the Site to recover the free-standing fluids; 2.5 bbls of crude oil and 7.5 bbls of produced water were recovered. XTO submitted a Release Notification Form C-141 (Form C-141) on July 15, 2022. The release was assigned Incident Number NAPP2219649599.

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.

Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater well with depth to groundwater data is New Mexico Office of the State Engineer well C-1916, located approximately 480

feet northeast of the Site. In 2013, the groundwater well was plugged due to the well existing in the path of new construction. The *Plugging Plan* was approved by the New Mexico Office of the State Engineer (NMOSE) on April 1, 2013. The *Plugging Plan* indicates the groundwater well had a reported groundwater depth of 110 feet bgs and a total depth of 188 feet bgs. Ground surface elevation at the groundwater well location is 3,161 feet above mean sea level (amsl), which is approximately 8 feet lower in elevation than the Site. The location of the well was adjusted to reflect the GPS coordinates provided on the approved *Plugging Plan*, as the previous location of the well was reflective of the approved drilling permit. All wells used for depth to groundwater determination are presented on Figure 1. The approved *Plugging Plan* is included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a dry wash, located approximately 158 feet west 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). Potential site receptors are identified on Figure 1.

Based on the existence of a nearby significant watercourse and 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

SITE ASSESSMENT ACTIVITIES

On August 10, 2022, Ensolum personnel visited the Site to evaluate the release extent based on information provided on the Form C-141 and visual observations. Three delineation soil samples (SS01 through SS03) were collected within the release extent from a depth of approximately 0.5 feet bgs. The delineation soil samples were field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® QuanTab® chloride test strips, respectively. 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 is included in Appendix B.

The delineation soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of the following constituents of concern (COC): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0. Soil samples delivered to the laboratory the same day they are collected may not have equilibrated to the 6 degrees Celcius required for shipment and long-term storage, but are considered to have been received in acceptable condition.

DELINEATION AND EXCAVATION SOIL SAMPLING ACTIVITIES

Following laboratory analytical results from the Site assessment, Ensolum returned to the Site to oversee delineation and excavation activities. Seven potholes (PH01 through PH07) were advanced within and around the release extent by use of heavy equipment and hand auger to assess the lateral and vertical definition of the release. Potholes PH01 through PH03 were advanced in the vicinity of delineation soil samples SS01 through SS03. Potholes PH04 through PH07 were advanced to assess lateral definition of the release. Discrete delineation soil samples were collected from each pothole at a depths ranging from 0.5 feet bgs to 11 feet bgs. The delineation soil samples were field screened, handled, and submitted for analysis for the same COCs as described above. Field screening results and observations for the potholes were logged on lithologic/soil sampling logs, which are included in Appendix C. The potholes and delineation soil sample locations are depicted on Figure 2.

Soil was excavated from in the area represented by delineation soil samples SS01/PH01 through SS03/PH03, which contained elevated TPH and chloride concentrations. Excavation activities were performed by use of heavy equipment. The excavation occurred on the well pad. To direct excavation activities, Ensolum personnel screened soil as described above.

Following removal of soil, Ensolum personnel collected 5-point composite soil samples representing up to 200 square feet from the floor and sidewalls of the excavation. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples FS01 through FS04 were collected from the floor of the excavation from depths of 2 feet bgs. Composite soil samples SW01 and SW02 were collected from the sidewalls of the excavation at depths ranging from the ground surface to 2 feet bgs. The excavation soil samples were handled, and analyzed following the same procedures as described above. The excavation extent and excavation soil sample locations are presented on Figure 3.

The final excavation extent measured approximately 800 square feet. A total of approximately 60 cubic yards of impacted soil was removed during the excavation activities. The impacted soil was transported and properly disposed of at the R360 Landfill Disposal Facility in Hobbs, New Mexico. After completion of confirmation sampling, the excavation area was secured with fencing.

LABORATORY ANALYTICAL RESULTS

Delineation soil samples collected from 2 feet bgs to 7 feet bgs from within the release extent contained TPH and chloride concentrations exceeding Table I Closure Criteria. Terminal samples collected at 11 feet bgs in PH01, 7 feet bgs in PH02, and 5 feet bgs in PH03 were in compliance with Table I Closure Criteria. All samples collected from outside the release extent were in compliance with Table I Closure Criteria.

Both confirmation samples collected from the excavation sidewalls and one confirmation sample collected from the excavation floor were in compliance with Table I Closure Criteria. Three confirmation samples collected from 2 feet bgs on the excavation floor exceeded the Table I Closure Criteria for either TPH or chloride. The elevated TPH concentrations ranged from 133 mg/kg to 493 mg/kg. Chloride detected in FS04 was 760 mg/kg. The laboratory analytical results are summarized on the attached Table 1 and the complete laboratory analytical reports are included in Appendix D. All sampling notifications to NMOCD are included in Appendix E.

DEFFERAL REQUEST

The excavation and the proposed deferral area exist in the vicinity of a previously reported release that was assigned incident number NRM1935433078 and had occurred on October 18, 2019. XTO submitted a *Deferral Request* regarding the release on July 29, 2021, and it was approved by NMOCD on October 22, 2021. The approved *Deferral Request* details an estimated 645 cubic yards of impacted soil to remain in place until final reclamation of the well pad or a major facility deconstruction due to proximity to active pipelines. The approved *Deferral Request* for incident number NRM1935433078 can be referenced on the NMOCD portal.

Ensolum was able to successfully remove a portion of impacted soil from the previously approved deferral area during this excavation. However, excavation deeper than 2 feet was not conducted, as further excavation of the soil at depth would require removing the underlying soils that are currently supporting several nearby active crude oil, produced water, and gas pipelines. XTO is requesting deferral of final remediation due to the presence of active pipelines surrounding the entire release extent. The excavated area removed impacted soil identified in delineation soil samples SS01/PH02 through SS03/PH03. Removing the additional impacted soil increases the possibility of an additional release and/or compromises health and safety of onsite XTO personnel; therefore, further excavation would require a major facility deconstruction with engineering and facility modification. The impacted soil remaining in place is delineated vertically at depths ranging from 4 feet bgs to 11 feet bgs by delineation soil samples PH01 through PH03 and delineated laterally by delineation soil samples PH04 through PH07. Based on the delineation soil sample results listed above, assuming depths ranging from 3 feet to 8 feet on the west side of the deferral area and 2 feet depth on the east side of the deferral area, and an estimated total of an 800-square foot area of the release extent, a total of approximately 120 cubic yards of TPH and chloride impacted soil remains in place with TPH as high as 493 mg/kg and chloride as high as 750 mg/kg. The proposed deferral area is depicted in Figure 3.

XTO does not believe deferment will result in imminent risk to human health, the environment, or groundwater. Depth to groundwater was determined to be greater than 100 feet bgs, and the impacted soil remaining in place is limited in areal and vertical extent.

Based on the presence of active pipelines surrounding the entire release area and the complete lateral and vertical delineation of impacted soil remaining in place, XTO requests deferral of final remediation for Incident Number NAPP2219649599 until final reclamation of the well pad or major construction, whichever comes first.

If you have any questions or comments, please contact Ms. Tacoma Morrissey at (337) 257-8307 or 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

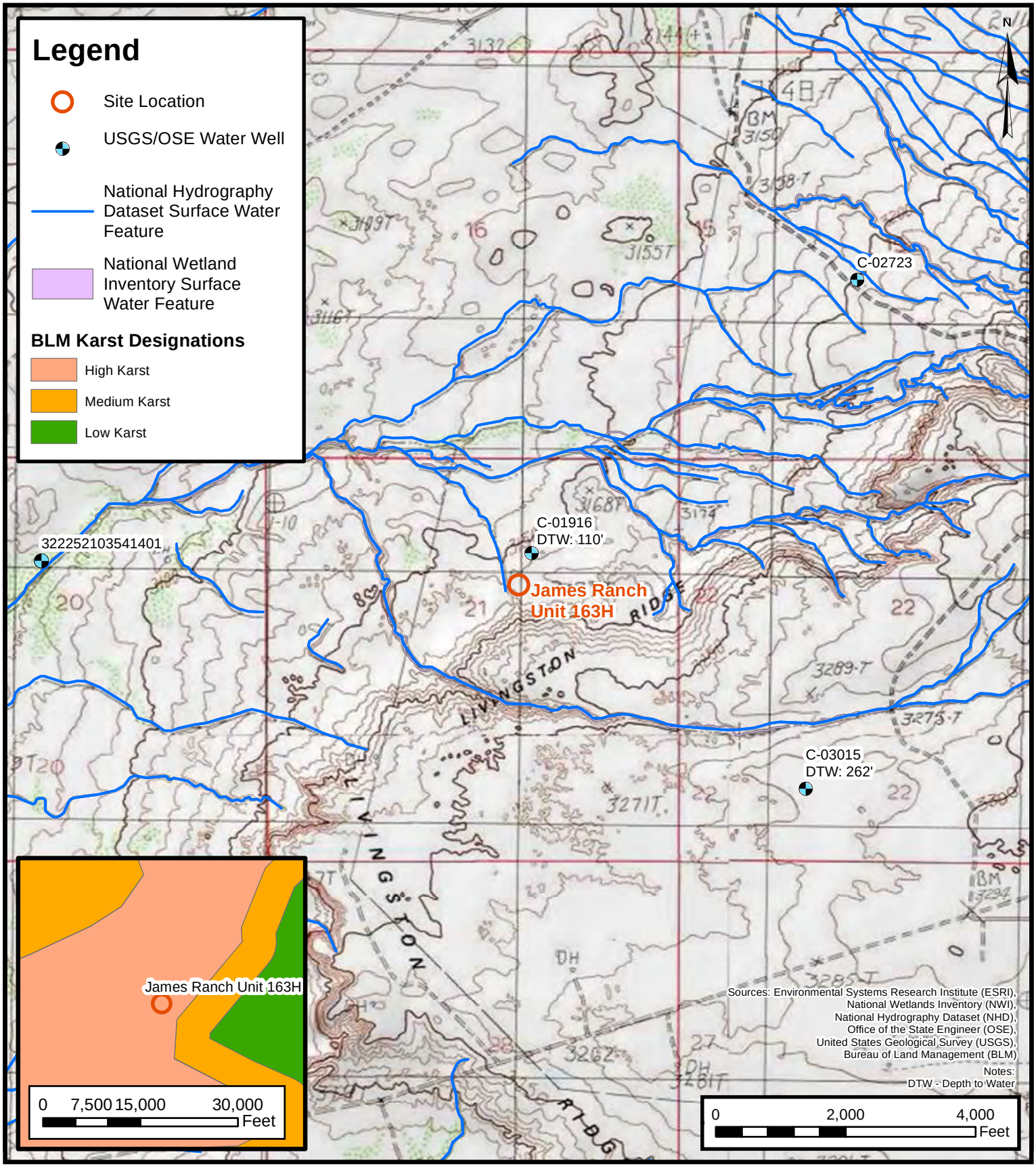
Bureau of Land Management

Appendices:

Figure 1	Site Receptor Map
Figure 2	Delineation Soil Sample Locations
Figure 3	Excavation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Groundwater Well Plugging Plan
Appendix B	Photographic Log
Appendix C	Lithologic / Soil Sampling Logs
Appendix D	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix E	NMOCD Email Notifications

ENSOLUM

Figures



Document Path: C:\Users\Justin Valdez\GIS\Ensolum GIS\3 - Carlsbad\XTO Energy\02E1558098 - James Ranch Unit 163H\1 - MXDs\Figure 1 Site Receptor Map.mxd

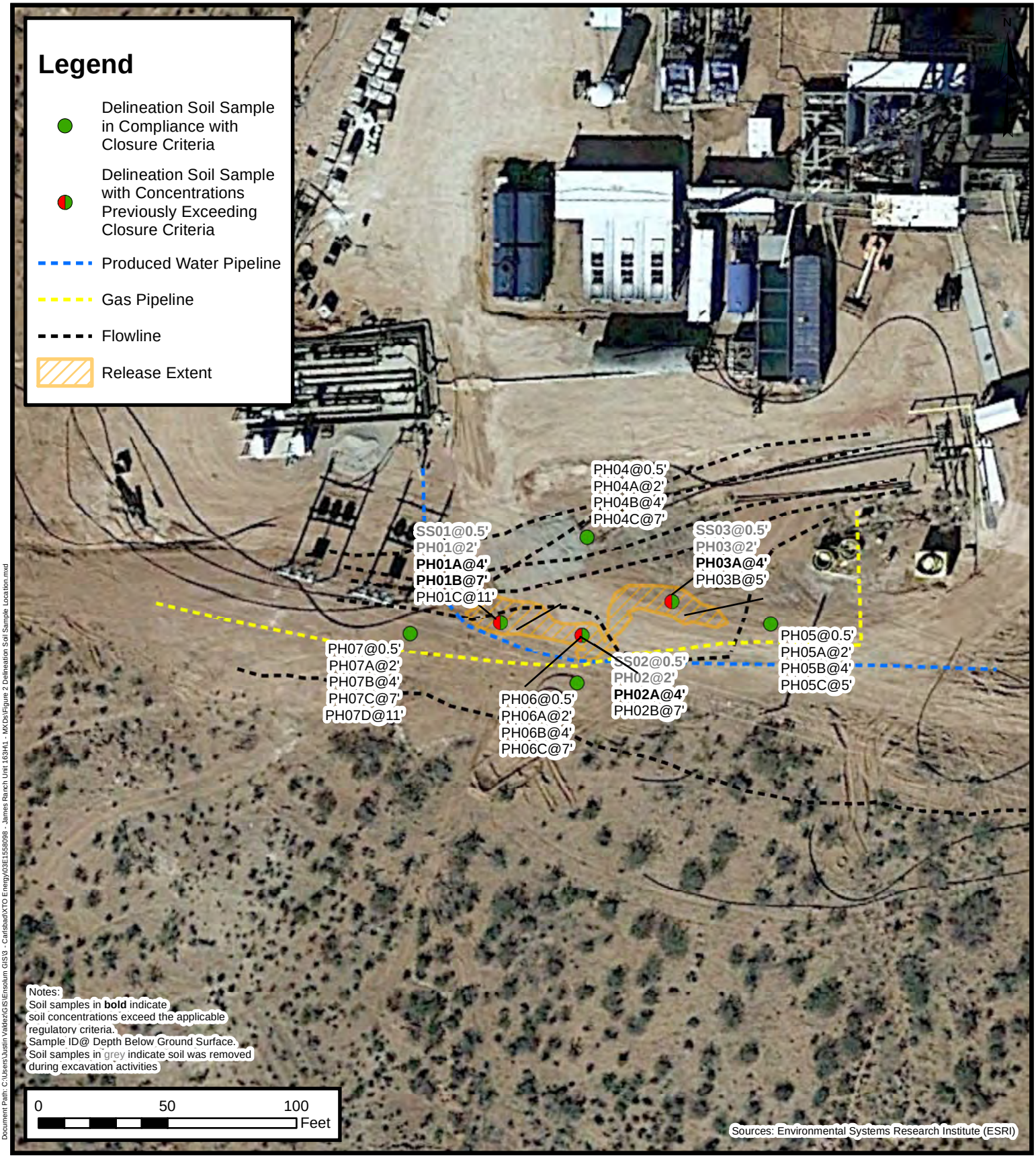
ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Site Receptor Map

James Ranch Unit 163H
XTO Energy, Inc
Unit G Sec 21 T22S R30E
Eddy County, New Mexico
Incident Number: nAPP2219649599

FIGURE

1



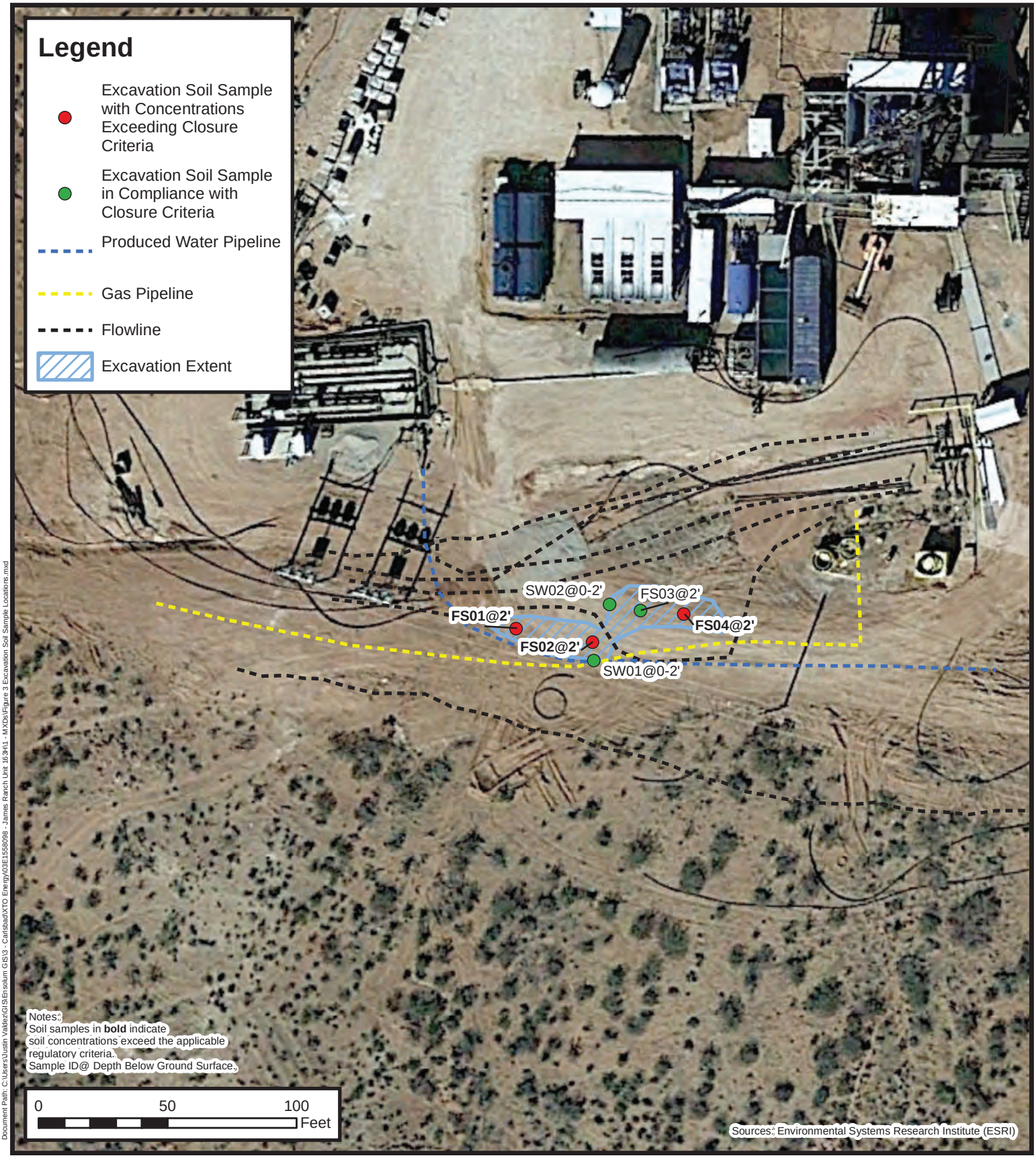
Document Path: C:\Users\Justin Valdez\GIS\Ensolum GIS\3 - Carlsbad\XTO Energy\03E1558098 - James Ranch Unit 163H\1 - MXDs\Figure 2 Delineation Soil Sample Location.mxd

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Delineation Soil Sample Locations

James Ranch Unit 163H
XTO Energy, Inc
Unit G Sec 21 T22S R30E
Eddy County, New Mexico
Incident Number: nAPP2219649599

FIGURE
2



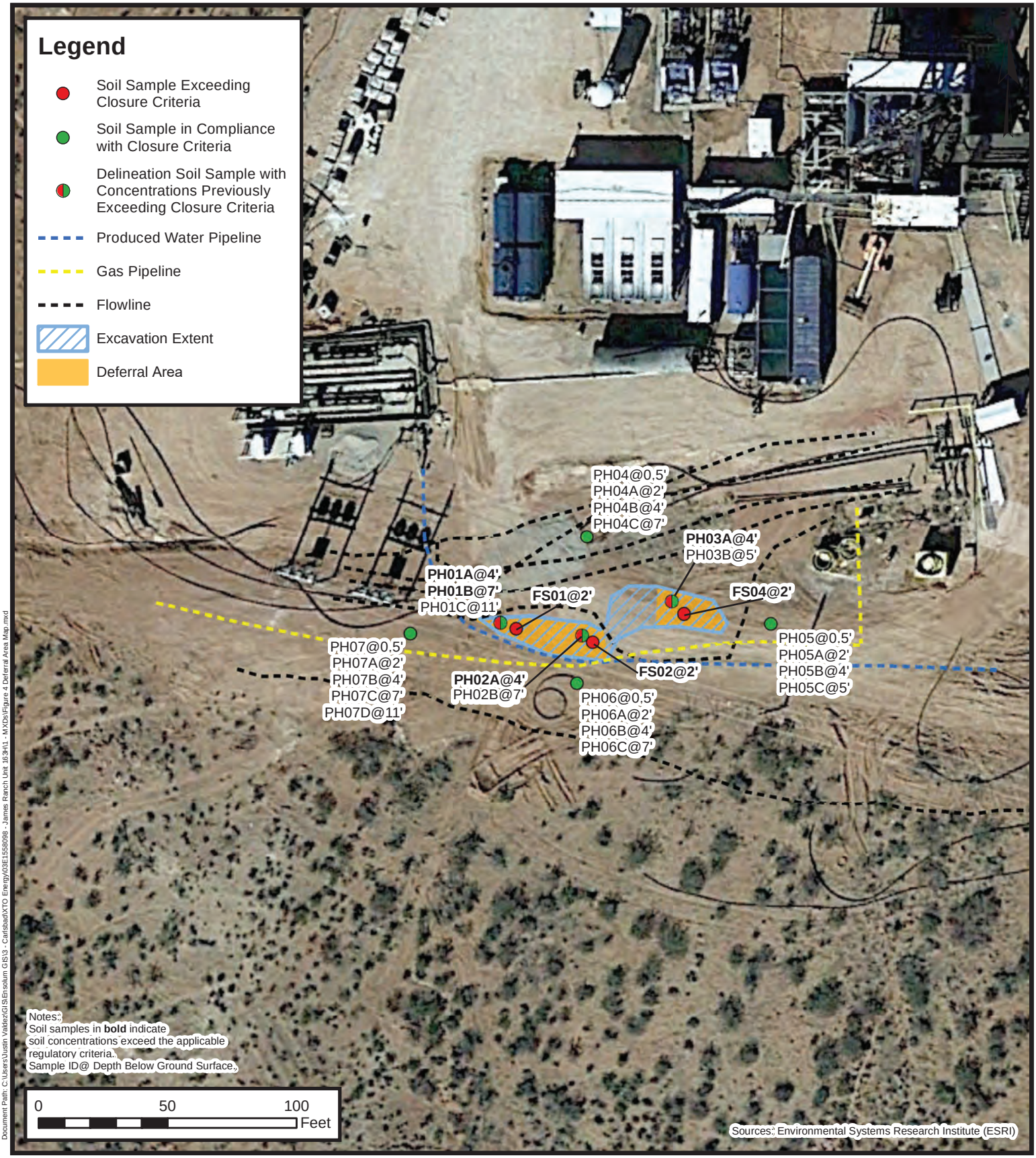
Document Path: C:\Users\Justin Valdez\GIS\Ensolum GIS\3 - Carlsbad\XTO Energy\03E1558098 - James Ranch Unit 163H\1 - MXDs\Figure 3 Excavation Soil Sample Locations.mxd

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Excavation Soil Sample Locations

James Ranch Unit 163H
XTO Energy, Inc
Unit G Sec 21 T22S R30E
Eddy County, New Mexico
Incident Number: nAPP2219649599

FIGURE
3



Document Path: C:\Users\Justin Valdez\GIS\Ensolum GIS\3 - Carlsbad\XTO Energy\03E1558098 - James Ranch Unit 163H\1 - MXDs\Figure 4 Deferral Area Map.mxd

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Deferral Area Map

James Ranch Unit 163H
XTO Energy, Inc
Unit G Sec 21 T22S R30E
Eddy County, New Mexico
Incident Number: nAPP2219649599

FIGURE
4

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Tables

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
James Ranch Unit 163H
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
Delineation Soil Samples										
~~SS01~~	~~08/19/2022~~	~~0.5~~	~~<0.00199~~	~~0.196~~	~~253~~	~~9,390~~	~~<249~~	~~9,643~~	~~**9,640**~~	~~**11,800**~~
~~PH01~~	~~10/13/2022~~	~~2~~	~~<0.00200~~	~~<0.00401~~	~~<50.0~~	~~**1,200**~~	~~171~~	~~**1,200**~~	~~**1,370**~~	~~**5,100**~~
PH01A	10/13/2022	4	<0.00201	<0.00402	<49.8	<49.8	<49.8	<49.8	<49.8	**1,310**
PH01B	10/13/2022	7	<0.00199	<0.00398	<50.0	1,380	181	1,380	**1,560**	**3,740**
PH01C	10/13/2022	11	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	126
~~SS02~~	~~08/19/2022~~	~~0.5~~	~~<0.00200~~	~~0.0660~~	~~393~~	~~24,800~~	~~<250~~	~~25,193~~	~~**25,200**~~	~~**11,600**~~
~~PH02~~	~~10/13/2022~~	~~2~~	~~<0.00199~~	~~<0.00398~~	~~<49.8~~	~~105~~	~~<49.8~~	~~105~~	~~105~~	~~**2,820**~~
PH02A	10/13/2022	4	<0.00200	<0.00399	<49.9	526	84.0	526	**610**	**2,010**
PH02B	10/13/2022	7	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	361
~~SS03~~	~~08/19/2022~~	~~0.5~~	~~<0.00200~~	~~0.165~~	~~449~~	~~29,400~~	~~<250~~	~~29,848~~	~~**29,800**~~	~~**12,000**~~
~~PH03~~	~~10/12/2022~~	~~2~~	~~<0.00201~~	~~<0.00402~~	~~<49.8~~	~~155~~	~~<49.8~~	~~155~~	~~155~~	~~**1,290**~~
PH03A	10/12/2022	4	<0.00200	<0.00401	<49.8	<49.8	<49.8	<49.8	<49.8	**868**
PH03B	10/12/2022	5	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	424
PH04	10/13/2022	0.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	12.3
PH04A	10/13/2022	2	<0.00199	<0.00398	<49.8	<49.8	<49.8	<49.8	<49.8	118
PH04B	10/13/2022	4	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	19.7
PH04C	10/13/2022	7	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	15.4
PH05	10/13/2022	0.5	<0.00198	<0.00397	<49.9	<49.9	<49.9	<49.9	<49.9	368
PH05A	10/13/2022	2	<0.00202	<0.00403	<49.8	<49.8	<49.8	<49.8	<49.8	199
PH05B	10/13/2022	4	<0.00200	<0.00399	<49.8	<49.8	<49.8	<49.8	<49.8	86.0
PH05C	10/13/2022	5	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	47.6
PH06	10/13/2022	0.5	<0.00199	0.0271	<49.9	<49.9	<49.9	<49.9	<49.9	14.0
PH06A	10/13/2022	2	<0.00200	0.00556	<50.0	<50.0	<50.0	<50.0	<50.0	23.6
PH06B	10/13/2022	4	<0.00201	<0.00402	<49.8	<49.8	<49.8	<49.8	<49.8	171
PH06C	10/13/2022	7	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	75.2
PH07	10/13/2022	0.5	<0.00200	0.00813	<50.0	<50.0	<50.0	<50.0	<50.0	195
PH07A	10/13/2022	2	<0.00202	<0.00403	<49.9	<49.9	<49.9	<49.9	<49.9	57.7
PH07B	10/13/2022	4	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	40.8
PH07C	10/13/2022	7	<0.00199	<0.00398	<49.8	<49.8	<49.8	<49.8	<49.8	24.7
PH07D	10/13/2022	11	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	85.2

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
James Ranch Unit 163H
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
Excavation Soil Samples										
SW01	10/14/2022	0-2	<0.00200	<0.00399	<49.8	54.2	<49.8	54.2	54.2	43.0
SW02	10/14/2022	0-2	<0.00201	<0.00402	<49.9	50.5	<49.9	50.5	50.5	277
FS01	10/17/2022	2	<0.00199	<0.00398	<49.8	133	<49.8	133	**133**	357
FS02	10/17/2022	2	<0.00200	0.3770	53.1	389	51.3	442	**493**	168
FS03	10/17/2022	2	<0.00199	0.0416	<49.8	70.0	<49.8	70.0	70.0	64.8
FS04	10/17/2022	2	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	**750**

Notes:

bgs: below ground surface
mg/kg: milligrams per kilogram
NMOCD: New Mexico Oil Conservation Division
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
Concentrations in **bold** exceed the NMOCD Table 1 Closure Criteria or reclamation standard where applicable.
GRO: Gasoline Range Organics
DRO: Diesel Range Organics
ORO: Oil Range Organics
TPH: Total Petroleum Hydrocarbon
NMAC: New Mexico Administrative Code
~~Grey~~ text indicates soil sample removed during excavation activities

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APPENDIX A

Groundwater Well Plugging Plan

WELL PLUGGING PLAN OF OPERATIONS

NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

I. FILING FEE: There is no filing fee for this form.

II. GENERAL / WELL OWNERSHIP:

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: C 01916

Name of well owner: BOPCO L.P.

Mailing address: P.O. Box 2760

City: Midland State: Texas Zip code: 79702

Phone number: 432- 556 -8730 E-mail: TASavoie@Basspet.com

III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: Straub Corporation – Raymond Straub

New Mexico Well Driller License No.: WD-1478 Expiration Date: June-2013

IV. WELL INFORMATION:

Note: A copy of the existing Well Record for the well to be plugged should be attached to this plan.

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1) GPS Well Location: Latitude: 32 deg, 22 min, 54.42 sec
Longitude: -103 deg, 53 min, 00.57 sec, NAD 83

2) Reason(s) for plugging well: Water well is in the path of new construction. Water quality is below useable quality.

3) Was well used for any type of monitoring program? NO If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? YES If yes, provide additional detail, including analytical results and/or laboratory report(s): See Attachments

5) Static water level: ~ 110 feet below land surface / feet above land surface (circle one)

6) Depth of the well: 188 feet

C-1916
4167710

7) Inside diameter of innermost casing: 5 inches.

8) Casing material: Steel

9) The well was constructed with:

UNKWN an open-hole production interval, state the open interval: _____

UNKWN a well screen or perforated pipe, state the screened interval(s): _____

10) What annular interval surrounding the artesian casing of this well is cement-grouted? NA

11) Was the well built with surface casing? UNKWN If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? _____ If yes, please describe: _____

12) Has all pumping equipment and associated piping been removed from the well? yes If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

V. DESCRIPTION OF PLANNED WELL PLUGGING:

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal.

1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: The casing will be cut off below ground surface. A tremie line will be install and a Portland Type II/ V Cement grout will be placed from the bottom to within 5' of the surface. A concrete cap will be placed from 5' to 1' and the remainder will be filled with soil.

2) Will well head be cut-off below land surface after plugging? yes

VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant

1) For plugging intervals that employ cement grout, complete and attach Table A.

2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.

3) Theoretical volume of grout required to plug the well to land surface: 20 Sacks

4) Type of Cement proposed: See Attached Conditions of Approval C.6
5% Fullers Earth / Type II/V Cement
See Attached Conditions of Approval C.6

5) Proposed cement grout mix: 8 gallons of water per 94 pound sack of Portland cement.

6) Will the grout be: _____ batch-mixed and delivered to the site

X mixed on site

7) Grout additives requested, and percent by dry weight relative to cement: Salt water gel – The use of Fuller's Earth is to help with leak-off to the formation. Since the formation water is high in chlorides, Volclay Sodium Bentonite will not be acceptable. 5 LBS. of Gel per 94 LBS. of cement

SEE Attached Conditions of Approval C.G.

8) Additional notes and calculations: ((dia.^{2} * 0.005454)*Depth)/ 1.25 cuft-bag

VII. ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s):

The Public Land Survey is Section 21, Township 22 South, Range 30 East.

VIII. SIGNATURE:

I, Raymond L Straub Jr., P.G. , say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

Signature of Applicant

03/28/2013
Date

IX. ACTION OF THE STATE ENGINEER:

This Well Plugging Plan of Operations is:

✓ Approved subject to the attached conditions.
____ Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 11th day of April, 13

Scott A. Verhines, State Engineer

By: Tim Williams

Tim Williams
Carlsbad Basin Watermaster

STATE ENGINEER OFFICE
ROSWELL, NM
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TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			5 feet
Bottom of proposed interval of grout placement (ft bgl)			188 feet
Theoretical volume of grout required per interval (gallons)			20 Sacks
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			8 gallons
Mixed on-site or batch-mixed and delivered?			On-site
Grout additive 1 requested			5% Saltwater Bentonite
Additive 1 percent by dry weight relative to cement			5 LBS.
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

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TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			

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STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
ROSWELL

Scott A. Verhines, P.E.
State Engineer

DISTRICT II
1900 West Second St.
Roswell, New Mexico 88201
Phone: (575) 622-6521
Fax: (575) 623-8559

April 17, 2013

BOPCO, L.P.
P.O. Box 2760
Midland, Texas 79702

RE: *Well Plugging Plan of Operations* for C-1916

Greetings:

Enclosed is your copy of the Well Plugging Plan for the above referenced project. The attached Conditions of Approval modify your Plan in accordance with the Rules and Regulations Governing Well Driller Licensing; Construction, Repair and Plugging of Wells 19.27.4 NMAC adopted August 31, 2005 by the State Engineer. Should you have any questions about the Plan or Conditions of Approval please do not hesitate to contact our office.

Sincerely,

Catherine Goetz
Water Resource Specialist
District II Office of the State Engineer

Enclosures

cc: Office of the State Engineer Santa Fe
Straub Corporation

Analytical Laboratory Report for:
BOPCO

Account Representative:
Willis Mossman

Production Water Analysis

Listed below please find water analysis report from: Perry R Bass Wsw, WATER SUPPLY WELL

Lab Test Number	Sample Date
201301003615	02/13/2013

Specific Gravity:	**1.100**
TDS:	**153402**
pH:	**6.65**

Cations	**mg/L**
Calcium as Ca^{++}	**2669**
Magnesium as Mg^{++}	**2188**
Sodium as Na^{+}	**52812**
Iron as Fe^{++}	**9.49**
Potassium as K^{+}	**7466.0**
Barium as Ba^{++}	**0.28**
Strontium as Sr^{++}	**86.46**
Manganese as Mn^{++}	**0.46**

Anions	**mg/L**
Bicarbonate as HCO_3^{-}	**171**
Sulfate as $SO_4^{=}$	**6500**
Chloride as Cl^{-}	**81500**

Gases	**mg/L**
Carbon Dioxide as CO_2	**30**
Hydrogen Sulfide as H_2S	**0.0**

Lab Comments:
SURFACE TEMP.=65.7°F

Analytical Laboratory Report for:
BOPCO

Account Representative:
Willis Mossman

DownHole SAT™ Scale Prediction @ 250 deg. F

Lab Test Number	Sample Date	Location
201301003615	02/13/2013	WATER SUPPLY WELL

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO3)	0.46	-0.05
Strontianite (SrCO3)	0.00	-25.80
Anhydrite (CaSO4)	6.85	1699.09
Gypsum (CaSO4*2H2O)	1.55	710.25
Barite (BaSO4)	0.07	-6.67
Celestite (SrSO4)	0.23	-487.80
Siderite (FeCO3)	3.44	0.04
Halite (NaCl)	0.04	-545840.63
Iron sulfide (FeS)	0.00	-1.34

Interpretation of DHSat Results:
The Saturation Index is calculated for each mineral species independently and is a measure of the degree of supersaturation (driving force for precipitation) under the conditions modeled. This value ranges from 0 to infinity with 1.0 representing a condition of equilibrium where scale will neither dissolve nor precipitate. Values less than 1.0 are undersaturated and values greater than 1.0 are supersaturated. The Momentary excess is a measure of how much scale would have to precipitate to bring the system back to a non-scaling condition. This value ranges from negative (dissolving) to positive (precipitating) values. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

New Mexico Office of the State Engineer
Transaction Summary

72121 All Applications Under Statute 72-12-1

Transaction Number: 199433 **Transaction Desc:** C 01916 **File Date:** 07/31/1980

Primary Status: EXP Expired Permit
Secondary Status: EXP Expired
Person Assigned: mvigil
Applicant: PERRY R. BASS

Events

Date	Type	Description	Comment	Processed By
07/31/1980	APP	Application Received	*	mvigil
08/04/1980	FIN	Final Action on application		mvigil
08/04/1980	WAP	General Approval Letter		mvigil
09/01/1981	EXP	Expired Permit (well log late)		mvigil

Change To:

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
C 01916		3		PRO 72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE

****Point of Diversion**

C 01916	605068	3582947*	

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

Remarks

WATER SUPPLY WELL FOR THE DRILLING OF JAMES RANCH UNIT #12.

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Conditions

3 Appropriation and use of water under this permit shall not exceed a period of one year from the date of approval.

5A A totalizing meter shall be installed before the first branch of the discharge line from the well and the installation shall be acceptable to the State Engineer; the Engineer shall be advised of the make, model, serial number, date of installation, and initial reading of the meter prior to appropriation of water; pumping records shall be submitted to the District Supervisor for each calendar month on or before the 10th day of the following month.

6 The well shall be plugged upon completion of the permitted use, and a plugging report shall be filed with the State Engineer within 10 days.

Action of the State Engineer

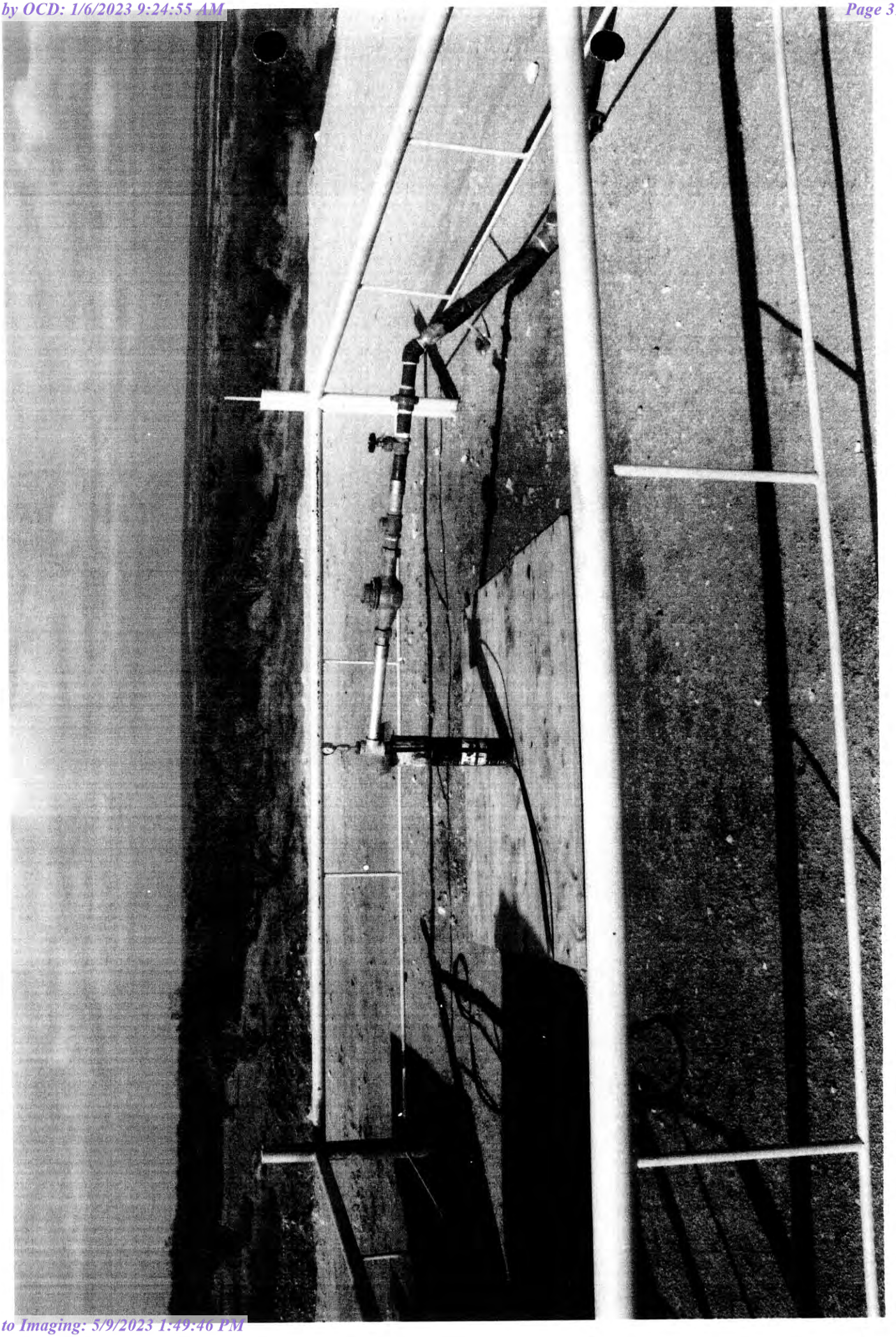
Approval Code: A - Approved
Action Date: 08/04/1980
Log Due Date: 08/31/1981
State Engineer:

Conditions of Approval for C-1916 abandonment:

1) Plugging operations will be conducted in accordance with NMED, NMOCD, or other State or Federal agency having oversight for the above described project.

2) The well shall be plugged using a cement slurry (5.2 gals water per 94lb bag of Portland cement). It is understood that due to the high sulfate content Type V cement will be used as the data provided on water quality indicates 6,500 ppm sulfates. The cement grout will be pumped via tremie line from bottom up.

3) By item 2 above, the plan meets OSE requirements for tremie/grout abandonment, however, well records are not available to confirm well design/annular seals.



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APPENDIX B

Photographic Log

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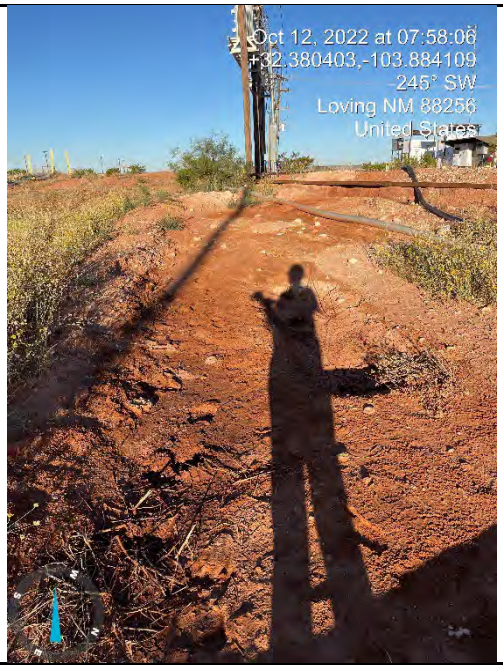
Photographic Log
XTO Energy, Inc
James Ranch Unit 163H
Incident Number NAPP2219649599

Photograph 1 Date: 7/11/2022
Description: Flowline release point.
View: Southwest



Photograph 2 Date: 10/12/2022
Description: Release Extent
View: West

Photograph 3 Date: 10/17/2022
Description: Final excavation extent.
View: West

Photograph 4 Date: 10/17/2022
Description: Final excavation extent.
View: Northwest

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APPENDIX C

Lithologic Soil Sampling Logs

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	Sample Name: PH01	Date: 10/13/2022
	Site Name: JRU 163H	
	Incident Number: NAPP2219649599	
	Job Number: 03E1558098	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: MR	Method: Backhoe
Coordinates: 32.380380, -103.884312	Hole Diameter: N/A	Total Depth: 11'

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. Chloride field screenings include a 40% correction factor.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0	SW	0-8', SAND, moist, brown, well graded, fine to medium grained, some silt,trace small sub-round gravel, brown staining, strong hydrocarbon odor.
			Y	SS01	0.5			
M	8,164	1,280	N			1		
M	5,499	83.4	N	PH01	2	2		2'-8', mild hydrocarbon odor.
M	3,516	187.5	N			3		
M	6,988	11.9	N	PH01A	4	4		
M	6,462	165.9	N			5		
M	5,499	122	N			6		
M	5,062	174.5	N	PH01B	7	7		
M	4,653	143.5	N			8		
							SP-S	8'-11', SANDSTONE, moist, reddish brown, poorly graded, fine grained, moderately-well consolidated, no stain, trace hydrocarbon odor.
M	4,267	42.9	N			9		
M	3,908	125.9	N			10		
M	<112	1.4	N	PH01C	11	11		@11', no odor.
							TD	Total depth at 11 feet bgs.
						12		

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	Sample Name: PH02	Date: 10/13/2022
	Site Name: JRU 163H	
	Incident Number: NAPP2219649599	
	Job Number: 03E1558098	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: MR	Method: Backhoe
Coordinates: 32.380364, -103.884216	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. Chloride field screenings include a 40% correction factor. DNR=did not retrieve.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
			Y	SS02	0.5	0	SW	0-7', SAND, moist, brown, well graded, fine to medium grained, some silt,trace small sub-round gravel, brown staining, mild hydrocarbon odor.
M	DNR	54.1	N			1		1'-7', no stain.
M	DNR	31.7	N	PH02	2	2		
M	DNR	166.0	N			3		
M	DNR	57.9	N	PH02A	4	4		4'-6', trace hydrocarbon odor.
M	705	27.3	N			5		
M	240	29.6	N			6		
M	240	3.0	N	PH02B	7	7		@7', no odor.
							TD	Total depth at 7 feet bgs.
						8		
						9		
						10		
						11		
						12		

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	Sample Name: PH03	Date: 10/12/2022
	Site Name: JRU 163H	
	Incident Number: NAPP2219649599	
	Job Number: 03E1558098	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: MR	Method: Backhoe
Coordinates: 32.380390, -103.884121	Hole Diameter: N/A	Total Depth: 5'

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. Chloride field screenings include a 40% correction factor.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
			Y	SS03	0.5	0	SW	0-5', SAND, moist, brown, well graded, fine to medium grained, some silt,trace small sub-round gravel, trace brown staining, mild hydrocarbon odor.
M	3,259	9.3	N			1		1'-5', no odor, no stain.
M	2,430	6.4	N	PH03	2	2		
M	1,472	1.7	N			3		
M	1,086	0.9	N	PH03A	4	4		
M	369	1.0	N	PH03B	5	5	TD	Total depth at 5 feet bgs.
						6		
						7		
						8		
						9		
						10		
						11		
						12		

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	Sample Name: PH04	Date: 10/13/2022
	Site Name: JRU 163H	
	Incident Number: NAPP2219649599	
	Job Number: 03E1558098	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: MR	Method: Hand Auger
Coordinates: 32.380459, -103.884222	Hole Diameter: 3.5"	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. Chloride field screenings include a 40% correction factor.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	<168	0.0	N	PH04	0.5	0	SW	0-7', SAND, moist, brown, well graded, fine to medium grained, some silt,trace small sub-round gravel, no stain, no odor. hydrocarbon odor.
						1		
M	<168	0.0	N	PH04A	2	2		
						3		
M	<168	0.0	N	PH04B	4	4		
						5		
M	<168	0.0	N			6		
M	<168	0.0	N	PH04C	7	7		
							TD	Total depth at 7 feet bgs.
						8		
						9		
						10		
						11		
						12		

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	Sample Name: PH05	Date: 10/13/2022
	Site Name: JRU 163H	
	Incident Number: NAPP2219649599	
	Job Number: 03E1558098	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: MR	Method: Backhoe
Coordinates: 32.380380, -103.884026	Hole Diameter: N/A	Total Depth: 5'

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. Chloride field screenings include a 40% correction factor.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	<168	0.0	N	PH05	0.5	0	SW	0-5', SAND, moist, brown, well graded, fine to medium grained, some silt,trace small sub-round gravel, no stain, no odor.
						1		
M	280	0.0	N	PH05A	2	2		
						3		
M	<168	0.0	N	PH05B	4	4		
M	<168	0.0	N	PH05C	5	5	TD	Total depth at 5 feet bgs.
						6		
						7		
						8		
						9		
						10		
						11		
						12		

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

	Sample Name: PH06	Date: 10/13/2022
	Site Name: JRU 163H	
	Incident Number: NAPP2219649599	
	Job Number: 03E1558098	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: MR	Method: Hand Auger
Coordinates: 32.380327, -103.884231	Hole Diameter: 3.5"	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. Chloride field screenings include a 40% correction factor.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	<168	0.0	N	PH06	0.5	0	SW	0-7', SAND, moist, brown, well graded, fine to medium grained, some silt,trace small sub-round gravel, no stain, no odor.
						1		
M	<168	0.0	N	PH06A	2	2		
						3		
M	280	0.0	N	PH06B	4	4		
						5		
M	<168	0.0	N			6		
M	<168	0.0	N	PH06C	7	7		
							TD	Total depht at 7 feet bgs.
						8		
						9		
						10		
						11		
						12		

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

	Sample Name: PH07	Date: 10/13/2022
	Site Name: JRU 163H	
	Incident Number: NAPP2219649599	
	Job Number: 03E1558098	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: MR	Method: Hand Auger
Coordinates: 32.380375, -103.884411	Hole Diameter: 3.5"	Total Depth: 11'

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. Chloride field screenings include a 40% correction factor.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	280	0.0	N	PH07	0.5	0	SW	0-8', SAND, moist, brown, well graded, fine to medium grained, some silt,trace small sub-round gravel, no stain, no odor.
						1		
M	<168	0.0	N	PH07A	2	2		
						3		
M	<168	0.0	N	PH07B	4	4		
						5		
M	<168	0.0	N			6		
M	<168	0.0	N	PH07C	7	7		
M	<168	0.0	N			8	SP-S	8'-11', SANDSTONE, moist, reddish brown, poorly graded, fine grained, moderately-well consolidated, no stain, no odor.
						9		
M	<168	0.0	N			10		
M	201	0.0	N	PH07D	11	11	TD	Total depht at 11 feet bgs.
						12		

ENSOLUM

APPENDIX D

Laboratory Analytical Reports & Chain-of-Custody Documentation

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-2793-1
Laboratory Sample Delivery Group: 03E1558098
Client Project/Site: JRU 163H

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

Attn: Ben Belill

JKramer

Authorized for release by:
9/2/2022 10:38:17 AM

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

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 163H

Laboratory Job ID: 890-2793-1
SDG: 03E1558098

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

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
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 163H

Job ID: 890-2793-1
SDG: 03E1558098

Job ID: 890-2793-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2793-1

Receipt
The samples were received on 8/19/2022 3:53 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 16.0°C

Receipt Exceptions
The following samples were received at the laboratory outside the required temperature criteria: SS01 (890-2793-1), SS02 (890-2793-2) and SS03 (890-2793-3). This does not meet regulatory requirements. The client was contacted regarding this issue, and the laboratory was instructed to <CHOOSE_ONE> proceed with/cancel analysis.

Samples received out of temp range 16.2/16.0 client wanted to proceed with testing

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-33466 and analytical batch 880-33557 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

GC Semi VOA
Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: SS03 (890-2793-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

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

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

Client Sample ID: SS01

Lab Sample ID: 890-2793-1
Matrix: Solid
Date Collected: 08/19/22 12:40
Date Received: 08/19/22 15:53
Sample Depth: 0.5'

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		08/31/22 14:40	09/01/22 20:11	1
Toluene	<0.00199	U	0.00199		mg/Kg		08/31/22 14:40	09/01/22 20:11	1
Ethylbenzene	**0.0737**		0.00199		mg/Kg		08/31/22 14:40	09/01/22 20:11	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		08/31/22 14:40	09/01/22 20:11	1
o-Xylene	**0.122**		0.00199		mg/Kg		08/31/22 14:40	09/01/22 20:11	1
Xylenes, Total	**0.122**		0.00398		mg/Kg		08/31/22 14:40	09/01/22 20:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*73*		*70 - 130*	*08/31/22 14:40*	*09/01/22 20:11*	*1*
1,4-Difluorobenzene (Surr)	*83*		*70 - 130*	*08/31/22 14:40*	*09/01/22 20:11*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.196**		0.00398		mg/Kg			09/02/22 11:24	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**9640**		249		mg/Kg			08/25/22 16:03	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	**253**		249		mg/Kg		08/23/22 15:10	08/25/22 03:45	5
Diesel Range Organics (Over C10-C28)	**9390**		249		mg/Kg		08/23/22 15:10	08/25/22 03:45	5
Oil Range Organics (Over C28-C36)	<249	U	249		mg/Kg		08/23/22 15:10	08/25/22 03:45	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*74*		*70 - 130*	*08/23/22 15:10*	*08/25/22 03:45*	*5*
o-Terphenyl	*90*		*70 - 130*	*08/23/22 15:10*	*08/25/22 03:45*	*5*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11800**		99.4		mg/Kg			08/24/22 16:28	20

Client Sample ID: SS02

Lab Sample ID: 890-2793-2
Matrix: Solid
Date Collected: 08/19/22 12:45
Date Received: 08/19/22 15:53
Sample Depth: 0.5'

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/31/22 14:40	09/01/22 20:31	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/31/22 14:40	09/01/22 20:31	1
Ethylbenzene	**0.0163**		0.00200		mg/Kg		08/31/22 14:40	09/01/22 20:31	1
m-Xylene & p-Xylene	**0.0172**		0.00401		mg/Kg		08/31/22 14:40	09/01/22 20:31	1
o-Xylene	**0.0325**		0.00200		mg/Kg		08/31/22 14:40	09/01/22 20:31	1
Xylenes, Total	**0.0497**		0.00401		mg/Kg		08/31/22 14:40	09/01/22 20:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*61*	*S1-*	*70 - 130*	*08/31/22 14:40*	*09/01/22 20:31*	*1*

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

Client Sample ID: SS02

Date Collected: 08/19/22 12:45
Date Received: 08/19/22 15:53
Sample Depth: 0.5'

Lab Sample ID: 890-2793-2
Matrix: Solid

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	*77*		*70 - 130*	*08/31/22 14:40*	*09/01/22 20:31*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.0660**		0.00401		mg/Kg			09/02/22 11:24	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**25200**		250		mg/Kg			08/25/22 16:03	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	**393**		250		mg/Kg		08/23/22 15:10	08/25/22 04:27	5
Diesel Range Organics (Over C10-C28)	**24800**		250		mg/Kg		08/23/22 15:10	08/25/22 04:27	5
OII Range Organics (Over C28-C36)	<250	U	250		mg/Kg		08/23/22 15:10	08/25/22 04:27	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	*86*		*70 - 130*	*08/23/22 15:10*	*08/25/22 04:27*	*5*
o-Terphenyl	*123*		*70 - 130*	*08/23/22 15:10*	*08/25/22 04:27*	*5*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11600**		100		mg/Kg			08/24/22 16:36	20

Client Sample ID: SS03

Date Collected: 08/19/22 12:50
Date Received: 08/19/22 15:53
Sample Depth: 0.5'

Lab Sample ID: 890-2793-3
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/31/22 14:40	09/01/22 20:51	1
Toluene	**0.00280**		0.00200		mg/Kg		08/31/22 14:40	09/01/22 20:51	1
Ethylbenzene	**0.0356**		0.00200		mg/Kg		08/31/22 14:40	09/01/22 20:51	1
m-Xylene & p-Xylene	**0.0526**		0.00399		mg/Kg		08/31/22 14:40	09/01/22 20:51	1
o-Xylene	**0.0735**		0.00200		mg/Kg		08/31/22 14:40	09/01/22 20:51	1
Xylenes, Total	**0.126**		0.00399		mg/Kg		08/31/22 14:40	09/01/22 20:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*55*	*S1-*	*70 - 130*	*08/31/22 14:40*	*09/01/22 20:51*	*1*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*	*08/31/22 14:40*	*09/01/22 20:51*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.165**		0.00399		mg/Kg			09/02/22 11:24	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**29800**		250		mg/Kg			08/25/22 16:03	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

Client Sample ID: SS03

Date Collected: 08/19/22 12:50
Date Received: 08/19/22 15:53
Sample Depth: 0.5'

Lab Sample ID: 890-2793-3

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	449		250		mg/Kg		08/23/22 15:10	08/25/22 04:48	5
Diesel Range Organics (Over C10-C28)	29400		250		mg/Kg		08/23/22 15:10	08/25/22 04:48	5
Oil Range Organics (Over C28-C36)	<250	U	250		mg/Kg		08/23/22 15:10	08/25/22 04:48	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*08/23/22 15:10*	*08/25/22 04:48*	*5*
o-Terphenyl	*153*	*S1+*	*70 - 130*	*08/23/22 15:10*	*08/25/22 04:48*	*5*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12000		101		mg/Kg			08/24/22 16:44	20

Surrogate Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)											
		BFB1	DFBZ1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
890-2791-A-2-H MS	Matrix Spike	94	109										
890-2791-A-2-I MSD	Matrix Spike Duplicate	93	108										
890-2793-1	SS01	73	83										
890-2793-2	SS02	61 S1-	77										
890-2793-3	SS03	55 S1-	81										
LCS 880-33466/1-A	Lab Control Sample	94	99										
LCSD 880-33466/2-A	Lab Control Sample Dup	96	101										
MB 880-33466/5-A	Method Blank	78	116										

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)											
		1CO1	OTPH1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
890-2793-1	SS01	74	90										
890-2793-2	SS02	86	123										
890-2793-3	SS03	108	153 S1+										

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-33466/5-A
Matrix: Solid
Analysis Batch: 33557

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 33466

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/31/22 14:40	09/01/22 18:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/31/22 14:40	09/01/22 18:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/31/22 14:40	09/01/22 18:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/31/22 14:40	09/01/22 18:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/31/22 14:40	09/01/22 18:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/31/22 14:40	09/01/22 18:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*78*		*70 - 130*	*08/31/22 14:40*	*09/01/22 18:00*	*1*
1,4-Difluorobenzene (Surr)	*116*		*70 - 130*	*08/31/22 14:40*	*09/01/22 18:00*	*1*

Lab Sample ID: LCS 880-33466/1-A
Matrix: Solid
Analysis Batch: 33557

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 33466

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1098		mg/Kg		110	70 - 130		
Toluene			0.100	0.1103		mg/Kg		110	70 - 130		
Ethylbenzene			0.100	0.1076		mg/Kg		108	70 - 130		
m-Xylene & p-Xylene			0.200	0.1975		mg/Kg		99	70 - 130		
o-Xylene			0.100	0.1037		mg/Kg		104	70 - 130		

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

Lab Sample ID: LCSD 880-33466/2-A
Matrix: Solid
Analysis Batch: 33557

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 33466

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1142		mg/Kg		114	70 - 130	4	35
Toluene			0.100	0.1143		mg/Kg		114	70 - 130	4	35
Ethylbenzene			0.100	0.1120		mg/Kg		112	70 - 130	4	35
m-Xylene & p-Xylene			0.200	0.2059		mg/Kg		103	70 - 130	4	35
o-Xylene			0.100	0.1080		mg/Kg		108	70 - 130	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: 890-2791-A-2-H MS
Matrix: Solid
Analysis Batch: 33557

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 33466

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U	0.0998	0.09295		mg/Kg		93	70 - 130		
Toluene	<0.00200	U	0.0998	0.06941		mg/Kg		70	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

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

Lab Sample ID: 890-2791-A-2-H MS
Matrix: Solid
Analysis Batch: 33557

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 33466

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U F1	0.0998	0.04751	F1	mg/Kg		48	70 - 130
m-Xylene & p-Xylene	<0.00399	U F1	0.200	0.08400	F1	mg/Kg		42	70 - 130
o-Xylene	<0.00200	U F1	0.0998	0.04484	F1	mg/Kg		45	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*

Lab Sample ID: 890-2791-A-2-I MSD
Matrix: Solid
Analysis Batch: 33557

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 33466

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0994	0.09702		mg/Kg		98	70 - 130	4	35
Toluene	<0.00200	U	0.0994	0.07575		mg/Kg		76	70 - 130	9	35
Ethylbenzene	<0.00200	U F1	0.0994	0.05323	F1	mg/Kg		54	70 - 130	11	35
m-Xylene & p-Xylene	<0.00399	U F1	0.199	0.09324	F1	mg/Kg		47	70 - 130	10	35
o-Xylene	<0.00200	U F1	0.0994	0.05060	F1	mg/Kg		51	70 - 130	12	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-32736/1-A
Matrix: Solid
Analysis Batch: 32797

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			08/24/22 12:02	1

Lab Sample ID: LCS 880-32736/2-A
Matrix: Solid
Analysis Batch: 32797

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride			250	243.9		mg/Kg		98	90 - 110

Lab Sample ID: LCSD 880-32736/3-A
Matrix: Solid
Analysis Batch: 32797

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	243.8		mg/Kg		98	90 - 110	0	20

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-2791-A-2-B MS
Matrix: Solid
Analysis Batch: 32797

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	686		251	919.6		mg/Kg		93	90 - 110		

Lab Sample ID: 890-2791-A-2-C MSD
Matrix: Solid
Analysis Batch: 32797

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	686		251	918.4		mg/Kg		93	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

GC VOA

Prep Batch: 33466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2793-1	SS01	Total/NA	Solid	5035	
890-2793-2	SS02	Total/NA	Solid	5035	
890-2793-3	SS03	Total/NA	Solid	5035	
MB 880-33466/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-33466/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-33466/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2791-A-2-H MS	Matrix Spike	Total/NA	Solid	5035	
890-2791-A-2-I MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 33557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2793-1	SS01	Total/NA	Solid	8021B	33466
890-2793-2	SS02	Total/NA	Solid	8021B	33466
890-2793-3	SS03	Total/NA	Solid	8021B	33466
MB 880-33466/5-A	Method Blank	Total/NA	Solid	8021B	33466
LCS 880-33466/1-A	Lab Control Sample	Total/NA	Solid	8021B	33466
LCSD 880-33466/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	33466
890-2791-A-2-H MS	Matrix Spike	Total/NA	Solid	8021B	33466
890-2791-A-2-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	33466

Analysis Batch: 33639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2793-1	SS01	Total/NA	Solid	Total BTEX	
890-2793-2	SS02	Total/NA	Solid	Total BTEX	
890-2793-3	SS03	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 32793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2793-1	SS01	Total/NA	Solid	8015NM Prep	
890-2793-2	SS02	Total/NA	Solid	8015NM Prep	
890-2793-3	SS03	Total/NA	Solid	8015NM Prep	

Analysis Batch: 32806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2793-1	SS01	Total/NA	Solid	8015B NM	32793
890-2793-2	SS02	Total/NA	Solid	8015B NM	32793
890-2793-3	SS03	Total/NA	Solid	8015B NM	32793

Analysis Batch: 32999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2793-1	SS01	Total/NA	Solid	8015 NM	
890-2793-2	SS02	Total/NA	Solid	8015 NM	
890-2793-3	SS03	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 32736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2793-1	SS01	Soluble	Solid	DI Leach	
890-2793-2	SS02	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

HPLC/IC (Continued)

Leach Batch: 32736 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2793-3	SS03	Soluble	Solid	DI Leach	
MB 880-32736/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-32736/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-32736/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2791-A-2-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2791-A-2-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 32797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2793-1	SS01	Soluble	Solid	300.0	32736
890-2793-2	SS02	Soluble	Solid	300.0	32736
890-2793-3	SS03	Soluble	Solid	300.0	32736
MB 880-32736/1-A	Method Blank	Soluble	Solid	300.0	32736
LCS 880-32736/2-A	Lab Control Sample	Soluble	Solid	300.0	32736
LCSD 880-32736/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	32736
890-2791-A-2-B MS	Matrix Spike	Soluble	Solid	300.0	32736
890-2791-A-2-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	32736

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-2793-1
SDG: 03E1558098

Client Sample ID: SS01

Date Collected: 08/19/22 12:40
Date Received: 08/19/22 15:53

Lab Sample ID: 890-2793-1
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	33466	08/31/22 14:40	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	33557	09/01/22 20:11	EL	EET MID
Total/NA	Analysis	Total BTEX		1			33639	09/02/22 11:24	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32999	08/25/22 16:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	32793	08/23/22 15:10	DM	EET MID
Total/NA	Analysis	8015B NM		5			32806	08/25/22 03:45	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	32736	08/23/22 09:11	KS	EET MID
Soluble	Analysis	300.0		20			32797	08/24/22 16:28	SMC	EET MID

Client Sample ID: SS02

Date Collected: 08/19/22 12:45
Date Received: 08/19/22 15:53

Lab Sample ID: 890-2793-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	33466	08/31/22 14:40	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	33557	09/01/22 20:31	EL	EET MID
Total/NA	Analysis	Total BTEX		1			33639	09/02/22 11:24	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32999	08/25/22 16:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	32793	08/23/22 15:10	DM	EET MID
Total/NA	Analysis	8015B NM		5			32806	08/25/22 04:27	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	32736	08/23/22 09:11	KS	EET MID
Soluble	Analysis	300.0		20			32797	08/24/22 16:36	SMC	EET MID

Client Sample ID: SS03

Date Collected: 08/19/22 12:50
Date Received: 08/19/22 15:53

Lab Sample ID: 890-2793-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	33466	08/31/22 14:40	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	33557	09/01/22 20:51	EL	EET MID
Total/NA	Analysis	Total BTEX		1			33639	09/02/22 11:24	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32999	08/25/22 16:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	32793	08/23/22 15:10	DM	EET MID
Total/NA	Analysis	8015B NM		5			32806	08/25/22 04:48	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	32736	08/23/22 09:11	KS	EET MID
Soluble	Analysis	300.0		20			32797	08/24/22 16:44	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 163H

Job ID: 890-2793-1
SDG: 03E1558098

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 163H

Job ID: 890-2793-1
SDG: 03E1558098

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 163H

Job ID: 890-2793-1
SDG: 03E1558098

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2793-1	SS01	Solid	08/19/22 12:40	08/19/22 15:53	0.5'
890-2793-2	SS02	Solid	08/19/22 12:45	08/19/22 15:53	0.5'
890-2793-3	SS03	Solid	08/19/22 12:50	08/19/22 15:53	0.5'

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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 Belill	Bill to: (if different)	Garret 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:		Garret.Green@ExxonMobil.com

Work Order Comments

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

Project Name:	JRU 163H	Turn Around	Pres. Code
Project Number:	03E1558098	☑ Routine ☐ Rush	
Project Location:	32.1931,-103.7799	Due Date:	
Sampler's Name:	Kase Parker	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Samples Received Intact:	Yes No	Thermometer ID:	TNM-007	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	16.2	
Total Containers:		Corrected Temperature:	16.0	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
SS01	S	8/19/2022	12:40	0.5			x	x	x
SS02	S	8/19/2022	12:45	0.5			x	x	x
SS03	S	8/19/2022	12:50	0.5			x	x	x

890-2793 Chain of Custody

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2S0_4: H_2 NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Comments

Incident ID:
nAPP2219649599
Cost Center:
1140601001
AFE:

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Stith	8/19/22 1553	3		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2793-1
SDG Number: 03E1558098

Login Number: 2793
List Number: 1
Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2793-1
SDG Number: 03E1558098

Login Number: 2793
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 08/23/22 10:32 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-3207-1
Laboratory Sample Delivery Group: 03E1558098
Client Project/Site: JRU 163H

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

Attn: Ben Belill

JKramer

Authorized for release by:
10/20/2022 9:38:12 AM

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

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 163H

Laboratory Job ID: 890-3207-1
SDG: 03E1558098

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

Qualifiers

GC VOA

Qualifier	Qualifier Description
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.
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 163H

Job ID: 890-3207-1
SDG: 03E1558098

Job ID: 890-3207-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3207-1

Receipt
The samples were received on 10/17/2022 12:12 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: PH07 (890-3207-1), PH07A (890-3207-2), PH07B (890-3207-3), PH07C (890-3207-4) and PH07D (890-3207-5).

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 880-37188 and analytical batch 880-37190 was outside the upper control limits.

Method 8015MOD_NM: The laboratory control sample (LCS) associated with preparation batch 880-37188 and analytical batch 880-37190 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.

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 163H

Job ID: 890-3207-1
SDG: 03E1558098

Client Sample ID: PH07

Date Collected: 10/13/22 15:05
Date Received: 10/17/22 12:12
Sample Depth: 0.5'

Lab Sample ID: 890-3207-1

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 17:18	1
Toluene	**0.00317**		0.00200		mg/Kg		10/18/22 11:00	10/18/22 17:18	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 17:18	1
m-Xylene & p-Xylene	**0.00496**		0.00401		mg/Kg		10/18/22 11:00	10/18/22 17:18	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 17:18	1
Xylenes, Total	**0.00496**		0.00401		mg/Kg		10/18/22 11:00	10/18/22 17:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*70 - 130*	*10/18/22 11:00*	*10/18/22 17:18*	*1*
1,4-Difluorobenzene (Surr)	*84*		*70 - 130*	*10/18/22 11:00*	*10/18/22 17:18*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.00813**		0.00401		mg/Kg			10/19/22 11:52	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			10/19/22 09:56	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *- *1	50.0		mg/Kg		10/18/22 08:38	10/18/22 14:58	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 14:58	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 14:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*110*		*70 - 130*	*10/18/22 08:38*	*10/18/22 14:58*	*1*
o-Terphenyl	*94*		*70 - 130*	*10/18/22 08:38*	*10/18/22 14:58*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**195**		4.99		mg/Kg			10/19/22 19:20	1

Client Sample ID: PH07A

Date Collected: 10/13/22 15:10
Date Received: 10/17/22 12:12
Sample Depth: 2'

Lab Sample ID: 890-3207-2

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		10/18/22 11:00	10/18/22 17:38	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/18/22 11:00	10/18/22 17:38	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/18/22 11:00	10/18/22 17:38	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		10/18/22 11:00	10/18/22 17:38	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/18/22 11:00	10/18/22 17:38	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		10/18/22 11:00	10/18/22 17:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*	*10/18/22 11:00*	*10/18/22 17:38*	*1*

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Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

Client Sample ID: PH07A

Date Collected: 10/13/22 15:10
Date Received: 10/17/22 12:12
Sample Depth: 2'

Lab Sample ID: 890-3207-2
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*	*10/18/22 11:00*	*10/18/22 17:38*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			10/19/22 11:52	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			10/19/22 09:56	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *- *1	49.9	mg/Kg		10/18/22 08:38	10/18/22 15:19	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		10/18/22 08:38	10/18/22 15:19	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		10/18/22 08:38	10/18/22 15:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*10/18/22 08:38*	*10/18/22 15:19*	*1*
o-Terphenyl	*87*		*70 - 130*	*10/18/22 08:38*	*10/18/22 15:19*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**57.7**		5.00	mg/Kg			10/19/22 19:45	1

Client Sample ID: PH07B

Date Collected: 10/13/22 15:15
Date Received: 10/17/22 12:12
Sample Depth: 4'

Lab Sample ID: 890-3207-3
Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/18/22 11:00	10/18/22 17:59	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/18/22 11:00	10/18/22 17:59	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/18/22 11:00	10/18/22 17:59	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		10/18/22 11:00	10/18/22 17:59	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/18/22 11:00	10/18/22 17:59	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		10/18/22 11:00	10/18/22 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*77*		*70 - 130*	*10/18/22 11:00*	*10/18/22 17:59*	*1*
1,4-Difluorobenzene (Surr)	*115*		*70 - 130*	*10/18/22 11:00*	*10/18/22 17:59*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			10/19/22 11:52	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			10/19/22 09:56	1

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Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

Client Sample ID: PH07B

Date Collected: 10/13/22 15:15
Date Received: 10/17/22 12:12
Sample Depth: 4'

Lab Sample ID: 890-3207-3
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *- *1	50.0		mg/Kg		10/18/22 08:38	10/18/22 15:41	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 15:41	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 15:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*102*		*70 - 130*	*10/18/22 08:38*	*10/18/22 15:41*	*1*
o-Terphenyl	*92*		*70 - 130*	*10/18/22 08:38*	*10/18/22 15:41*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**40.8**		5.02		mg/Kg			10/19/22 19:54	1

Client Sample ID: PH07C

Date Collected: 10/13/22 15:20
Date Received: 10/17/22 12:12
Sample Depth: 7'

Lab Sample ID: 890-3207-4
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/18/22 11:00	10/18/22 18:19	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/18/22 11:00	10/18/22 18:19	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/18/22 11:00	10/18/22 18:19	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/18/22 11:00	10/18/22 18:19	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/18/22 11:00	10/18/22 18:19	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/18/22 11:00	10/18/22 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*	*10/18/22 11:00*	*10/18/22 18:19*	*1*
1,4-Difluorobenzene (Surr)	*83*		*70 - 130*	*10/18/22 11:00*	*10/18/22 18:19*	*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			10/19/22 11:52	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			10/19/22 09:56	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U *- *1	49.8		mg/Kg		10/18/22 08:38	10/18/22 16:23	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/18/22 08:38	10/18/22 16:23	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/18/22 08:38	10/18/22 16:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*10/18/22 08:38*	*10/18/22 16:23*	*1*
o-Terphenyl	*97*		*70 - 130*	*10/18/22 08:38*	*10/18/22 16:23*	*1*

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

Client Sample ID: PH07C

Lab Sample ID: 890-3207-4
Matrix: Solid
Date Collected: 10/13/22 15:20
Date Received: 10/17/22 12:12
Sample Depth: 7'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.7		5.03		mg/Kg			10/19/22 20:02	1

Client Sample ID: PH07D

Lab Sample ID: 890-3207-5
Matrix: Solid
Date Collected: 10/13/22 15:30
Date Received: 10/17/22 12:12
Sample Depth: 11'

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		10/18/22 11:00	10/18/22 18:40	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 18:40	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 18:40	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/18/22 11:00	10/18/22 18:40	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 18:40	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/18/22 11:00	10/18/22 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*	*10/18/22 11:00*	*10/18/22 18:40*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*	*10/18/22 11:00*	*10/18/22 18:40*	*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			10/19/22 11:52	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/19/22 09:56	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *- *1	49.9		mg/Kg		10/18/22 08:38	10/18/22 16:44	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/18/22 08:38	10/18/22 16:44	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/18/22 08:38	10/18/22 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*10/18/22 08:38*	*10/18/22 16:44*	*1*
o-Terphenyl	*95*		*70 - 130*	*10/18/22 08:38*	*10/18/22 16:44*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	85.2		4.96		mg/Kg			10/19/22 20:10	1

Surrogate Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)											
		BFB1	DFBZ1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
880-20420-A-11-D MS	Matrix Spike	91	107										
880-20420-A-11-E MSD	Matrix Spike Duplicate	115	106										
890-3207-1	PH07	81	84										
890-3207-2	PH07A	100	106										
890-3207-3	PH07B	77	115										
890-3207-4	PH07C	91	83										
890-3207-5	PH07D	117	87										
LCS 880-37187/1-A	Lab Control Sample	108	101										
LCSD 880-37187/2-A	Lab Control Sample Dup	91	112										
MB 880-37187/5-A	Method Blank	82	95										

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)											
		1CO1	OTPH1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
880-20421-A-41-F MS	Matrix Spike	108	85										
880-20421-A-41-G MSD	Matrix Spike Duplicate	85	72										
890-3207-1	PH07	110	94										
890-3207-2	PH07A	99	87										
890-3207-3	PH07B	102	92										
890-3207-4	PH07C	108	97										
890-3207-5	PH07D	108	95										
LCS 880-37188/2-A	Lab Control Sample	91	101										
LCSD 880-37188/3-A	Lab Control Sample Dup	95	86										
MB 880-37188/1-A	Method Blank	133 S1+	124										

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37187/5-A
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37187

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/18/22 08:29	10/18/22 10:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*70 - 130*	*10/18/22 08:29*	*10/18/22 10:54*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*10/18/22 08:29*	*10/18/22 10:54*	*1*

Lab Sample ID: LCS 880-37187/1-A
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37187

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1065		mg/Kg		107	70 - 130		
Toluene			0.100	0.1059		mg/Kg		106	70 - 130		
Ethylbenzene			0.100	0.1126		mg/Kg		113	70 - 130		
m-Xylene & p-Xylene			0.200	0.2390		mg/Kg		120	70 - 130		
o-Xylene			0.100	0.1175		mg/Kg		117	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-37187/2-A
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37187

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1219		mg/Kg		122	70 - 130	13	35
Toluene			0.100	0.1041		mg/Kg		104	70 - 130	2	35
Ethylbenzene			0.100	0.09897		mg/Kg		99	70 - 130	13	35
m-Xylene & p-Xylene			0.200	0.2004		mg/Kg		100	70 - 130	18	35
o-Xylene			0.100	0.09840		mg/Kg		98	70 - 130	18	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*
1,4-Difluorobenzene (Surr)	*112*		*70 - 130*

Lab Sample ID: 880-20420-A-11-D MS
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37187

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U	0.100	0.09868		mg/Kg		98	70 - 130		
Toluene	<0.00200	U	0.100	0.09554		mg/Kg		95	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

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

Lab Sample ID: 880-20420-A-11-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37185 — **Prep Batch: 37187**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.100	0.09684		mg/Kg		97	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1854		mg/Kg		93	70 - 130
o-Xylene	<0.00200	U	0.100	0.09157		mg/Kg		91	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 880-20420-A-11-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37185 — **Prep Batch: 37187**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0998	0.1005		mg/Kg		101	70 - 130	2	35
Toluene	<0.00200	U	0.0998	0.1013		mg/Kg		101	70 - 130	6	35
Ethylbenzene	<0.00200	U	0.0998	0.1066		mg/Kg		107	70 - 130	10	35
m-Xylene & p-Xylene	<0.00401	U	0.200	0.2320		mg/Kg		116	70 - 130	22	35
o-Xylene	<0.00200	U	0.0998	0.1138		mg/Kg		114	70 - 130	22	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*

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

Lab Sample ID: MB 880-37188/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37190 — **Prep Batch: 37188**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 10:43	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 10:43	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 10:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*133*	*S1+*	*70 - 130*	*10/18/22 08:38*	*10/18/22 10:43*	*1*
o-Terphenyl	*124*		*70 - 130*	*10/18/22 08:38*	*10/18/22 10:43*	*1*

Lab Sample ID: LCS 880-37188/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37190 — **Prep Batch: 37188**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	814.2		mg/Kg		81	70 - 130
Diesel Range Organics (Over C10-C28)			1000	943.3		mg/Kg		94	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

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

Lab Sample ID: LCS 880-37188/2-A
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37188

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	91		70 - 130
o-Terphenyl	101		70 - 130

Lab Sample ID: LCSD 880-37188/3-A
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37188

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	566.2	*- *1	mg/Kg		57	70 - 130	36	20
Diesel Range Organics (Over C10-C28)			1000	862.6		mg/Kg		86	70 - 130	9	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	86		70 - 130

Lab Sample ID: 880-20421-A-41-F MS
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37188

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 *- *1	999	1067		mg/Kg		107	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1033		mg/Kg		103	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	108		70 - 130
o-Terphenyl	85		70 - 130

Lab Sample ID: 880-20421-A-41-G MSD
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37188

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 *- *1	997	933.4		mg/Kg		94	70 - 130	13	20
Diesel Range Organics (Over C10-C28)	<49.9	U	997	903.4		mg/Kg		91	70 - 130	13	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	85		70 - 130
o-Terphenyl	72		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37168/1-A
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/19/22 18:55	1

Lab Sample ID: LCS 880-37168/2-A
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	267.9		mg/Kg		107	90 - 110		

Lab Sample ID: LCSD 880-37168/3-A
Matrix: Solid
Analysis Batch: 37251

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	263.6		mg/Kg		105	90 - 110	2	20

Lab Sample ID: 890-3207-1 MS
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: PH07
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	195		250	431.9		mg/Kg		95	90 - 110		

Lab Sample ID: 890-3207-1 MSD
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: PH07
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	195		250	453.1		mg/Kg		104	90 - 110	5	20

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

GC VOA

Analysis Batch: 37185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3207-1	PH07	Total/NA	Solid	8021B	37187
890-3207-2	PH07A	Total/NA	Solid	8021B	37187
890-3207-3	PH07B	Total/NA	Solid	8021B	37187
890-3207-4	PH07C	Total/NA	Solid	8021B	37187
890-3207-5	PH07D	Total/NA	Solid	8021B	37187
MB 880-37187/5-A	Method Blank	Total/NA	Solid	8021B	37187
LCS 880-37187/1-A	Lab Control Sample	Total/NA	Solid	8021B	37187
LCSD 880-37187/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37187
880-20420-A-11-D MS	Matrix Spike	Total/NA	Solid	8021B	37187
880-20420-A-11-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37187

Prep Batch: 37187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3207-1	PH07	Total/NA	Solid	5035	
890-3207-2	PH07A	Total/NA	Solid	5035	
890-3207-3	PH07B	Total/NA	Solid	5035	
890-3207-4	PH07C	Total/NA	Solid	5035	
890-3207-5	PH07D	Total/NA	Solid	5035	
MB 880-37187/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37187/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37187/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20420-A-11-D MS	Matrix Spike	Total/NA	Solid	5035	
880-20420-A-11-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3207-1	PH07	Total/NA	Solid	Total BTEX	
890-3207-2	PH07A	Total/NA	Solid	Total BTEX	
890-3207-3	PH07B	Total/NA	Solid	Total BTEX	
890-3207-4	PH07C	Total/NA	Solid	Total BTEX	
890-3207-5	PH07D	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 37188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3207-1	PH07	Total/NA	Solid	8015NM Prep	
890-3207-2	PH07A	Total/NA	Solid	8015NM Prep	
890-3207-3	PH07B	Total/NA	Solid	8015NM Prep	
890-3207-4	PH07C	Total/NA	Solid	8015NM Prep	
890-3207-5	PH07D	Total/NA	Solid	8015NM Prep	
MB 880-37188/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37188/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37188/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20421-A-41-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20421-A-41-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3207-1	PH07	Total/NA	Solid	8015B NM	37188
890-3207-2	PH07A	Total/NA	Solid	8015B NM	37188

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

GC Semi VOA (Continued)

Analysis Batch: 37190 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3207-3	PH07B	Total/NA	Solid	8015B NM	37188
890-3207-4	PH07C	Total/NA	Solid	8015B NM	37188
890-3207-5	PH07D	Total/NA	Solid	8015B NM	37188
MB 880-37188/1-A	Method Blank	Total/NA	Solid	8015B NM	37188
LCS 880-37188/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37188
LCSD 880-37188/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37188
880-20421-A-41-F MS	Matrix Spike	Total/NA	Solid	8015B NM	37188
880-20421-A-41-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37188

Analysis Batch: 37286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3207-1	PH07	Total/NA	Solid	8015 NM	
890-3207-2	PH07A	Total/NA	Solid	8015 NM	
890-3207-3	PH07B	Total/NA	Solid	8015 NM	
890-3207-4	PH07C	Total/NA	Solid	8015 NM	
890-3207-5	PH07D	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3207-1	PH07	Soluble	Solid	DI Leach	
890-3207-2	PH07A	Soluble	Solid	DI Leach	
890-3207-3	PH07B	Soluble	Solid	DI Leach	
890-3207-4	PH07C	Soluble	Solid	DI Leach	
890-3207-5	PH07D	Soluble	Solid	DI Leach	
MB 880-37168/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37168/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37168/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3207-1 MS	PH07	Soluble	Solid	DI Leach	
890-3207-1 MSD	PH07	Soluble	Solid	DI Leach	

Analysis Batch: 37251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3207-1	PH07	Soluble	Solid	300.0	37168
890-3207-2	PH07A	Soluble	Solid	300.0	37168
890-3207-3	PH07B	Soluble	Solid	300.0	37168
890-3207-4	PH07C	Soluble	Solid	300.0	37168
890-3207-5	PH07D	Soluble	Solid	300.0	37168
MB 880-37168/1-A	Method Blank	Soluble	Solid	300.0	37168
LCS 880-37168/2-A	Lab Control Sample	Soluble	Solid	300.0	37168
LCSD 880-37168/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37168
890-3207-1 MS	PH07	Soluble	Solid	300.0	37168
890-3207-1 MSD	PH07	Soluble	Solid	300.0	37168

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

Client Sample ID: PH07

Date Collected: 10/13/22 15:05
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3207-1
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	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 17:18	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37317	10/19/22 11:52	SM	EET MID
Total/NA	Analysis	8015 NM		1			37286	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 14:58	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 19:20	CH	EET MID

Client Sample ID: PH07A

Date Collected: 10/13/22 15:10
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3207-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 17:38	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37317	10/19/22 11:52	SM	EET MID
Total/NA	Analysis	8015 NM		1			37286	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 15:19	SM	EET MID
Soluble	Leach	DI Leach			5.00 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 19:45	CH	EET MID

Client Sample ID: PH07B

Date Collected: 10/13/22 15:15
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3207-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 17:59	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37317	10/19/22 11:52	SM	EET MID
Total/NA	Analysis	8015 NM		1			37286	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 15:41	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 19:54	CH	EET MID

Client Sample ID: PH07C

Date Collected: 10/13/22 15:20
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3207-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 18:19	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37317	10/19/22 11:52	SM	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3207-1
SDG: 03E1558098

Client Sample ID: PH07C
Date Collected: 10/13/22 15:20
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3207-4
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			37286	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 16:23	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 20:02	CH	EET MID

Client Sample ID: PH07D
Date Collected: 10/13/22 15:30
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3207-5
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			4.99 g	5 mL	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 18:40	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37317	10/19/22 11:52	SM	EET MID
Total/NA	Analysis	8015 NM		1			37286	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 16:44	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 20:10	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 163H

Job ID: 890-3207-1
SDG: 03E1558098

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 163H

Job ID: 890-3207-1
SDG: 03E1558098

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 163H

Job ID: 890-3207-1
SDG: 03E1558098

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3207-1	PH07	Solid	10/13/22 15:05	10/17/22 12:12	0.5'
890-3207-2	PH07A	Solid	10/13/22 15:10	10/17/22 12:12	2'
890-3207-3	PH07B	Solid	10/13/22 15:15	10/17/22 12:12	4'
890-3207-4	PH07C	Solid	10/13/22 15:20	10/17/22 12:12	7'
890-3207-5	PH07D	Solid	10/13/22 15:30	10/17/22 12:12	11'

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	989-854-0852 Email:		bbelill@ensolum.com

Work Order Comments

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

Project Name:	JRU 163H	Turn Around	
Project Number:	03E1558098	☑ Routine ☐ Rush	
Project Location:	32.38042, -103.88429	Due Date:	
Sampler's Name:	Meredith Roberts	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.8
Total Containers:		Corrected Temperature:	3.6

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	BTEX	Chlorides	TPH
PH07	S	10/13/22	1505	0-5'	G	1		X	X	X
PH07A			1510	2'						
PH07B			1515	4'						
PH07C			1520	7'						
PH07D			1530	11'						

Parameters

890-3207 Chain of Custody

Preservative Codes

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

Sample Comments

Incident #:
nAPP2219649599

Cost Center:
1140601001

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		10/17/22 12:12	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3207-1
SDG Number: 03E1558098

Login Number: 3207
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: 890-3207-1
SDG Number: 03E1558098

Login Number: 3207
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/18/22 10:45 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-3208-1
Laboratory Sample Delivery Group: 03E1558098
Client Project/Site: JRU 163H

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

Attn: Ben Belill

JKramer

Authorized for release by:
10/20/2022 9:38:11 AM

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

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 163H

Laboratory Job ID: 890-3208-1
SDG: 03E1558098

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

Qualifiers

GC VOA

Qualifier	Qualifier Description
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.
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 163H

Job ID: 890-3208-1
SDG: 03E1558098

Job ID: 890-3208-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3208-1

Receipt
The samples were received on 10/17/2022 12:12 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: PH06 (890-3208-1), PH06A (890-3208-2), PH06B (890-3208-3) and PH06C (890-3208-4).

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

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-37188 and analytical batch 880-37190 was outside the upper control limits.

Method 8015MOD_NM: The laboratory control sample (LCS) associated with preparation batch 880-37188 and analytical batch 880-37190 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.

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 163H

Job ID: 890-3208-1
SDG: 03E1558098

Client Sample ID: PH06

Date Collected: 10/13/22 14:40
Date Received: 10/17/22 12:12
Sample Depth: 0.5'

Lab Sample ID: 890-3208-1

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/18/22 11:00	10/18/22 19:00	1
Toluene	**0.0105**		0.00199		mg/Kg		10/18/22 11:00	10/18/22 19:00	1
Ethylbenzene	**0.00269**		0.00199		mg/Kg		10/18/22 11:00	10/18/22 19:00	1
m-Xylene & p-Xylene	**0.0110**		0.00398		mg/Kg		10/18/22 11:00	10/18/22 19:00	1
o-Xylene	**0.00286**		0.00199		mg/Kg		10/18/22 11:00	10/18/22 19:00	1
Xylenes, Total	**0.0139**		0.00398		mg/Kg		10/18/22 11:00	10/18/22 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*	*10/18/22 11:00*	*10/18/22 19:00*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*	*10/18/22 11:00*	*10/18/22 19:00*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.0271**		0.00398		mg/Kg			10/19/22 11:52	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/19/22 09:56	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *- *1	49.9		mg/Kg		10/18/22 08:38	10/18/22 17:06	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/18/22 08:38	10/18/22 17:06	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/18/22 08:38	10/18/22 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*100*		*70 - 130*	*10/18/22 08:38*	*10/18/22 17:06*	*1*
o-Terphenyl	*87*		*70 - 130*	*10/18/22 08:38*	*10/18/22 17:06*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**14.0**		5.03		mg/Kg			10/19/22 20:35	1

Client Sample ID: PH06A

Date Collected: 10/13/22 14:45
Date Received: 10/17/22 12:12
Sample Depth: 2'

Lab Sample ID: 890-3208-2

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 19:21	1
Toluene	**0.00556**		0.00200		mg/Kg		10/18/22 11:00	10/18/22 19:21	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 19:21	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/18/22 11:00	10/18/22 19:21	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 19:21	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/18/22 11:00	10/18/22 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*	*10/18/22 11:00*	*10/18/22 19:21*	*1*

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Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

Client Sample ID: PH06A

Lab Sample ID: 890-3208-2
Matrix: Solid
Date Collected: 10/13/22 14:45
Date Received: 10/17/22 12:12
Sample Depth: 2'

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*85*		*70 - 130*	*10/18/22 11:00*	*10/18/22 19:21*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.00556**		0.00399	mg/Kg			10/19/22 11:52	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			10/19/22 09:56	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *- *1	50.0	mg/Kg		10/18/22 08:38	10/18/22 17:27	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/18/22 08:38	10/18/22 17:27	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/18/22 08:38	10/18/22 17:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*113*		*70 - 130*	*10/18/22 08:38*	*10/18/22 17:27*	*1*
o-Terphenyl	*100*		*70 - 130*	*10/18/22 08:38*	*10/18/22 17:27*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**23.6**		5.00	mg/Kg			10/19/22 20:44	1

Client Sample ID: PH06B

Lab Sample ID: 890-3208-3
Matrix: Solid
Date Collected: 10/13/22 14:50
Date Received: 10/17/22 12:12
Sample Depth: 4'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		10/18/22 11:00	10/18/22 19:41	1
Toluene	<0.00201	U	0.00201	mg/Kg		10/18/22 11:00	10/18/22 19:41	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		10/18/22 11:00	10/18/22 19:41	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		10/18/22 11:00	10/18/22 19:41	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		10/18/22 11:00	10/18/22 19:41	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		10/18/22 11:00	10/18/22 19:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*	*10/18/22 11:00*	*10/18/22 19:41*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*10/18/22 11:00*	*10/18/22 19:41*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			10/19/22 11:52	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			10/19/22 09:56	1

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Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

Client Sample ID: PH06B

Lab Sample ID: 890-3208-3
Matrix: Solid
Date Collected: 10/13/22 14:50
Date Received: 10/17/22 12:12
Sample Depth: 4'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U *- *1	49.8		mg/Kg		10/18/22 08:38	10/18/22 17:48	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/18/22 08:38	10/18/22 17:48	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/18/22 08:38	10/18/22 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*107*		*70 - 130*	*10/18/22 08:38*	*10/18/22 17:48*	*1*
o-Terphenyl	*94*		*70 - 130*	*10/18/22 08:38*	*10/18/22 17:48*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**171**		5.05		mg/Kg			10/19/22 20:52	1

Client Sample ID: PH06C

Lab Sample ID: 890-3208-4
Matrix: Solid
Date Collected: 10/13/22 15:00
Date Received: 10/17/22 12:12
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		10/18/22 11:00	10/18/22 20:02	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 20:02	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 20:02	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/18/22 11:00	10/18/22 20:02	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/18/22 11:00	10/18/22 20:02	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/18/22 11:00	10/18/22 20:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*	*10/18/22 11:00*	*10/18/22 20:02*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*	*10/18/22 11:00*	*10/18/22 20:02*	*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			10/19/22 11:52	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			10/19/22 09:56	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *- *1	50.0		mg/Kg		10/18/22 08:38	10/18/22 18:09	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 18:09	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*102*		*70 - 130*	*10/18/22 08:38*	*10/18/22 18:09*	*1*
o-Terphenyl	*90*		*70 - 130*	*10/18/22 08:38*	*10/18/22 18:09*	*1*

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

Client Sample ID: PH06C
Date Collected: 10/13/22 15:00
Date Received: 10/17/22 12:12
Sample Depth: 7'

Lab Sample ID: 890-3208-4
Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	75.2		4.97		mg/Kg			10/19/22 21:01	1

Surrogate Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-20420-A-11-D MS	Matrix Spike	91	107
880-20420-A-11-E MSD	Matrix Spike Duplicate	115	106
890-3208-1	PH06	108	97
890-3208-2	PH06A	92	85
890-3208-3	PH06B	99	99
890-3208-4	PH06C	115	88
LCS 880-37187/1-A	Lab Control Sample	108	101
LCSD 880-37187/2-A	Lab Control Sample Dup	91	112
MB 880-37187/5-A	Method Blank	82	95

Surrogate Legend

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

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-20421-A-41-F MS	Matrix Spike	108	85
880-20421-A-41-G MSD	Matrix Spike Duplicate	85	72
890-3208-1	PH06	100	87
890-3208-2	PH06A	113	100
890-3208-3	PH06B	107	94
890-3208-4	PH06C	102	90
LCS 880-37188/2-A	Lab Control Sample	91	101
LCSD 880-37188/3-A	Lab Control Sample Dup	95	86
MB 880-37188/1-A	Method Blank	133 S1+	124

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37187/5-A
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37187

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/18/22 08:29	10/18/22 10:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*70 - 130*	*10/18/22 08:29*	*10/18/22 10:54*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*10/18/22 08:29*	*10/18/22 10:54*	*1*

Lab Sample ID: LCS 880-37187/1-A
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37187

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1065		mg/Kg		107	70 - 130		
Toluene			0.100	0.1059		mg/Kg		106	70 - 130		
Ethylbenzene			0.100	0.1126		mg/Kg		113	70 - 130		
m-Xylene & p-Xylene			0.200	0.2390		mg/Kg		120	70 - 130		
o-Xylene			0.100	0.1175		mg/Kg		117	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-37187/2-A
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37187

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1219		mg/Kg		122	70 - 130	13	35
Toluene			0.100	0.1041		mg/Kg		104	70 - 130	2	35
Ethylbenzene			0.100	0.09897		mg/Kg		99	70 - 130	13	35
m-Xylene & p-Xylene			0.200	0.2004		mg/Kg		100	70 - 130	18	35
o-Xylene			0.100	0.09840		mg/Kg		98	70 - 130	18	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*
1,4-Difluorobenzene (Surr)	*112*		*70 - 130*

Lab Sample ID: 880-20420-A-11-D MS
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37187

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U	0.100	0.09868		mg/Kg		98	70 - 130		
Toluene	<0.00200	U	0.100	0.09554		mg/Kg		95	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

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

Lab Sample ID: 880-20420-A-11-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37185 — **Prep Batch: 37187**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.100	0.09684		mg/Kg		97	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1854		mg/Kg		93	70 - 130
o-Xylene	<0.00200	U	0.100	0.09157		mg/Kg		91	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 880-20420-A-11-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37185 — **Prep Batch: 37187**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0998	0.1005		mg/Kg		101	70 - 130	2	35
Toluene	<0.00200	U	0.0998	0.1013		mg/Kg		101	70 - 130	6	35
Ethylbenzene	<0.00200	U	0.0998	0.1066		mg/Kg		107	70 - 130	10	35
m-Xylene & p-Xylene	<0.00401	U	0.200	0.2320		mg/Kg		116	70 - 130	22	35
o-Xylene	<0.00200	U	0.0998	0.1138		mg/Kg		114	70 - 130	22	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*

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

Lab Sample ID: MB 880-37188/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37190 — **Prep Batch: 37188**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 10:43	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 10:43	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 10:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*133*	*S1+*	*70 - 130*	*10/18/22 08:38*	*10/18/22 10:43*	*1*
o-Terphenyl	*124*		*70 - 130*	*10/18/22 08:38*	*10/18/22 10:43*	*1*

Lab Sample ID: LCS 880-37188/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37190 — **Prep Batch: 37188**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	814.2		mg/Kg		81	70 - 130
Diesel Range Organics (Over C10-C28)			1000	943.3		mg/Kg		94	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

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

Lab Sample ID: LCS 880-37188/2-A
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37188

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	91		70 - 130
o-Terphenyl	101		70 - 130

Lab Sample ID: LCSD 880-37188/3-A
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37188

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	566.2	*- *1	mg/Kg		57	70 - 130	36	20
Diesel Range Organics (Over C10-C28)			1000	862.6		mg/Kg		86	70 - 130	9	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	86		70 - 130

Lab Sample ID: 880-20421-A-41-F MS
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37188

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 *- *1	999	1067		mg/Kg		107	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1033		mg/Kg		103	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	108		70 - 130
o-Terphenyl	85		70 - 130

Lab Sample ID: 880-20421-A-41-G MSD
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37188

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 *- *1	997	933.4		mg/Kg		94	70 - 130	13	20
Diesel Range Organics (Over C10-C28)	<49.9	U	997	903.4		mg/Kg		91	70 - 130	13	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	85		70 - 130
o-Terphenyl	72		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37168/1-A
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/19/22 18:55	1

Lab Sample ID: LCS 880-37168/2-A
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	267.9		mg/Kg		107	90 - 110		

Lab Sample ID: LCSD 880-37168/3-A
Matrix: Solid
Analysis Batch: 37251

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	263.6		mg/Kg		105	90 - 110	2	20

Lab Sample ID: 890-3207-A-1-E MS
Matrix: Solid
Analysis Batch: 37251

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	195		250	431.9		mg/Kg		95	90 - 110		

Lab Sample ID: 890-3207-A-1-F MSD
Matrix: Solid
Analysis Batch: 37251

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	195		250	453.1		mg/Kg		104	90 - 110	5	20

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

GC VOA

Analysis Batch: 37185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3208-1	PH06	Total/NA	Solid	8021B	37187
890-3208-2	PH06A	Total/NA	Solid	8021B	37187
890-3208-3	PH06B	Total/NA	Solid	8021B	37187
890-3208-4	PH06C	Total/NA	Solid	8021B	37187
MB 880-37187/5-A	Method Blank	Total/NA	Solid	8021B	37187
LCS 880-37187/1-A	Lab Control Sample	Total/NA	Solid	8021B	37187
LCSD 880-37187/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37187
880-20420-A-11-D MS	Matrix Spike	Total/NA	Solid	8021B	37187
880-20420-A-11-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37187

Prep Batch: 37187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3208-1	PH06	Total/NA	Solid	5035	
890-3208-2	PH06A	Total/NA	Solid	5035	
890-3208-3	PH06B	Total/NA	Solid	5035	
890-3208-4	PH06C	Total/NA	Solid	5035	
MB 880-37187/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37187/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37187/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20420-A-11-D MS	Matrix Spike	Total/NA	Solid	5035	
880-20420-A-11-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3208-1	PH06	Total/NA	Solid	Total BTEX	
890-3208-2	PH06A	Total/NA	Solid	Total BTEX	
890-3208-3	PH06B	Total/NA	Solid	Total BTEX	
890-3208-4	PH06C	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 37188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3208-1	PH06	Total/NA	Solid	8015NM Prep	
890-3208-2	PH06A	Total/NA	Solid	8015NM Prep	
890-3208-3	PH06B	Total/NA	Solid	8015NM Prep	
890-3208-4	PH06C	Total/NA	Solid	8015NM Prep	
MB 880-37188/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37188/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37188/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20421-A-41-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20421-A-41-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3208-1	PH06	Total/NA	Solid	8015B NM	37188
890-3208-2	PH06A	Total/NA	Solid	8015B NM	37188
890-3208-3	PH06B	Total/NA	Solid	8015B NM	37188
890-3208-4	PH06C	Total/NA	Solid	8015B NM	37188
MB 880-37188/1-A	Method Blank	Total/NA	Solid	8015B NM	37188
LCS 880-37188/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37188

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

GC Semi VOA (Continued)

Analysis Batch: 37190 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-37188/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37188
880-20421-A-41-F MS	Matrix Spike	Total/NA	Solid	8015B NM	37188
880-20421-A-41-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37188

Analysis Batch: 37287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3208-1	PH06	Total/NA	Solid	8015 NM	
890-3208-2	PH06A	Total/NA	Solid	8015 NM	
890-3208-3	PH06B	Total/NA	Solid	8015 NM	
890-3208-4	PH06C	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3208-1	PH06	Soluble	Solid	DI Leach	
890-3208-2	PH06A	Soluble	Solid	DI Leach	
890-3208-3	PH06B	Soluble	Solid	DI Leach	
890-3208-4	PH06C	Soluble	Solid	DI Leach	
MB 880-37168/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37168/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37168/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3207-A-1-E MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3207-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3208-1	PH06	Soluble	Solid	300.0	37168
890-3208-2	PH06A	Soluble	Solid	300.0	37168
890-3208-3	PH06B	Soluble	Solid	300.0	37168
890-3208-4	PH06C	Soluble	Solid	300.0	37168
MB 880-37168/1-A	Method Blank	Soluble	Solid	300.0	37168
LCS 880-37168/2-A	Lab Control Sample	Soluble	Solid	300.0	37168
LCSD 880-37168/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37168
890-3207-A-1-E MS	Matrix Spike	Soluble	Solid	300.0	37168
890-3207-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37168

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

Client Sample ID: PH06
Date Collected: 10/13/22 14:40
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3208-1
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	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 19:00	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37318	10/19/22 11:52	SM	EET MID
Total/NA	Analysis	8015 NM		1			37287	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 17:06	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 20:35	CH	EET MID

Client Sample ID: PH06A
Date Collected: 10/13/22 14:45
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3208-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 19:21	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37318	10/19/22 11:52	SM	EET MID
Total/NA	Analysis	8015 NM		1			37287	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 17:27	SM	EET MID
Soluble	Leach	DI Leach			5.00 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 20:44	CH	EET MID

Client Sample ID: PH06B
Date Collected: 10/13/22 14:50
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3208-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 19:41	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37318	10/19/22 11:52	SM	EET MID
Total/NA	Analysis	8015 NM		1			37287	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 17:48	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 20:52	CH	EET MID

Client Sample ID: PH06C
Date Collected: 10/13/22 15:00
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3208-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 20:02	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37318	10/19/22 11:52	SM	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

Client Sample ID: PH06C

Date Collected: 10/13/22 15:00
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3208-4

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			37287	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 18:09	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 21:01	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3208-1
SDG: 03E1558098

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 163H

Job ID: 890-3208-1
SDG: 03E1558098

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 163H

Job ID: 890-3208-1
SDG: 03E1558098

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3208-1	PH06	Solid	10/13/22 14:40	10/17/22 12:12	0.5'
890-3208-2	PH06A	Solid	10/13/22 14:45	10/17/22 12:12	2'
890-3208-3	PH06B	Solid	10/13/22 14:50	10/17/22 12:12	4'
890-3208-4	PH06C	Solid	10/13/22 15:00	10/17/22 12:12	7'

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	989-854-0852 Email:	bbelill@ensolum.com	

Work Order Comments

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

Project Name:	JRU 163H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558098	Due Date:	
Project Location:	32.38042, -103.88429	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT				
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No	
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM-007	
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.8	
Total Containers:		Corrected Temperature:	3.6	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	TPH	BTEX	Chlorides
PH06	S	10/13/22	1440	0.5'	G	1		X	X	X
PH06A	↓	↓	1445	2'	↓	↓	↓	↓	↓	↓
PH06B	↓	↓	1450	4'	↓	↓	↓	↓	↓	↓
PH06C	↓	↓	1500	7'	↓	↓	↓	↓	↓	↓

890-3208 Chain of Custody

Preservative Codes

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

Sample Comments

Incident #:
nAPP2219649599

Cost Center:
1140601001

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
	Amanda Schaff	10/17/22 1272			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3208-1
SDG Number: 03E1558098

Login Number: 3208
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: 890-3208-1
SDG Number: 03E1558098

Login Number: 3208
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/18/22 10:45 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-3209-1
Laboratory Sample Delivery Group: 03E1558098
Client Project/Site: JRU 163H

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

Attn: Ben Belill

JKramer

Authorized for release by:
10/24/2022 4:08:09 PM

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

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 163H

Laboratory Job ID: 890-3209-1
SDG: 03E1558098

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

Job ID: 890-3209-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3209-1

Receipt
The samples were received on 10/17/2022 12:12 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

GC VOA
Method 8021B: The following sample was diluted due to the nature of the sample matrix: (890-3209-A-1-D 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.

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 880-37188 and analytical batch 880-37190 was outside the upper control limits.

Method 8015MOD_NM: The laboratory control sample (LCS) associated with preparation batch 880-37188 and analytical batch 880-37190 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.

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 163H

Job ID: 890-3209-1
SDG: 03E1558098

Client Sample ID: PH05

Lab Sample ID: 890-3209-1
Matrix: Solid
Date Collected: 10/13/22 14:20
Date Received: 10/17/22 12:12
Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U F1	0.00198		mg/Kg		10/17/22 14:12	10/22/22 12:44	1
Toluene	<0.00198	U F2 F1	0.00198		mg/Kg		10/17/22 14:12	10/22/22 12:44	1
Ethylbenzene	<0.00198	U F1	0.00198		mg/Kg		10/17/22 14:12	10/22/22 12:44	1
m-Xylene & p-Xylene	<0.00397	U F1	0.00397		mg/Kg		10/17/22 14:12	10/22/22 12:44	1
o-Xylene	<0.00198	U F1	0.00198		mg/Kg		10/17/22 14:12	10/22/22 12:44	1
Xylenes, Total	<0.00397	U F1	0.00397		mg/Kg		10/17/22 14:12	10/22/22 12:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*10/17/22 14:12*	*10/22/22 12:44*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*10/17/22 14:12*	*10/22/22 12:44*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00397	U	0.00397		mg/Kg			10/24/22 16:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/19/22 09:56	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *- *1	49.9		mg/Kg		10/18/22 08:38	10/18/22 18:30	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/18/22 08:38	10/18/22 18:30	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/18/22 08:38	10/18/22 18:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*98*		*70 - 130*	*10/18/22 08:38*	*10/18/22 18:30*	*1*
o-Terphenyl	*89*		*70 - 130*	*10/18/22 08:38*	*10/18/22 18:30*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**368**		25.2		mg/Kg			10/19/22 21:17	5

Client Sample ID: PH05A

Lab Sample ID: 890-3209-2
Matrix: Solid
Date Collected: 10/13/22 14:25
Date Received: 10/17/22 12:12
Sample Depth: 2'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		10/17/22 14:12	10/22/22 13:04	1
Toluene	**0.00380**		0.00202		mg/Kg		10/17/22 14:12	10/22/22 13:04	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/17/22 14:12	10/22/22 13:04	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		10/17/22 14:12	10/22/22 13:04	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/17/22 14:12	10/22/22 13:04	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		10/17/22 14:12	10/22/22 13:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*10/17/22 14:12*	*10/22/22 13:04*	*1*

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

Client Sample ID: PH05A

Lab Sample ID: 890-3209-2
Matrix: Solid
Date Collected: 10/13/22 14:25
Date Received: 10/17/22 12:12
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*	*10/17/22 14:12*	*10/22/22 13:04*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			10/24/22 16:26	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			10/19/22 09:56	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U *- *1	49.8	mg/Kg		10/18/22 08:38	10/18/22 18:51	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		10/18/22 08:38	10/18/22 18:51	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		10/18/22 08:38	10/18/22 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*110*		*70 - 130*	*10/18/22 08:38*	*10/18/22 18:51*	*1*
o-Terphenyl	*98*		*70 - 130*	*10/18/22 08:38*	*10/18/22 18:51*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**199**		4.98	mg/Kg			10/19/22 21:09	1

Client Sample ID: PH05B

Lab Sample ID: 890-3209-3
Matrix: Solid
Date Collected: 10/13/22 14:30
Date Received: 10/17/22 12:12
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		10/17/22 14:12	10/22/22 13:25	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/17/22 14:12	10/22/22 13:25	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/17/22 14:12	10/22/22 13:25	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		10/17/22 14:12	10/22/22 13:25	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/17/22 14:12	10/22/22 13:25	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		10/17/22 14:12	10/22/22 13:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*10/17/22 14:12*	*10/22/22 13:25*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*10/17/22 14:12*	*10/22/22 13:25*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			10/24/22 16:26	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			10/19/22 09:56	1

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

Client Sample ID: PH05B

Lab Sample ID: 890-3209-3
Matrix: Solid
Date Collected: 10/13/22 14:30
Date Received: 10/17/22 12:12
Sample Depth: 4'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U *- *1	49.8		mg/Kg		10/18/22 08:38	10/18/22 19:12	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/18/22 08:38	10/18/22 19:12	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/18/22 08:38	10/18/22 19:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*10/18/22 08:38*	*10/18/22 19:12*	*1*
o-Terphenyl	*97*		*70 - 130*	*10/18/22 08:38*	*10/18/22 19:12*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**86.0**		4.99		mg/Kg			10/19/22 21:42	1

Client Sample ID: PH05C

Lab Sample ID: 890-3209-4
Matrix: Solid
Date Collected: 10/13/22 14:35
Date Received: 10/17/22 12:12
Sample Depth: 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		10/17/22 14:12	10/22/22 13:45	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/17/22 14:12	10/22/22 13:45	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/17/22 14:12	10/22/22 13:45	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/17/22 14:12	10/22/22 13:45	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/17/22 14:12	10/22/22 13:45	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/17/22 14:12	10/22/22 13:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*	*10/17/22 14:12*	*10/22/22 13:45*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*10/17/22 14:12*	*10/22/22 13:45*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			10/24/22 16:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/19/22 09:56	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *- *1	50.0		mg/Kg		10/18/22 08:38	10/18/22 19:33	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 19:33	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*10/18/22 08:38*	*10/18/22 19:33*	*1*
o-Terphenyl	*97*		*70 - 130*	*10/18/22 08:38*	*10/18/22 19:33*	*1*

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

Client Sample ID: PH05C
Date Collected: 10/13/22 14:35
Date Received: 10/17/22 12:12
Sample Depth: 5'

Lab Sample ID: 890-3209-4
Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	47.6		5.02		mg/Kg			10/19/22 21:51	1

Surrogate Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
		BFB1	DFBZ1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
890-3209-1	PH05	96	103										
890-3209-1 MS	PH05	97	102										
890-3209-1 MSD	PH05	95	102										
890-3209-2	PH05A	105	101										
890-3209-3	PH05B	93	102										
890-3209-4	PH05C	95	104										
LCS 880-37166/1-A	Lab Control Sample	92	99										
LCSD 880-37166/2-A	Lab Control Sample Dup	93	100										
MB 880-37159/5-A	Method Blank	93	104										
MB 880-37166/5-A	Method Blank	91	105										

Surrogate Legend

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

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
		1CO1	OTPH1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
880-20421-A-41-F MS	Matrix Spike	108	85										
880-20421-A-41-G MSD	Matrix Spike Duplicate	85	72										
890-3209-1	PH05	98	89										
890-3209-2	PH05A	110	98										
890-3209-3	PH05B	108	97										
890-3209-4	PH05C	108	97										
LCS 880-37188/2-A	Lab Control Sample	91	101										
LCSD 880-37188/3-A	Lab Control Sample Dup	95	86										
MB 880-37188/1-A	Method Blank	133 S1+	124										

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37159/5-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37159

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/17/22 13:32	10/22/22 00:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*10/17/22 13:32*	*10/22/22 00:40*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*10/17/22 13:32*	*10/22/22 00:40*	*1*

Lab Sample ID: MB 880-37166/5-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37166

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/17/22 14:12	10/22/22 12:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*	*10/17/22 14:12*	*10/22/22 12:15*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*10/17/22 14:12*	*10/22/22 12:15*	*1*

Lab Sample ID: LCS 880-37166/1-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37166

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.08927		mg/Kg		89	70 - 130		
Toluene			0.100	0.08336		mg/Kg		83	70 - 130		
Ethylbenzene			0.100	0.07394		mg/Kg		74	70 - 130		
m-Xylene & p-Xylene			0.200	0.1504		mg/Kg		75	70 - 130		
o-Xylene			0.100	0.07351		mg/Kg		74	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 880-37166/2-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37166

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09750		mg/Kg		98	70 - 130	9	35

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

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

Lab Sample ID: LCSD 880-37166/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37451 — **Prep Batch: 37166**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.09368		mg/Kg		94	70 - 130	12	35
Ethylbenzene			0.100	0.08412		mg/Kg		84	70 - 130	13	35
m-Xylene & p-Xylene			0.200	0.1702		mg/Kg		85	70 - 130	12	35
o-Xylene			0.100	0.08337		mg/Kg		83	70 - 130	13	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 890-3209-1 MS — **Client Sample ID: PH05**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37451 — **Prep Batch: 37166**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00198	U F1	0.0996	<0.00199	U F1	mg/Kg		0.6	70 - 130
Toluene	<0.00198	U F2 F1	0.0996	<0.00199	U F1	mg/Kg		0.3	70 - 130
Ethylbenzene	<0.00198	U F1	0.0996	<0.00199	U F1	mg/Kg		0.6	70 - 130
m-Xylene & p-Xylene	<0.00397	U F1	0.199	<0.00398	U F1	mg/Kg		0.01	70 - 130
o-Xylene	<0.00198	U F1	0.0996	<0.00199	U F1	mg/Kg		-0.1	70 - 130

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

Lab Sample ID: 890-3209-1 MSD — **Client Sample ID: PH05**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37451 — **Prep Batch: 37166**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00198	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130	NC	35
Toluene	<0.00198	U F2 F1	0.100	<0.00200	U F2 F1	mg/Kg		-0.1	70 - 130	54	35
Ethylbenzene	<0.00198	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130	NC	35
m-Xylene & p-Xylene	<0.00397	U F1	0.200	<0.00400	U F1	mg/Kg		-0.2	70 - 130	25	35
o-Xylene	<0.00198	U F1	0.100	<0.00200	U F1	mg/Kg		-0.1	70 - 130	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

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

Lab Sample ID: MB 880-37188/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37190 — **Prep Batch: 37188**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 10:43	1

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

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

Lab Sample ID: MB 880-37188/1-A
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37188

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		10/18/22 08:38	10/18/22 10:43	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:38	10/18/22 10:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*133*	*S1+*	*70 - 130*	*10/18/22 08:38*	*10/18/22 10:43*	*1*
o-Terphenyl	*124*		*70 - 130*	*10/18/22 08:38*	*10/18/22 10:43*	*1*

Lab Sample ID: LCS 880-37188/2-A
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37188

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	814.2		mg/Kg		81	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	943.3		mg/Kg		94	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*91*		*70 - 130*
o-Terphenyl	*101*		*70 - 130*

Lab Sample ID: LCSD 880-37188/3-A
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37188

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	566.2	*- *1	mg/Kg		57	70 - 130	36	20
Diesel Range Organics (Over C10-C28)			1000	862.6		mg/Kg		86	70 - 130	9	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*95*		*70 - 130*
o-Terphenyl	*86*		*70 - 130*

Lab Sample ID: 880-20421-A-41-F MS
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37188

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 *- *1	999	1067		mg/Kg		107	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1033		mg/Kg		103	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*108*		*70 - 130*
o-Terphenyl	*85*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

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

Lab Sample ID: 880-20421-A-41-G MSD
Matrix: Solid
Analysis Batch: 37190

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37188

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 *- *1	997	933.4		mg/Kg		94	70 - 130	13	20
Diesel Range Organics (Over C10-C28)	<49.9	U	997	903.4		mg/Kg		91	70 - 130	13	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*85*		*70 - 130*
o-Terphenyl	*72*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37168/1-A
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/19/22 18:55	1

Lab Sample ID: LCS 880-37168/2-A
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	267.9		mg/Kg		107	90 - 110		

Lab Sample ID: LCSD 880-37168/3-A
Matrix: Solid
Analysis Batch: 37251

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	263.6		mg/Kg		105	90 - 110	2	20

Lab Sample ID: 890-3209-1 MS
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: PH05
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	368		1260	1563		mg/Kg		95	90 - 110		

Lab Sample ID: 890-3209-1 MSD
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: PH05
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	368		1260	1610		mg/Kg		99	90 - 110	3	20

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

GC VOA

Prep Batch: 37159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-37159/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 37166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3209-1	PH05	Total/NA	Solid	5035	
890-3209-2	PH05A	Total/NA	Solid	5035	
890-3209-3	PH05B	Total/NA	Solid	5035	
890-3209-4	PH05C	Total/NA	Solid	5035	
MB 880-37166/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37166/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37166/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3209-1 MS	PH05	Total/NA	Solid	5035	
890-3209-1 MSD	PH05	Total/NA	Solid	5035	

Analysis Batch: 37451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3209-1	PH05	Total/NA	Solid	8021B	37166
890-3209-2	PH05A	Total/NA	Solid	8021B	37166
890-3209-3	PH05B	Total/NA	Solid	8021B	37166
890-3209-4	PH05C	Total/NA	Solid	8021B	37166
MB 880-37159/5-A	Method Blank	Total/NA	Solid	8021B	37159
MB 880-37166/5-A	Method Blank	Total/NA	Solid	8021B	37166
LCS 880-37166/1-A	Lab Control Sample	Total/NA	Solid	8021B	37166
LCSD 880-37166/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37166
890-3209-1 MS	PH05	Total/NA	Solid	8021B	37166
890-3209-1 MSD	PH05	Total/NA	Solid	8021B	37166

Analysis Batch: 37716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3209-1	PH05	Total/NA	Solid	Total BTEX	
890-3209-2	PH05A	Total/NA	Solid	Total BTEX	
890-3209-3	PH05B	Total/NA	Solid	Total BTEX	
890-3209-4	PH05C	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 37188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3209-1	PH05	Total/NA	Solid	8015NM Prep	
890-3209-2	PH05A	Total/NA	Solid	8015NM Prep	
890-3209-3	PH05B	Total/NA	Solid	8015NM Prep	
890-3209-4	PH05C	Total/NA	Solid	8015NM Prep	
MB 880-37188/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37188/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37188/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20421-A-41-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20421-A-41-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3209-1	PH05	Total/NA	Solid	8015B NM	37188

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

GC Semi VOA (Continued)

Analysis Batch: 37190 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3209-2	PH05A	Total/NA	Solid	8015B NM	37188
890-3209-3	PH05B	Total/NA	Solid	8015B NM	37188
890-3209-4	PH05C	Total/NA	Solid	8015B NM	37188
MB 880-37188/1-A	Method Blank	Total/NA	Solid	8015B NM	37188
LCS 880-37188/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37188
LCSD 880-37188/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37188
880-20421-A-41-F MS	Matrix Spike	Total/NA	Solid	8015B NM	37188
880-20421-A-41-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37188

Analysis Batch: 37288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3209-1	PH05	Total/NA	Solid	8015 NM	
890-3209-2	PH05A	Total/NA	Solid	8015 NM	
890-3209-3	PH05B	Total/NA	Solid	8015 NM	
890-3209-4	PH05C	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3209-1	PH05	Soluble	Solid	DI Leach	
890-3209-2	PH05A	Soluble	Solid	DI Leach	
890-3209-3	PH05B	Soluble	Solid	DI Leach	
890-3209-4	PH05C	Soluble	Solid	DI Leach	
MB 880-37168/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37168/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37168/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3209-1 MS	PH05	Soluble	Solid	DI Leach	
890-3209-1 MSD	PH05	Soluble	Solid	DI Leach	

Analysis Batch: 37251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3209-1	PH05	Soluble	Solid	300.0	37168
890-3209-2	PH05A	Soluble	Solid	300.0	37168
890-3209-3	PH05B	Soluble	Solid	300.0	37168
890-3209-4	PH05C	Soluble	Solid	300.0	37168
MB 880-37168/1-A	Method Blank	Soluble	Solid	300.0	37168
LCS 880-37168/2-A	Lab Control Sample	Soluble	Solid	300.0	37168
LCSD 880-37168/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37168
890-3209-1 MS	PH05	Soluble	Solid	300.0	37168
890-3209-1 MSD	PH05	Soluble	Solid	300.0	37168

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

Client Sample ID: PH05
Date Collected: 10/13/22 14:20
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3209-1
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			5.04 g	5 mL	37166	10/17/22 14:12	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37451	10/22/22 12:44	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37716	10/24/22 16:26	SM	EET MID
Total/NA	Analysis	8015 NM		1			37288	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 18:30	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37251	10/19/22 21:17	CH	EET MID

Client Sample ID: PH05A
Date Collected: 10/13/22 14:25
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3209-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	37166	10/17/22 14:12	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37451	10/22/22 13:04	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37716	10/24/22 16:26	SM	EET MID
Total/NA	Analysis	8015 NM		1			37288	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 18:51	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 21:09	CH	EET MID

Client Sample ID: PH05B
Date Collected: 10/13/22 14:30
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3209-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	37166	10/17/22 14:12	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37451	10/22/22 13:25	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37716	10/24/22 16:26	SM	EET MID
Total/NA	Analysis	8015 NM		1			37288	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 19:12	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 21:42	CH	EET MID

Client Sample ID: PH05C
Date Collected: 10/13/22 14:35
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3209-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	37166	10/17/22 14:12	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37451	10/22/22 13:45	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37716	10/24/22 16:26	SM	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3209-1
SDG: 03E1558098

Client Sample ID: PH05C

Date Collected: 10/13/22 14:35
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3209-4

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			37288	10/19/22 09:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	37188	10/18/22 08:38	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37190	10/18/22 19:33	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 21:51	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 163H

Job ID: 890-3209-1
SDG: 03E1558098

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 163H

Job ID: 890-3209-1
SDG: 03E1558098

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 163H

Job ID: 890-3209-1
SDG: 03E1558098

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3209-1	PH05	Solid	10/13/22 14:20	10/17/22 12:12	0.5'
890-3209-2	PH05A	Solid	10/13/22 14:25	10/17/22 12:12	2'
890-3209-3	PH05B	Solid	10/13/22 14:30	10/17/22 12:12	4'
890-3209-4	PH05C	Solid	10/13/22 14:35	10/17/22 12:12	5'

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	989-854-0852 Email:		bbelill@ensolum.com

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

Project Name:	JRU 163H	Turn Around	
Project Number:	03E1558098	☑ Routine ☐ Rush	
Project Location:	32.38042, -103.88429	Due Date:	
Sampler's Name:	Meredith Roberts	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT				
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No	
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM 007	
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.8	
Total Containers:		Corrected Temperature:	3.6	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	BTEX	TPH	Chlorides
PH05	S	10/13/22	1420	0.5'	G	1	X	X	X
PH05A	↓	↓	1425	2'	↓	↓	↓	↓	↓
PH05B	↓	↓	1430	4'	↓	↓	↓	↓	↓
PH05C	↓	↓	1435	5'	↓	↓	↓	↓	↓
									→ MR

890-3209 Chain of Custody

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

Sample Comments
Incident #:
nAPP2219649599

Cost Center:
1140601001

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Stuf	10/17/22 12	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3209-1
SDG Number: 03E1558098

Login Number: 3209
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: 890-3209-1
SDG Number: 03E1558098

Login Number: 3209
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/18/22 10:45 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-3210-1
Laboratory Sample Delivery Group: 03E1558098
Client Project/Site: JRU 163H

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

Attn: Ben Belill

JKramer

Authorized for release by:
10/24/2022 4:08:09 PM

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

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 163H

Laboratory Job ID: 890-3210-1
SDG: 03E1558098

Table of Contents

Definitions/Glossary

Client: Ensolum Job ID: 890-3210-1
Project/Site: JRU 163H SDG: 03E1558098

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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 163H

Job ID: 890-3210-1
SDG: 03E1558098

Job ID: 890-3210-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3210-1

Receipt
The samples were received on 10/17/2022 12:12 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: PH04 (890-3210-1), PH04A (890-3210-2), PH04B (890-3210-3) and PH04C (890-3210-4).

GC VOA
Method 8021B: The following sample was diluted due to the nature of the sample matrix: (890-3209-A-1-D 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.

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 880-37189 and analytical batch 880-37192 was outside the upper control limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

Client Sample ID: PH04

Date Collected: 10/13/22 16:00
Date Received: 10/17/22 12:12
Sample Depth: 0.5'

Lab Sample ID: 890-3210-1
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/17/22 14:12	10/22/22 14:06	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/17/22 14:12	10/22/22 14:06	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/17/22 14:12	10/22/22 14:06	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/17/22 14:12	10/22/22 14:06	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/17/22 14:12	10/22/22 14:06	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/17/22 14:12	10/22/22 14:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*	*10/17/22 14:12*	*10/22/22 14:06*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*10/17/22 14:12*	*10/22/22 14:06*	*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			10/24/22 16:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/19/22 10:33	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	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 14:37	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 14:37	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 14:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*93*		*70 - 130*	*10/18/22 08:41*	*10/18/22 14:37*	*1*
o-Terphenyl	*104*		*70 - 130*	*10/18/22 08:41*	*10/18/22 14:37*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**12.3**		5.01		mg/Kg			10/19/22 22:16	1

Client Sample ID: PH04A

Date Collected: 10/13/22 16:05
Date Received: 10/17/22 12:12
Sample Depth: 2'

Lab Sample ID: 890-3210-2
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/17/22 14:12	10/22/22 14:26	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/17/22 14:12	10/22/22 14:26	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/17/22 14:12	10/22/22 14:26	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/17/22 14:12	10/22/22 14:26	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/17/22 14:12	10/22/22 14:26	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/17/22 14:12	10/22/22 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*	*10/17/22 14:12*	*10/22/22 14:26*	*1*

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

Client Sample ID: PH04A

Lab Sample ID: 890-3210-2
Matrix: Solid
Date Collected: 10/13/22 16:05
Date Received: 10/17/22 12:12
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*	*10/17/22 14:12*	*10/22/22 14:26*	*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			10/24/22 16:26	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			10/19/22 10:33	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		10/18/22 08:41	10/18/22 14:58	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		10/18/22 08:41	10/18/22 14:58	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		10/18/22 08:41	10/18/22 14:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	*88*		*70 - 130*	*10/18/22 08:41*	*10/18/22 14:58*	*1*
o-Terphenyl	*101*		*70 - 130*	*10/18/22 08:41*	*10/18/22 14:58*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**118**		4.96	mg/Kg			10/19/22 22:24	1

Client Sample ID: PH04B

Lab Sample ID: 890-3210-3
Matrix: Solid
Date Collected: 10/13/22 16:10
Date Received: 10/17/22 12:12
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		10/17/22 14:12	10/22/22 14:46	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/17/22 14:12	10/22/22 14:46	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/17/22 14:12	10/22/22 14:46	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/17/22 14:12	10/22/22 14:46	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/17/22 14:12	10/22/22 14:46	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/17/22 14:12	10/22/22 14:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*	*10/17/22 14:12*	*10/22/22 14:46*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*10/17/22 14:12*	*10/22/22 14:46*	*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			10/24/22 16:26	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			10/19/22 10:33	1

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Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

Client Sample ID: PH04B

Lab Sample ID: 890-3210-3
Matrix: Solid
Date Collected: 10/13/22 16:10
Date Received: 10/17/22 12:12
Sample Depth: 4'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 15:19	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 15:19	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 15:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*93*		*70 - 130*	*10/18/22 08:41*	*10/18/22 15:19*	*1*
o-Terphenyl	*104*		*70 - 130*	*10/18/22 08:41*	*10/18/22 15:19*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**19.7**		5.02		mg/Kg			10/19/22 22:33	1

Client Sample ID: PH04C

Lab Sample ID: 890-3210-4
Matrix: Solid
Date Collected: 10/13/22 16:20
Date Received: 10/17/22 12:12
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		10/17/22 14:12	10/22/22 15:56	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/17/22 14:12	10/22/22 15:56	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/17/22 14:12	10/22/22 15:56	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/17/22 14:12	10/22/22 15:56	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/17/22 14:12	10/22/22 15:56	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/17/22 14:12	10/22/22 15:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*10/17/22 14:12*	*10/22/22 15:56*	*1*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*	*10/17/22 14:12*	*10/22/22 15:56*	*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			10/24/22 16:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/19/22 10:33	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	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 15:41	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 15:41	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 15:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*10/18/22 08:41*	*10/18/22 15:41*	*1*
o-Terphenyl	*114*		*70 - 130*	*10/18/22 08:41*	*10/18/22 15:41*	*1*

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

Client Sample ID: PH04C
Date Collected: 10/13/22 16:20
Date Received: 10/17/22 12:12
Sample Depth: 7'

Lab Sample ID: 890-3210-4
Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.4		5.03		mg/Kg			10/19/22 22:41	1

Surrogate Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-3209-A-1-C MS	Matrix Spike	97	102
890-3209-A-1-D MSD	Matrix Spike Duplicate	95	102
890-3210-1	PH04	91	99
890-3210-2	PH04A	91	101
890-3210-3	PH04B	90	102
890-3210-4	PH04C	93	96
LCS 880-37166/1-A	Lab Control Sample	92	99
LCSD 880-37166/2-A	Lab Control Sample Dup	93	100
MB 880-37159/5-A	Method Blank	93	104
MB 880-37166/5-A	Method Blank	91	105

Surrogate Legend

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

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-20421-A-45-D MS	Matrix Spike	91	90
880-20421-A-45-E MSD	Matrix Spike Duplicate	91	89
890-3210-1	PH04	93	104
890-3210-2	PH04A	88	101
890-3210-3	PH04B	93	104
890-3210-4	PH04C	99	114
LCS 880-37189/2-A	Lab Control Sample	96	110
LCSD 880-37189/3-A	Lab Control Sample Dup	97	113
MB 880-37189/1-A	Method Blank	114	132 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37159/5-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37159

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/17/22 13:32	10/22/22 00:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*10/17/22 13:32*	*10/22/22 00:40*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*10/17/22 13:32*	*10/22/22 00:40*	*1*

Lab Sample ID: MB 880-37166/5-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37166

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/17/22 14:12	10/22/22 12:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*	*10/17/22 14:12*	*10/22/22 12:15*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*10/17/22 14:12*	*10/22/22 12:15*	*1*

Lab Sample ID: LCS 880-37166/1-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37166

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.08927		mg/Kg		89	70 - 130		
Toluene			0.100	0.08336		mg/Kg		83	70 - 130		
Ethylbenzene			0.100	0.07394		mg/Kg		74	70 - 130		
m-Xylene & p-Xylene			0.200	0.1504		mg/Kg		75	70 - 130		
o-Xylene			0.100	0.07351		mg/Kg		74	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 880-37166/2-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37166

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09750		mg/Kg		98	70 - 130	9	35

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QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

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

Lab Sample ID: LCSD 880-37166/2-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37166

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.09368		mg/Kg		94	70 - 130	12	35
Ethylbenzene			0.100	0.08412		mg/Kg		84	70 - 130	13	35
m-Xylene & p-Xylene			0.200	0.1702		mg/Kg		85	70 - 130	12	35
o-Xylene			0.100	0.08337		mg/Kg		83	70 - 130	13	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 890-3209-A-1-C MS
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37166

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00198	U F1	0.0996	<0.00199	U F1	mg/Kg		0.6	70 - 130
Toluene	<0.00198	U F2 F1	0.0996	<0.00199	U F1	mg/Kg		0.3	70 - 130
Ethylbenzene	<0.00198	U F1	0.0996	<0.00199	U F1	mg/Kg		0.6	70 - 130
m-Xylene & p-Xylene	<0.00397	U F1	0.199	<0.00398	U F1	mg/Kg		0.01	70 - 130
o-Xylene	<0.00198	U F1	0.0996	<0.00199	U F1	mg/Kg		-0.1	70 - 130

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

Lab Sample ID: 890-3209-A-1-D MSD
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37166

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00198	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130	NC	35
Toluene	<0.00198	U F2 F1	0.100	<0.00200	U F2 F1	mg/Kg		-0.1	70 - 130	54	35
Ethylbenzene	<0.00198	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130	NC	35
m-Xylene & p-Xylene	<0.00397	U F1	0.200	<0.00400	U F1	mg/Kg		-0.2	70 - 130	25	35
o-Xylene	<0.00198	U F1	0.100	<0.00200	U F1	mg/Kg		-0.1	70 - 130	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

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

Lab Sample ID: MB 880-37189/1-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37189

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 10:43	1

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QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

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

Lab Sample ID: MB 880-37189/1-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37189

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		10/18/22 08:41	10/18/22 10:43	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 10:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*114*		*70 - 130*	*10/18/22 08:41*	*10/18/22 10:43*	*1*
o-Terphenyl	*132*	*S1+*	*70 - 130*	*10/18/22 08:41*	*10/18/22 10:43*	*1*

Lab Sample ID: LCS 880-37189/2-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37189

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	917.8		mg/Kg		92	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	861.0		mg/Kg		86	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*96*		*70 - 130*
o-Terphenyl	*110*		*70 - 130*

Lab Sample ID: LCSD 880-37189/3-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37189

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	899.3		mg/Kg		90	70 - 130	2	20
Diesel Range Organics (Over C10-C28)			1000	878.4		mg/Kg		88	70 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*97*		*70 - 130*
o-Terphenyl	*113*		*70 - 130*

Lab Sample ID: 880-20421-A-45-D MS
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37189

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	1087		mg/Kg		107	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1026		mg/Kg		99	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*91*		*70 - 130*
o-Terphenyl	*90*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

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

Lab Sample ID: 880-20421-A-45-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37192 — **Prep Batch: 37189**

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	1182		mg/Kg		117	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1034		mg/Kg		100	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*91*		*70 - 130*
o-Terphenyl	*89*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37168/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 37251

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/19/22 18:55	1

Lab Sample ID: LCS 880-37168/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 37251

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	267.9		mg/Kg		107	90 - 110		

Lab Sample ID: LCSD 880-37168/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 37251

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	263.6		mg/Kg		105	90 - 110	2	20

Lab Sample ID: 890-3207-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 37251

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	195		250	431.9		mg/Kg		95	90 - 110		

Lab Sample ID: 890-3207-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 37251

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	195		250	453.1		mg/Kg		104	90 - 110	5	20

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

GC VOA

Prep Batch: 37159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-37159/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 37166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3210-1	PH04	Total/NA	Solid	5035	
890-3210-2	PH04A	Total/NA	Solid	5035	
890-3210-3	PH04B	Total/NA	Solid	5035	
890-3210-4	PH04C	Total/NA	Solid	5035	
MB 880-37166/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37166/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37166/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3209-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3209-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3210-1	PH04	Total/NA	Solid	8021B	37166
890-3210-2	PH04A	Total/NA	Solid	8021B	37166
890-3210-3	PH04B	Total/NA	Solid	8021B	37166
890-3210-4	PH04C	Total/NA	Solid	8021B	37166
MB 880-37159/5-A	Method Blank	Total/NA	Solid	8021B	37159
MB 880-37166/5-A	Method Blank	Total/NA	Solid	8021B	37166
LCS 880-37166/1-A	Lab Control Sample	Total/NA	Solid	8021B	37166
LCSD 880-37166/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37166
890-3209-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	37166
890-3209-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37166

Analysis Batch: 37717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3210-1	PH04	Total/NA	Solid	Total BTEX	
890-3210-2	PH04A	Total/NA	Solid	Total BTEX	
890-3210-3	PH04B	Total/NA	Solid	Total BTEX	
890-3210-4	PH04C	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 37189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3210-1	PH04	Total/NA	Solid	8015NM Prep	
890-3210-2	PH04A	Total/NA	Solid	8015NM Prep	
890-3210-3	PH04B	Total/NA	Solid	8015NM Prep	
890-3210-4	PH04C	Total/NA	Solid	8015NM Prep	
MB 880-37189/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37189/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20421-A-45-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20421-A-45-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3210-1	PH04	Total/NA	Solid	8015B NM	37189

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

GC Semi VOA (Continued)

Analysis Batch: 37192 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3210-2	PH04A	Total/NA	Solid	8015B NM	37189
890-3210-3	PH04B	Total/NA	Solid	8015B NM	37189
890-3210-4	PH04C	Total/NA	Solid	8015B NM	37189
MB 880-37189/1-A	Method Blank	Total/NA	Solid	8015B NM	37189
LCS 880-37189/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37189
LCSD 880-37189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37189
880-20421-A-45-D MS	Matrix Spike	Total/NA	Solid	8015B NM	37189
880-20421-A-45-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37189

Analysis Batch: 37299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3210-1	PH04	Total/NA	Solid	8015 NM	
890-3210-2	PH04A	Total/NA	Solid	8015 NM	
890-3210-3	PH04B	Total/NA	Solid	8015 NM	
890-3210-4	PH04C	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3210-1	PH04	Soluble	Solid	DI Leach	
890-3210-2	PH04A	Soluble	Solid	DI Leach	
890-3210-3	PH04B	Soluble	Solid	DI Leach	
890-3210-4	PH04C	Soluble	Solid	DI Leach	
MB 880-37168/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37168/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37168/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3207-A-1-E MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3207-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3210-1	PH04	Soluble	Solid	300.0	37168
890-3210-2	PH04A	Soluble	Solid	300.0	37168
890-3210-3	PH04B	Soluble	Solid	300.0	37168
890-3210-4	PH04C	Soluble	Solid	300.0	37168
MB 880-37168/1-A	Method Blank	Soluble	Solid	300.0	37168
LCS 880-37168/2-A	Lab Control Sample	Soluble	Solid	300.0	37168
LCSD 880-37168/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37168
890-3207-A-1-E MS	Matrix Spike	Soluble	Solid	300.0	37168
890-3207-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37168

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

Client Sample ID: PH04
Date Collected: 10/13/22 16:00
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3210-1
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	37166	10/17/22 14:12	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37451	10/22/22 14:06	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37717	10/24/22 16:26	SM	EET MID
Total/NA	Analysis	8015 NM		1			37299	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 14:37	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 22:16	CH	EET MID

Client Sample ID: PH04A
Date Collected: 10/13/22 16:05
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3210-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	37166	10/17/22 14:12	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37451	10/22/22 14:26	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37717	10/24/22 16:26	SM	EET MID
Total/NA	Analysis	8015 NM		1			37299	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 14:58	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 22:24	CH	EET MID

Client Sample ID: PH04B
Date Collected: 10/13/22 16:10
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3210-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	37166	10/17/22 14:12	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37451	10/22/22 14:46	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37717	10/24/22 16:26	SM	EET MID
Total/NA	Analysis	8015 NM		1			37299	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 15:19	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 22:33	CH	EET MID

Client Sample ID: PH04C
Date Collected: 10/13/22 16:20
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3210-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	37166	10/17/22 14:12	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37451	10/22/22 15:56	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37717	10/24/22 16:26	SM	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3210-1
SDG: 03E1558098

Client Sample ID: PH04C
Date Collected: 10/13/22 16:20
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3210-4
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			37299	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 15:41	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37251	10/19/22 22:41	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 163H

Job ID: 890-3210-1
SDG: 03E1558098

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 163H

Job ID: 890-3210-1
SDG: 03E1558098

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 163H

Job ID: 890-3210-1
SDG: 03E1558098

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3210-1	PH04	Solid	10/13/22 16:00	10/17/22 12:12	0.5'
890-3210-2	PH04A	Solid	10/13/22 16:05	10/17/22 12:12	2'
890-3210-3	PH04B	Solid	10/13/22 16:10	10/17/22 12:12	4'
890-3210-4	PH04C	Solid	10/13/22 16:20	10/17/22 12:12	7'

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	989-854-0852	Email:	bbelill@ensolum.com

Work Order Comments

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

Project Name:	JRU 163H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558098	Pres. Code	
Project Location:	32.38042, -103.88429	Due Date:	
Sampler's Name:	Meredith Roberts	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Samples Received Intact:	Yes No	Thermometer ID:	TAM-007	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	3.8	
Total Containers:		Corrected Temperature:	3.6	

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2SO_4: H_2 | NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: NaSO$_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	BTEX	TPH	Chlorides		Sample Comments
PH04	S	10/13/22	1600	0.5'	G	1	X	X	X		Incident #: nAPP2219649599
PH04A	↓	↓	1605	2'	↓	↓	↓	↓	↓		
PH04B			1610	4'							
PH04C			1620	7'							Cost Center: 1190601001
									→	NR	

890-3210 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Estyf	10/17/22 1212	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3210-1
SDG Number: 03E1558098

Login Number: 3210
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: 890-3210-1
SDG Number: 03E1558098

Login Number: 3210
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/18/22 10:45 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-3211-1
Laboratory Sample Delivery Group: 03E1558098
Client Project/Site: JRU 163H

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

Attn: Ben Belill

JKramer

Authorized for release by:
10/24/2022 4:08:38 PM

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

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 163H

Laboratory Job ID: 890-3211-1
SDG: 03E1558098

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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 163H

Job ID: 890-3211-1
SDG: 03E1558098

Job ID: 890-3211-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3211-1

Receipt
The samples were received on 10/17/2022 12:12 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: PH03 (890-3211-1), PH03A (890-3211-2) and PH03B (890-3211-3).

GC VOA
Method 8021B: The following sample was diluted due to the nature of the sample matrix: (890-3209-A-1-D 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.

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 880-37189 and analytical batch 880-37192 was outside the upper control limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

Client Sample ID: PH03

Date Collected: 10/12/22 15:30
Date Received: 10/17/22 12:12
Sample Depth: 2'

Lab Sample ID: 890-3211-1
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		10/17/22 14:12	10/22/22 16:17	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/17/22 14:12	10/22/22 16:17	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/17/22 14:12	10/22/22 16:17	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/17/22 14:12	10/22/22 16:17	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/17/22 14:12	10/22/22 16:17	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/17/22 14:12	10/22/22 16:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*	*10/17/22 14:12*	*10/22/22 16:17*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*10/17/22 14:12*	*10/22/22 16:17*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			10/24/22 16:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**155**		49.8		mg/Kg			10/19/22 10:33	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		10/18/22 08:41	10/18/22 18:51	1
Diesel Range Organics (Over C10-C28)	**155**		49.8		mg/Kg		10/18/22 08:41	10/18/22 18:51	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/18/22 08:41	10/18/22 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*98*		*70 - 130*	*10/18/22 08:41*	*10/18/22 18:51*	*1*
o-Terphenyl	*110*		*70 - 130*	*10/18/22 08:41*	*10/18/22 18:51*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1290**		25.1		mg/Kg			10/19/22 22:49	5

Client Sample ID: PH03A

Date Collected: 10/12/22 15:40
Date Received: 10/17/22 12:12
Sample Depth: 4'

Lab Sample ID: 890-3211-2
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 16:37	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 16:37	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 16:37	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/17/22 14:12	10/22/22 16:37	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 16:37	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/17/22 14:12	10/22/22 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*	*10/17/22 14:12*	*10/22/22 16:37*	*1*

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Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

Client Sample ID: PH03A

Date Collected: 10/12/22 15:40
Date Received: 10/17/22 12:12
Sample Depth: 4'

Lab Sample ID: 890-3211-2

Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*10/17/22 14:12*	*10/22/22 16:37*	*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			10/24/22 16:26	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			10/19/22 10:33	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		10/18/22 08:41	10/18/22 19:12	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		10/18/22 08:41	10/18/22 19:12	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		10/18/22 08:41	10/18/22 19:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*96*		*70 - 130*	*10/18/22 08:41*	*10/18/22 19:12*	*1*
o-Terphenyl	*109*		*70 - 130*	*10/18/22 08:41*	*10/18/22 19:12*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**868**		50.1	mg/Kg			10/19/22 22:58	10

Client Sample ID: PH03B

Date Collected: 10/12/22 15:45
Date Received: 10/17/22 12:12
Sample Depth: 5'

Lab Sample ID: 890-3211-3

Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/24/22 09:35	10/24/22 11:19	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/24/22 09:35	10/24/22 11:19	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/24/22 09:35	10/24/22 11:19	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		10/24/22 09:35	10/24/22 11:19	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/24/22 09:35	10/24/22 11:19	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		10/24/22 09:35	10/24/22 11:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*	*10/24/22 09:35*	*10/24/22 11:19*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*10/24/22 09:35*	*10/24/22 11:19*	*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			10/24/22 16:42	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			10/19/22 10:33	1

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Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

Client Sample ID: PH03B

Date Collected: 10/12/22 15:45
Date Received: 10/17/22 12:12
Sample Depth: 5'

Lab Sample ID: 890-3211-3

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 19:33	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 19:33	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*102*		*70 - 130*	*10/18/22 08:41*	*10/18/22 19:33*	*1*
o-Terphenyl	*117*		*70 - 130*	*10/18/22 08:41*	*10/18/22 19:33*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**424**		25.0		mg/Kg			10/19/22 23:06	5

Surrogate Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

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)
890-3209-A-1-C MS	Matrix Spike	97	102
890-3209-A-1-D MSD	Matrix Spike Duplicate	95	102
890-3211-1	PH03	89	100
890-3211-2	PH03A	88	99
890-3211-3	PH03B	115	93
890-3211-3 MS	PH03B	105	107
890-3211-3 MSD	PH03B	122	90
LCS 880-37166/1-A	Lab Control Sample	92	99
LCS 880-37622/1-A	Lab Control Sample	100	103
LCSD 880-37166/2-A	Lab Control Sample Dup	93	100
LCSD 880-37622/2-A	Lab Control Sample Dup	117	95
MB 880-37159/5-A	Method Blank	93	104
MB 880-37166/5-A	Method Blank	91	105
MB 880-37622/5-A	Method Blank	87	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)
880-20421-A-45-D MS	Matrix Spike	91	90
880-20421-A-45-E MSD	Matrix Spike Duplicate	91	89
890-3211-1	PH03	98	110
890-3211-2	PH03A	96	109
890-3211-3	PH03B	102	117
LCS 880-37189/2-A	Lab Control Sample	96	110
LCSD 880-37189/3-A	Lab Control Sample Dup	97	113
MB 880-37189/1-A	Method Blank	114	132 S1+

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37159/5-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37159

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 13:32	10/22/22 00:40	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/17/22 13:32	10/22/22 00:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*10/17/22 13:32*	*10/22/22 00:40*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*10/17/22 13:32*	*10/22/22 00:40*	*1*

Lab Sample ID: MB 880-37166/5-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37166

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 14:12	10/22/22 12:15	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/17/22 14:12	10/22/22 12:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*	*10/17/22 14:12*	*10/22/22 12:15*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*10/17/22 14:12*	*10/22/22 12:15*	*1*

Lab Sample ID: LCS 880-37166/1-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37166

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.08927		mg/Kg		89	70 - 130		
Toluene			0.100	0.08336		mg/Kg		83	70 - 130		
Ethylbenzene			0.100	0.07394		mg/Kg		74	70 - 130		
m-Xylene & p-Xylene			0.200	0.1504		mg/Kg		75	70 - 130		
o-Xylene			0.100	0.07351		mg/Kg		74	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 880-37166/2-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37166

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09750		mg/Kg		98	70 - 130	9	35

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

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

Lab Sample ID: LCSD 880-37166/2-A
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37166

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.09368		mg/Kg		94	70 - 130	12	35
Ethylbenzene			0.100	0.08412		mg/Kg		84	70 - 130	13	35
m-Xylene & p-Xylene			0.200	0.1702		mg/Kg		85	70 - 130	12	35
o-Xylene			0.100	0.08337		mg/Kg		83	70 - 130	13	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 890-3209-A-1-C MS
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37166

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00198	U F1	0.0996	<0.00199	U F1	mg/Kg		0.6	70 - 130
Toluene	<0.00198	U F2 F1	0.0996	<0.00199	U F1	mg/Kg		0.3	70 - 130
Ethylbenzene	<0.00198	U F1	0.0996	<0.00199	U F1	mg/Kg		0.6	70 - 130
m-Xylene & p-Xylene	<0.00397	U F1	0.199	<0.00398	U F1	mg/Kg		0.01	70 - 130
o-Xylene	<0.00198	U F1	0.0996	<0.00199	U F1	mg/Kg		-0.1	70 - 130

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

Lab Sample ID: 890-3209-A-1-D MSD
Matrix: Solid
Analysis Batch: 37451

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37166

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00198	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130	NC	35
Toluene	<0.00198	U F2 F1	0.100	<0.00200	U F2 F1	mg/Kg		-0.1	70 - 130	54	35
Ethylbenzene	<0.00198	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130	NC	35
m-Xylene & p-Xylene	<0.00397	U F1	0.200	<0.00400	U F1	mg/Kg		-0.2	70 - 130	25	35
o-Xylene	<0.00198	U F1	0.100	<0.00200	U F1	mg/Kg		-0.1	70 - 130	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: MB 880-37622/5-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37622

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/24/22 09:35	10/24/22 10:58	1

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

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

Lab Sample ID: MB 880-37622/5-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37622

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/24/22 09:35	10/24/22 10:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*	*10/24/22 09:35*	*10/24/22 10:58*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*10/24/22 09:35*	*10/24/22 10:58*	*1*

Lab Sample ID: LCS 880-37622/1-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37622

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09878		mg/Kg		99	70 - 130		
Toluene			0.100	0.09273		mg/Kg		93	70 - 130		
Ethylbenzene			0.100	0.09307		mg/Kg		93	70 - 130		
m-Xylene & p-Xylene			0.200	0.1928		mg/Kg		96	70 - 130		
o-Xylene			0.100	0.09522		mg/Kg		95	70 - 130		

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

Lab Sample ID: LCSD 880-37622/2-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37622

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1046		mg/Kg		105	70 - 130	6	35
Toluene			0.100	0.1043		mg/Kg		104	70 - 130	12	35
Ethylbenzene			0.100	0.1118		mg/Kg		112	70 - 130	18	35
m-Xylene & p-Xylene			0.200	0.2373		mg/Kg		119	70 - 130	21	35
o-Xylene			0.100	0.1176		mg/Kg		118	70 - 130	21	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 890-3211-3 MS
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: PH03B
Prep Type: Total/NA
Prep Batch: 37622

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U	0.0998	0.09725		mg/Kg		97	70 - 130		
Toluene	<0.00200	U	0.0998	0.08867		mg/Kg		89	70 - 130		
Ethylbenzene	<0.00200	U	0.0998	0.08819		mg/Kg		88	70 - 130		
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1815		mg/Kg		91	70 - 130		
o-Xylene	<0.00200	U	0.0998	0.08871		mg/Kg		89	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

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

Lab Sample ID: 890-3211-3 MS
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: PH03B
Prep Type: Total/NA
Prep Batch: 37622

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		70 - 130
1,4-Difluorobenzene (Surr)	107		70 - 130

Lab Sample ID: 890-3211-3 MSD
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: PH03B
Prep Type: Total/NA
Prep Batch: 37622

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	0.08785		mg/Kg		89	70 - 130	10	35
Toluene	<0.00200	U	0.0990	0.08833		mg/Kg		89	70 - 130	0	35
Ethylbenzene	<0.00200	U	0.0990	0.09287		mg/Kg		94	70 - 130	5	35
m-Xylene & p-Xylene	<0.00401	U	0.198	0.1989		mg/Kg		100	70 - 130	9	35
o-Xylene	<0.00200	U	0.0990	0.09869		mg/Kg		100	70 - 130	11	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	122		70 - 130
1,4-Difluorobenzene (Surr)	90		70 - 130

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

Lab Sample ID: MB 880-37189/1-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37189

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 10:43	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 10:43	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 10:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130	10/18/22 08:41	10/18/22 10:43	1
o-Terphenyl	132	S1+	70 - 130	10/18/22 08:41	10/18/22 10:43	1

Lab Sample ID: LCS 880-37189/2-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37189

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	917.8		mg/Kg		92	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	861.0		mg/Kg		86	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	96		70 - 130
o-Terphenyl	110		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

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

Lab Sample ID: LCSD 880-37189/3-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37189

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	899.3		mg/Kg		90	70 - 130	2	20
Diesel Range Organics (Over C10-C28)			1000	878.4		mg/Kg		88	70 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*97*		*70 - 130*
o-Terphenyl	*113*		*70 - 130*

Lab Sample ID: 880-20421-A-45-D MS
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37189

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	1087		mg/Kg		107	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1026		mg/Kg		99	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*91*		*70 - 130*
o-Terphenyl	*90*		*70 - 130*

Lab Sample ID: 880-20421-A-45-E MSD
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37189

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	1182		mg/Kg		117	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1034		mg/Kg		100	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*91*		*70 - 130*
o-Terphenyl	*89*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37168/1-A
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/19/22 18:55	1

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 880-37168/2-A
Matrix: Solid
Analysis Batch: 37251

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	267.9		mg/Kg		107	90 - 110		

Lab Sample ID: LCSD 880-37168/3-A
Matrix: Solid
Analysis Batch: 37251

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	263.6		mg/Kg		105	90 - 110	2	20

Lab Sample ID: 890-3209-A-1-L MS
Matrix: Solid
Analysis Batch: 37251

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	368		1260	1563		mg/Kg		95	90 - 110		

Lab Sample ID: 890-3209-A-1-M MSD
Matrix: Solid
Analysis Batch: 37251

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	368		1260	1610		mg/Kg		99	90 - 110	3	20

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

GC VOA

Prep Batch: 37159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-37159/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 37166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3211-1	PH03	Total/NA	Solid	5035	
890-3211-2	PH03A	Total/NA	Solid	5035	
MB 880-37166/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37166/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37166/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3209-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3209-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3211-1	PH03	Total/NA	Solid	8021B	37166
890-3211-2	PH03A	Total/NA	Solid	8021B	37166
MB 880-37159/5-A	Method Blank	Total/NA	Solid	8021B	37159
MB 880-37166/5-A	Method Blank	Total/NA	Solid	8021B	37166
LCS 880-37166/1-A	Lab Control Sample	Total/NA	Solid	8021B	37166
LCSD 880-37166/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37166
890-3209-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	37166
890-3209-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37166

Analysis Batch: 37616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3211-3	PH03B	Total/NA	Solid	8021B	37622
MB 880-37622/5-A	Method Blank	Total/NA	Solid	8021B	37622
LCS 880-37622/1-A	Lab Control Sample	Total/NA	Solid	8021B	37622
LCSD 880-37622/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37622
890-3211-3 MS	PH03B	Total/NA	Solid	8021B	37622
890-3211-3 MSD	PH03B	Total/NA	Solid	8021B	37622

Prep Batch: 37622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3211-3	PH03B	Total/NA	Solid	5035	
MB 880-37622/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37622/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37622/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3211-3 MS	PH03B	Total/NA	Solid	5035	
890-3211-3 MSD	PH03B	Total/NA	Solid	5035	

Analysis Batch: 37718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3211-1	PH03	Total/NA	Solid	Total BTEX	
890-3211-2	PH03A	Total/NA	Solid	Total BTEX	
890-3211-3	PH03B	Total/NA	Solid	Total BTEX	

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

GC Semi VOA

Prep Batch: 37189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3211-1	PH03	Total/NA	Solid	8015NM Prep	
890-3211-2	PH03A	Total/NA	Solid	8015NM Prep	
890-3211-3	PH03B	Total/NA	Solid	8015NM Prep	
MB 880-37189/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37189/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20421-A-45-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20421-A-45-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3211-1	PH03	Total/NA	Solid	8015B NM	37189
890-3211-2	PH03A	Total/NA	Solid	8015B NM	37189
890-3211-3	PH03B	Total/NA	Solid	8015B NM	37189
MB 880-37189/1-A	Method Blank	Total/NA	Solid	8015B NM	37189
LCS 880-37189/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37189
LCSD 880-37189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37189
880-20421-A-45-D MS	Matrix Spike	Total/NA	Solid	8015B NM	37189
880-20421-A-45-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37189

Analysis Batch: 37302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3211-1	PH03	Total/NA	Solid	8015 NM	
890-3211-2	PH03A	Total/NA	Solid	8015 NM	
890-3211-3	PH03B	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3211-1	PH03	Soluble	Solid	DI Leach	
890-3211-2	PH03A	Soluble	Solid	DI Leach	
890-3211-3	PH03B	Soluble	Solid	DI Leach	
MB 880-37168/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37168/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37168/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3209-A-1-L MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3209-A-1-M MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3211-1	PH03	Soluble	Solid	300.0	37168
890-3211-2	PH03A	Soluble	Solid	300.0	37168
890-3211-3	PH03B	Soluble	Solid	300.0	37168
MB 880-37168/1-A	Method Blank	Soluble	Solid	300.0	37168
LCS 880-37168/2-A	Lab Control Sample	Soluble	Solid	300.0	37168
LCSD 880-37168/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37168
890-3209-A-1-L MS	Matrix Spike	Soluble	Solid	300.0	37168
890-3209-A-1-M MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37168

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3211-1
SDG: 03E1558098

Client Sample ID: PH03

Date Collected: 10/12/22 15:30
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3211-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	37166	10/17/22 14:12	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37451	10/22/22 16:17	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37718	10/24/22 16:26	SM	EET MID
Total/NA	Analysis	8015 NM		1			37302	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 18:51	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37251	10/19/22 22:49	CH	EET MID

Client Sample ID: PH03A

Date Collected: 10/12/22 15:40
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3211-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	37166	10/17/22 14:12	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37451	10/22/22 16:37	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37718	10/24/22 16:26	SM	EET MID
Total/NA	Analysis	8015 NM		1			37302	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 19:12	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37251	10/19/22 22:58	CH	EET MID

Client Sample ID: PH03B

Date Collected: 10/12/22 15:45
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3211-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	37622	10/24/22 09:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37616	10/24/22 11:19	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37718	10/24/22 16:42	SM	EET MID
Total/NA	Analysis	8015 NM		1			37302	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 19:33	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	37168	10/17/22 15:36	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37251	10/19/22 23:06	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 163H

Job ID: 890-3211-1
SDG: 03E1558098

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 163H

Job ID: 890-3211-1
SDG: 03E1558098

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 163H

Job ID: 890-3211-1
SDG: 03E1558098

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3211-1	PH03	Solid	10/12/22 15:30	10/17/22 12:12	2'
890-3211-2	PH03A	Solid	10/12/22 15:40	10/17/22 12:12	4'
890-3211-3	PH03B	Solid	10/12/22 15:45	10/17/22 12:12	5'

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	989.854 0852	Email:	bbelill@ensolum.com

Work Order Comments

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

Project Name:	JRU 163H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558098	Due Date:	
Project Location:	32.38042, -103.88638	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM-007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.8
Total Containers:		Corrected Temperature:	3.6

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	TPH	BTEX	Chlorides
PH03	S	10/12/22	1530	2'	G	1	X	X	X
PH03A	↓	↓	1540	4'	↓	↓	↓	↓	↓
PH03B	↓	↓	1545	5'	↓	↓	↓	↓	↓
									→ MR

890-3211 Chain of Custody

Preservative Codes

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

Sample Comments

Incident #: nAPP2219649599

Cost Center: 1140601001

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Sutton	10/17/22 1312			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3211-1
SDG Number: 03E1558098

Login Number: 3211
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: 890-3211-1
SDG Number: 03E1558098

Login Number: 3211
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/18/22 10:45 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-3212-1
Laboratory Sample Delivery Group: 03E1558098
Client Project/Site: JRU 163H

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

Attn: Ben Belill

JKramer

Authorized for release by:
10/25/2022 11:13:14 AM

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

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 163H

Laboratory Job ID: 890-3212-1
SDG: 03E1558098

Table of Contents

Definitions/Glossary

Client: Ensolum Job ID: 890-3212-1
Project/Site: JRU 163H SDG: 03E1558098

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

Job ID: 890-3212-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3212-1

Receipt
The samples were received on 10/17/2022 12:12 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: PH02 (890-3212-1), PH02A (890-3212-2) and PH02B (890-3212-3).

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

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-37189 and analytical batch 880-37192 was outside the upper control limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

Client Sample ID: PH02

Date Collected: 10/13/22 09:50
Date Received: 10/17/22 12:12
Sample Depth: 2'

Lab Sample ID: 890-3212-1
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/24/22 09:35	10/24/22 16:07	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/24/22 09:35	10/24/22 16:07	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/24/22 09:35	10/24/22 16:07	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/24/22 09:35	10/24/22 16:07	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/24/22 09:35	10/24/22 16:07	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/24/22 09:35	10/24/22 16:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*10/24/22 09:35*	*10/24/22 16:07*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*10/24/22 09:35*	*10/24/22 16:07*	*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			10/25/22 12:00	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**105**		49.8		mg/Kg			10/19/22 10:33	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		10/18/22 08:41	10/18/22 16:23	1
Diesel Range Organics (Over C10-C28)	**105**		49.8		mg/Kg		10/18/22 08:41	10/18/22 16:23	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/18/22 08:41	10/18/22 16:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*93*		*70 - 130*	*10/18/22 08:41*	*10/18/22 16:23*	*1*
o-Terphenyl	*106*		*70 - 130*	*10/18/22 08:41*	*10/18/22 16:23*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2820**		49.8		mg/Kg			10/19/22 13:34	10

Client Sample ID: PH02A

Date Collected: 10/13/22 10:00
Date Received: 10/17/22 12:12
Sample Depth: 4'

Lab Sample ID: 890-3212-2
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 16:27	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 16:27	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 16:27	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/24/22 09:35	10/24/22 16:27	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 16:27	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/24/22 09:35	10/24/22 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*	*10/24/22 09:35*	*10/24/22 16:27*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

Client Sample ID: PH02A

Date Collected: 10/13/22 10:00
Date Received: 10/17/22 12:12
Sample Depth: 4'

Lab Sample ID: 890-3212-2
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*	*10/24/22 09:35*	*10/24/22 16:27*	*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			10/25/22 12:00	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**610**		49.9	mg/Kg			10/19/22 10:33	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	<49.9	U	49.9	mg/Kg		10/18/22 08:41	10/18/22 16:44	1
Diesel Range Organics (Over C10-C28)	**526**		49.9	mg/Kg		10/18/22 08:41	10/18/22 16:44	1
Oil Range Organics (Over C28-C36)	**84.0**		49.9	mg/Kg		10/18/22 08:41	10/18/22 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*102*		*70 - 130*	*10/18/22 08:41*	*10/18/22 16:44*	*1*
o-Terphenyl	*112*		*70 - 130*	*10/18/22 08:41*	*10/18/22 16:44*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2010**		25.0	mg/Kg			10/19/22 15:50	5

Client Sample ID: PH02B

Date Collected: 10/13/22 10:15
Date Received: 10/17/22 12:12
Sample Depth: 7'

Lab Sample ID: 890-3212-3
Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		10/24/22 09:35	10/24/22 16:48	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/24/22 09:35	10/24/22 16:48	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/24/22 09:35	10/24/22 16:48	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/24/22 09:35	10/24/22 16:48	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/24/22 09:35	10/24/22 16:48	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/24/22 09:35	10/24/22 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*	*10/24/22 09:35*	*10/24/22 16:48*	*1*
1,4-Difluorobenzene (Surr)	*84*		*70 - 130*	*10/24/22 09:35*	*10/24/22 16:48*	*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			10/25/22 12:00	1

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

Client Sample ID: PH02B

Date Collected: 10/13/22 10:15
Date Received: 10/17/22 12:12
Sample Depth: 7'

Lab Sample ID: 890-3212-3

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/19/22 10:33	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	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 17:06	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 17:06	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*95*		*70 - 130*	*10/18/22 08:41*	*10/18/22 17:06*	*1*
o-Terphenyl	*108*		*70 - 130*	*10/18/22 08:41*	*10/18/22 17:06*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**361**		4.95		mg/Kg			10/19/22 15:55	1

Surrogate Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-3211-A-3-E MS	Matrix Spike	105	107
890-3211-A-3-F MSD	Matrix Spike Duplicate	122	90
890-3212-1	PH02	93	99
890-3212-2	PH02A	99	92
890-3212-3	PH02B	117	84
LCS 880-37622/1-A	Lab Control Sample	100	103
LCSD 880-37622/2-A	Lab Control Sample Dup	117	95
MB 880-37622/5-A	Method Blank	87	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)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-20421-A-45-D MS	Matrix Spike	91	90
880-20421-A-45-E MSD	Matrix Spike Duplicate	91	89
890-3212-1	PH02	93	106
890-3212-2	PH02A	102	112
890-3212-3	PH02B	95	108
LCS 880-37189/2-A	Lab Control Sample	96	110
LCSD 880-37189/3-A	Lab Control Sample Dup	97	113
MB 880-37189/1-A	Method Blank	114	132 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37622/5-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37622

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/24/22 09:35	10/24/22 10:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*	*10/24/22 09:35*	*10/24/22 10:58*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*10/24/22 09:35*	*10/24/22 10:58*	*1*

Lab Sample ID: LCS 880-37622/1-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37622

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09878		mg/Kg		99	70 - 130		
Toluene			0.100	0.09273		mg/Kg		93	70 - 130		
Ethylbenzene			0.100	0.09307		mg/Kg		93	70 - 130		
m-Xylene & p-Xylene			0.200	0.1928		mg/Kg		96	70 - 130		
o-Xylene			0.100	0.09522		mg/Kg		95	70 - 130		

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

Lab Sample ID: LCSD 880-37622/2-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37622

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1046		mg/Kg		105	70 - 130	6	35
Toluene			0.100	0.1043		mg/Kg		104	70 - 130	12	35
Ethylbenzene			0.100	0.1118		mg/Kg		112	70 - 130	18	35
m-Xylene & p-Xylene			0.200	0.2373		mg/Kg		119	70 - 130	21	35
o-Xylene			0.100	0.1176		mg/Kg		118	70 - 130	21	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 890-3211-A-3-E MS
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37622

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U	0.0998	0.09725		mg/Kg		97	70 - 130		
Toluene	<0.00200	U	0.0998	0.08867		mg/Kg		89	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

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

Lab Sample ID: 890-3211-A-3-E MS
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37622

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.0998	0.08819		mg/Kg		88	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1815		mg/Kg		91	70 - 130
o-Xylene	<0.00200	U	0.0998	0.08871		mg/Kg		89	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 890-3211-A-3-F MSD
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37622

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	0.08785		mg/Kg		89	70 - 130	10	35
Toluene	<0.00200	U	0.0990	0.08833		mg/Kg		89	70 - 130	0	35
Ethylbenzene	<0.00200	U	0.0990	0.09287		mg/Kg		94	70 - 130	5	35
m-Xylene & p-Xylene	<0.00401	U	0.198	0.1989		mg/Kg		100	70 - 130	9	35
o-Xylene	<0.00200	U	0.0990	0.09869		mg/Kg		100	70 - 130	11	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*

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

Lab Sample ID: MB 880-37189/1-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37189

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 10:43	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 10:43	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 10:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*114*		*70 - 130*	*10/18/22 08:41*	*10/18/22 10:43*	*1*
o-Terphenyl	*132*	*S1+*	*70 - 130*	*10/18/22 08:41*	*10/18/22 10:43*	*1*

Lab Sample ID: LCS 880-37189/2-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37189

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	917.8		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)			1000	861.0		mg/Kg		86	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

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

Lab Sample ID: LCS 880-37189/2-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37189

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	96		70 - 130
o-Terphenyl	110		70 - 130

Lab Sample ID: LCSD 880-37189/3-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37189

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	899.3		mg/Kg		90	70 - 130	2	20
Diesel Range Organics (Over C10-C28)			1000	878.4		mg/Kg		88	70 - 130	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	97		70 - 130
o-Terphenyl	113		70 - 130

Lab Sample ID: 880-20421-A-45-D MS
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37189

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	1087		mg/Kg		107	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1026		mg/Kg		99	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	91		70 - 130
o-Terphenyl	90		70 - 130

Lab Sample ID: 880-20421-A-45-E MSD
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37189

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	1182		mg/Kg		117	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1034		mg/Kg		100	70 - 130	1	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	91		70 - 130
o-Terphenyl	89		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37169/1-A
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/19/22 13:20	1

Lab Sample ID: LCS 880-37169/2-A
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	253.7		mg/Kg		101	90 - 110		

Lab Sample ID: LCSD 880-37169/3-A
Matrix: Solid
Analysis Batch: 37281

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	254.7		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 890-3212-1 MS
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: PH02
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	2820		2490	5384		mg/Kg		103	90 - 110		

Lab Sample ID: 890-3212-1 MSD
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: PH02
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2820		2490	5392		mg/Kg		103	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

GC VOA

Analysis Batch: 37616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3212-1	PH02	Total/NA	Solid	8021B	37622
890-3212-2	PH02A	Total/NA	Solid	8021B	37622
890-3212-3	PH02B	Total/NA	Solid	8021B	37622
MB 880-37622/5-A	Method Blank	Total/NA	Solid	8021B	37622
LCS 880-37622/1-A	Lab Control Sample	Total/NA	Solid	8021B	37622
LCSD 880-37622/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37622
890-3211-A-3-E MS	Matrix Spike	Total/NA	Solid	8021B	37622
890-3211-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37622

Prep Batch: 37622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3212-1	PH02	Total/NA	Solid	5035	
890-3212-2	PH02A	Total/NA	Solid	5035	
890-3212-3	PH02B	Total/NA	Solid	5035	
MB 880-37622/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37622/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37622/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3211-A-3-E MS	Matrix Spike	Total/NA	Solid	5035	
890-3211-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37813

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3212-1	PH02	Total/NA	Solid	Total BTEX	
890-3212-2	PH02A	Total/NA	Solid	Total BTEX	
890-3212-3	PH02B	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 37189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3212-1	PH02	Total/NA	Solid	8015NM Prep	
890-3212-2	PH02A	Total/NA	Solid	8015NM Prep	
890-3212-3	PH02B	Total/NA	Solid	8015NM Prep	
MB 880-37189/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37189/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20421-A-45-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20421-A-45-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3212-1	PH02	Total/NA	Solid	8015B NM	37189
890-3212-2	PH02A	Total/NA	Solid	8015B NM	37189
890-3212-3	PH02B	Total/NA	Solid	8015B NM	37189
MB 880-37189/1-A	Method Blank	Total/NA	Solid	8015B NM	37189
LCS 880-37189/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37189
LCSD 880-37189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37189
880-20421-A-45-D MS	Matrix Spike	Total/NA	Solid	8015B NM	37189
880-20421-A-45-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37189

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

GC Semi VOA

Analysis Batch: 37300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3212-1	PH02	Total/NA	Solid	8015 NM	
890-3212-2	PH02A	Total/NA	Solid	8015 NM	
890-3212-3	PH02B	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3212-1	PH02	Soluble	Solid	DI Leach	
890-3212-2	PH02A	Soluble	Solid	DI Leach	
890-3212-3	PH02B	Soluble	Solid	DI Leach	
MB 880-37169/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37169/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37169/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3212-1 MS	PH02	Soluble	Solid	DI Leach	
890-3212-1 MSD	PH02	Soluble	Solid	DI Leach	

Analysis Batch: 37281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3212-1	PH02	Soluble	Solid	300.0	37169
890-3212-2	PH02A	Soluble	Solid	300.0	37169
890-3212-3	PH02B	Soluble	Solid	300.0	37169
MB 880-37169/1-A	Method Blank	Soluble	Solid	300.0	37169
LCS 880-37169/2-A	Lab Control Sample	Soluble	Solid	300.0	37169
LCSD 880-37169/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37169
890-3212-1 MS	PH02	Soluble	Solid	300.0	37169
890-3212-1 MSD	PH02	Soluble	Solid	300.0	37169

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3212-1
SDG: 03E1558098

Client Sample ID: PH02

Date Collected: 10/13/22 09:50
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3212-1

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	37622	10/24/22 09:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37616	10/24/22 16:07	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37813	10/25/22 12:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			37300	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 16:23	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37281	10/19/22 13:34	CH	EET MID

Client Sample ID: PH02A

Date Collected: 10/13/22 10:00
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3212-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	37622	10/24/22 09:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37616	10/24/22 16:27	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37813	10/25/22 12:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			37300	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 16:44	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37281	10/19/22 15:50	CH	EET MID

Client Sample ID: PH02B

Date Collected: 10/13/22 10:15
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3212-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	37622	10/24/22 09:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37616	10/24/22 16:48	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37813	10/25/22 12:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			37300	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 17:06	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37281	10/19/22 15:55	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 163H

Job ID: 890-3212-1
SDG: 03E1558098

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 163H

Job ID: 890-3212-1
SDG: 03E1558098

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 163H

Job ID: 890-3212-1
SDG: 03E1558098

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3212-1	PH02	Solid	10/13/22 09:50	10/17/22 12:12	2'
890-3212-2	PH02A	Solid	10/13/22 10:00	10/17/22 12:12	4'
890-3212-3	PH02B	Solid	10/13/22 10:15	10/17/22 12:12	7'

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	989-854-0852 Email:		bbelill@ensolum.com

Work Order Comments

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

Project Name:	JRU 163H	Turn Around	
Project Number:	03E1558098	☑ Routine ☐ Rush	
Project Location:	32.38042, -103.88429	Due Date:	
Sampler's Name:	Meredith Roberts	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.8
Total Containers:		Corrected Temperature:	3.6

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	BTEX	TPH	Chlorides
PH02	S	10/13/22	0950	2'	G	1		X	X	X
PH02A	↓	↓	1000	4'	↓	↓		↓	↓	↓
PH02B	↓	↓	1015	7'	↓	↓		↓	↓	↓

AME

890-3212 Chain of Custody

Preservative Codes

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

Sample Comments

Incident #: nAPP2219649599

Cost Center: 1140601001

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Meroberts	Amanda Stuf	10/17/22 12:2	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3212-1
SDG Number: 03E1558098

Login Number: 3212
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: 890-3212-1
SDG Number: 03E1558098

Login Number: 3212
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/18/22 10:45 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-3213-1
Laboratory Sample Delivery Group: 03E1558098
Client Project/Site: JRU 163H

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

Attn: Ben Belill

JKramer

Authorized for release by:
10/25/2022 11:13:14 AM

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

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 163H

Laboratory Job ID: 890-3213-1
SDG: 03E1558098

Table of Contents

Definitions/Glossary

Client: Ensolum Job ID: 890-3213-1
Project/Site: JRU 163H SDG: 03E1558098

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

Job ID: 890-3213-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3213-1

Receipt
The samples were received on 10/17/2022 12:12 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: PH01 (890-3213-1), PH01A (890-3213-2), PH01B (890-3213-3) and PH01C (890-3213-4).

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

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-37189 and analytical batch 880-37192 was outside the upper control limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

Client Sample ID: PH01

Lab Sample ID: 890-3213-1
Matrix: Solid
Date Collected: 10/13/22 11:05
Date Received: 10/17/22 12:12
Sample Depth: 2'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 17:08	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 17:08	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 17:08	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/24/22 09:35	10/24/22 17:08	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 17:08	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/24/22 09:35	10/24/22 17:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*	*10/24/22 09:35*	*10/24/22 17:08*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*10/24/22 09:35*	*10/24/22 17:08*	*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			10/25/22 12:00	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**1370**		50.0		mg/Kg			10/19/22 10:33	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	<50.0	U	50.0		mg/Kg		10/18/22 08:41	10/18/22 17:27	1
Diesel Range Organics (Over C10-C28)	**1200**		50.0		mg/Kg		10/18/22 08:41	10/18/22 17:27	1
Oil Range Organics (Over C28-C36)	**171**		50.0		mg/Kg		10/18/22 08:41	10/18/22 17:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*102*		*70 - 130*	*10/18/22 08:41*	*10/18/22 17:27*	*1*
o-Terphenyl	*109*		*70 - 130*	*10/18/22 08:41*	*10/18/22 17:27*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5100**		49.8		mg/Kg			10/19/22 13:59	10

Client Sample ID: PH01A

Lab Sample ID: 890-3213-2
Matrix: Solid
Date Collected: 10/13/22 11:15
Date Received: 10/17/22 12:12
Sample Depth: 4'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		10/24/22 09:35	10/24/22 17:29	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/24/22 09:35	10/24/22 17:29	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/24/22 09:35	10/24/22 17:29	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/24/22 09:35	10/24/22 17:29	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/24/22 09:35	10/24/22 17:29	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/24/22 09:35	10/24/22 17:29	1

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

Client Sample ID: PH01A

Lab Sample ID: 890-3213-2
Matrix: Solid
Date Collected: 10/13/22 11:15
Date Received: 10/17/22 12:12
Sample Depth: 4'

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*	*10/24/22 09:35*	*10/24/22 17:29*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*10/24/22 09:35*	*10/24/22 17:29*	*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			10/25/22 12:00	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			10/19/22 10:33	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		10/18/22 08:41	10/18/22 17:48	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		10/18/22 08:41	10/18/22 17:48	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		10/18/22 08:41	10/18/22 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*109*		*70 - 130*	*10/18/22 08:41*	*10/18/22 17:48*	*1*
o-Terphenyl	*121*		*70 - 130*	*10/18/22 08:41*	*10/18/22 17:48*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1310**		50.4	mg/Kg			10/19/22 14:03	10

Client Sample ID: PH01B

Lab Sample ID: 890-3213-3
Matrix: Solid
Date Collected: 10/13/22 11:30
Date Received: 10/17/22 12:12
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		10/24/22 09:35	10/24/22 17:49	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/24/22 09:35	10/24/22 17:49	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/24/22 09:35	10/24/22 17:49	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/24/22 09:35	10/24/22 17:49	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/24/22 09:35	10/24/22 17:49	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/24/22 09:35	10/24/22 17:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*127*		*70 - 130*	*10/24/22 09:35*	*10/24/22 17:49*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*10/24/22 09:35*	*10/24/22 17:49*	*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			10/25/22 12:00	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**1560**		50.0	mg/Kg			10/19/22 10:33	1

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Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

Client Sample ID: PH01B

Lab Sample ID: 890-3213-3
Matrix: Solid
Date Collected: 10/13/22 11:30
Date Received: 10/17/22 12:12
Sample Depth: 7'

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		10/18/22 08:41	10/18/22 18:09	1
Diesel Range Organics (Over C10-C28)	**1380**		50.0		mg/Kg		10/18/22 08:41	10/18/22 18:09	1
Oil Range Organics (Over C28-C36)	**181**		50.0		mg/Kg		10/18/22 08:41	10/18/22 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*95*		*70 - 130*	*10/18/22 08:41*	*10/18/22 18:09*	*1*
o-Terphenyl	*102*		*70 - 130*	*10/18/22 08:41*	*10/18/22 18:09*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3740**		99.2		mg/Kg			10/19/22 14:18	20

Client Sample ID: PH01C

Lab Sample ID: 890-3213-4
Matrix: Solid
Date Collected: 10/13/22 13:15
Date Received: 10/17/22 12:12
Sample Depth: 11'

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		10/24/22 09:35	10/24/22 18:09	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/24/22 09:35	10/24/22 18:09	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/24/22 09:35	10/24/22 18:09	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/24/22 09:35	10/24/22 18:09	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/24/22 09:35	10/24/22 18:09	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/24/22 09:35	10/24/22 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*	*10/24/22 09:35*	*10/24/22 18:09*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*10/24/22 09:35*	*10/24/22 18:09*	*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			10/25/22 12:00	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/19/22 10:33	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	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 18:30	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 18:30	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/18/22 08:41	10/18/22 18:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*98*		*70 - 130*	*10/18/22 08:41*	*10/18/22 18:30*	*1*
o-Terphenyl	*111*		*70 - 130*	*10/18/22 08:41*	*10/18/22 18:30*	*1*

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

Client Sample ID: PH01C
Date Collected: 10/13/22 13:15
Date Received: 10/17/22 12:12
Sample Depth: 11'

Lab Sample ID: 890-3213-4
Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	126		5.02		mg/Kg			10/19/22 16:10	1

Surrogate Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

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)
890-3211-A-3-E MS	Matrix Spike	105	107
890-3211-A-3-F MSD	Matrix Spike Duplicate	122	90
890-3213-1	PH01	97	98
890-3213-2	PH01A	94	98
890-3213-3	PH01B	127	95
890-3213-4	PH01C	102	93
LCS 880-37622/1-A	Lab Control Sample	100	103
LCSD 880-37622/2-A	Lab Control Sample Dup	117	95
MB 880-37622/5-A	Method Blank	87	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)
880-20421-A-45-D MS	Matrix Spike	91	90
880-20421-A-45-E MSD	Matrix Spike Duplicate	91	89
890-3213-1	PH01	102	109
890-3213-2	PH01A	109	121
890-3213-3	PH01B	95	102
890-3213-4	PH01C	98	111
LCS 880-37189/2-A	Lab Control Sample	96	110
LCSD 880-37189/3-A	Lab Control Sample Dup	97	113
MB 880-37189/1-A	Method Blank	114	132 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37622/5-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37622

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/24/22 09:35	10/24/22 10:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*	*10/24/22 09:35*	*10/24/22 10:58*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*10/24/22 09:35*	*10/24/22 10:58*	*1*

Lab Sample ID: LCS 880-37622/1-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37622

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09878		mg/Kg		99	70 - 130		
Toluene			0.100	0.09273		mg/Kg		93	70 - 130		
Ethylbenzene			0.100	0.09307		mg/Kg		93	70 - 130		
m-Xylene & p-Xylene			0.200	0.1928		mg/Kg		96	70 - 130		
o-Xylene			0.100	0.09522		mg/Kg		95	70 - 130		

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

Lab Sample ID: LCSD 880-37622/2-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37622

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1046		mg/Kg		105	70 - 130	6	35
Toluene			0.100	0.1043		mg/Kg		104	70 - 130	12	35
Ethylbenzene			0.100	0.1118		mg/Kg		112	70 - 130	18	35
m-Xylene & p-Xylene			0.200	0.2373		mg/Kg		119	70 - 130	21	35
o-Xylene			0.100	0.1176		mg/Kg		118	70 - 130	21	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 890-3211-A-3-E MS
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37622

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U	0.0998	0.09725		mg/Kg		97	70 - 130		
Toluene	<0.00200	U	0.0998	0.08867		mg/Kg		89	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

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

Lab Sample ID: 890-3211-A-3-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37616 — **Prep Batch: 37622**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.0998	0.08819		mg/Kg		88	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1815		mg/Kg		91	70 - 130
o-Xylene	<0.00200	U	0.0998	0.08871		mg/Kg		89	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 890-3211-A-3-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37616 — **Prep Batch: 37622**

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	0.08785		mg/Kg		89	70 - 130	10	35
Toluene	<0.00200	U	0.0990	0.08833		mg/Kg		89	70 - 130	0	35
Ethylbenzene	<0.00200	U	0.0990	0.09287		mg/Kg		94	70 - 130	5	35
m-Xylene & p-Xylene	<0.00401	U	0.198	0.1989		mg/Kg		100	70 - 130	9	35
o-Xylene	<0.00200	U	0.0990	0.09869		mg/Kg		100	70 - 130	11	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*

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

Lab Sample ID: MB 880-37189/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37192 — **Prep Batch: 37189**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		10/18/22 08:41	10/18/22 10:43	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/18/22 08:41	10/18/22 10:43	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/18/22 08:41	10/18/22 10:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*114*		*70 - 130*	*10/18/22 08:41*	*10/18/22 10:43*	*1*
o-Terphenyl	*132*	*S1+*	*70 - 130*	*10/18/22 08:41*	*10/18/22 10:43*	*1*

Lab Sample ID: LCS 880-37189/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37192 — **Prep Batch: 37189**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	917.8		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	1000	861.0		mg/Kg		86	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

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

Lab Sample ID: LCS 880-37189/2-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37189

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	96		70 - 130
o-Terphenyl	110		70 - 130

Lab Sample ID: LCSD 880-37189/3-A
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37189

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	899.3		mg/Kg		90	70 - 130	2	20
Diesel Range Organics (Over C10-C28)			1000	878.4		mg/Kg		88	70 - 130	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	97		70 - 130
o-Terphenyl	113		70 - 130

Lab Sample ID: 880-20421-A-45-D MS
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37189

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	1087		mg/Kg		107	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1026		mg/Kg		99	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	91		70 - 130
o-Terphenyl	90		70 - 130

Lab Sample ID: 880-20421-A-45-E MSD
Matrix: Solid
Analysis Batch: 37192

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37189

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	1182		mg/Kg		117	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1034		mg/Kg		100	70 - 130	1	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	91		70 - 130
o-Terphenyl	89		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37169/1-A
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/19/22 13:20	1

Lab Sample ID: LCS 880-37169/2-A
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	253.7		mg/Kg		101	90 - 110		

Lab Sample ID: LCSD 880-37169/3-A
Matrix: Solid
Analysis Batch: 37281

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	254.7		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 890-3212-A-1-B MS
Matrix: Solid
Analysis Batch: 37281

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	2820		2490	5384		mg/Kg		103	90 - 110		

Lab Sample ID: 890-3212-A-1-C MSD
Matrix: Solid
Analysis Batch: 37281

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	2820		2490	5392		mg/Kg		103	90 - 110	0	20

Lab Sample ID: 890-3220-A-3-F MS
Matrix: Solid
Analysis Batch: 37281

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	669		251	904.6		mg/Kg		94	90 - 110		

Lab Sample ID: 890-3220-A-3-G MSD
Matrix: Solid
Analysis Batch: 37281

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	669		251	902.5		mg/Kg		93	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

GC VOA

Analysis Batch: 37616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3213-1	PH01	Total/NA	Solid	8021B	37622
890-3213-2	PH01A	Total/NA	Solid	8021B	37622
890-3213-3	PH01B	Total/NA	Solid	8021B	37622
890-3213-4	PH01C	Total/NA	Solid	8021B	37622
MB 880-37622/5-A	Method Blank	Total/NA	Solid	8021B	37622
LCS 880-37622/1-A	Lab Control Sample	Total/NA	Solid	8021B	37622
LCSD 880-37622/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37622
890-3211-A-3-E MS	Matrix Spike	Total/NA	Solid	8021B	37622
890-3211-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37622

Prep Batch: 37622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3213-1	PH01	Total/NA	Solid	5035	
890-3213-2	PH01A	Total/NA	Solid	5035	
890-3213-3	PH01B	Total/NA	Solid	5035	
890-3213-4	PH01C	Total/NA	Solid	5035	
MB 880-37622/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37622/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37622/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3211-A-3-E MS	Matrix Spike	Total/NA	Solid	5035	
890-3211-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3213-1	PH01	Total/NA	Solid	Total BTEX	
890-3213-2	PH01A	Total/NA	Solid	Total BTEX	
890-3213-3	PH01B	Total/NA	Solid	Total BTEX	
890-3213-4	PH01C	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 37189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3213-1	PH01	Total/NA	Solid	8015NM Prep	
890-3213-2	PH01A	Total/NA	Solid	8015NM Prep	
890-3213-3	PH01B	Total/NA	Solid	8015NM Prep	
890-3213-4	PH01C	Total/NA	Solid	8015NM Prep	
MB 880-37189/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37189/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20421-A-45-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20421-A-45-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3213-1	PH01	Total/NA	Solid	8015B NM	37189
890-3213-2	PH01A	Total/NA	Solid	8015B NM	37189
890-3213-3	PH01B	Total/NA	Solid	8015B NM	37189
890-3213-4	PH01C	Total/NA	Solid	8015B NM	37189
MB 880-37189/1-A	Method Blank	Total/NA	Solid	8015B NM	37189
LCS 880-37189/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37189

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

GC Semi VOA (Continued)

Analysis Batch: 37192 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-37189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37189
880-20421-A-45-D MS	Matrix Spike	Total/NA	Solid	8015B NM	37189
880-20421-A-45-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37189

Analysis Batch: 37301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3213-1	PH01	Total/NA	Solid	8015 NM	
890-3213-2	PH01A	Total/NA	Solid	8015 NM	
890-3213-3	PH01B	Total/NA	Solid	8015 NM	
890-3213-4	PH01C	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3213-1	PH01	Soluble	Solid	DI Leach	
890-3213-2	PH01A	Soluble	Solid	DI Leach	
890-3213-3	PH01B	Soluble	Solid	DI Leach	
890-3213-4	PH01C	Soluble	Solid	DI Leach	
MB 880-37169/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37169/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37169/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3212-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3212-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-3220-A-3-F MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3220-A-3-G MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3213-1	PH01	Soluble	Solid	300.0	37169
890-3213-2	PH01A	Soluble	Solid	300.0	37169
890-3213-3	PH01B	Soluble	Solid	300.0	37169
890-3213-4	PH01C	Soluble	Solid	300.0	37169
MB 880-37169/1-A	Method Blank	Soluble	Solid	300.0	37169
LCS 880-37169/2-A	Lab Control Sample	Soluble	Solid	300.0	37169
LCSD 880-37169/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37169
890-3212-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	37169
890-3212-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37169
890-3220-A-3-F MS	Matrix Spike	Soluble	Solid	300.0	37169
890-3220-A-3-G MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37169

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

Client Sample ID: PH01

Date Collected: 10/13/22 11:05
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3213-1
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	37622	10/24/22 09:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37616	10/24/22 17:08	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37814	10/25/22 12:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			37301	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 17:27	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37281	10/19/22 13:59	CH	EET MID

Client Sample ID: PH01A

Date Collected: 10/13/22 11:15
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3213-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	37622	10/24/22 09:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37616	10/24/22 17:29	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37814	10/25/22 12:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			37301	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 17:48	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37281	10/19/22 14:03	CH	EET MID

Client Sample ID: PH01B

Date Collected: 10/13/22 11:30
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3213-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	37622	10/24/22 09:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37616	10/24/22 17:49	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37814	10/25/22 12:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			37301	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 18:09	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		20	50 mL	50 mL	37281	10/19/22 14:18	CH	EET MID

Client Sample ID: PH01C

Date Collected: 10/13/22 13:15
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3213-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	37622	10/24/22 09:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37616	10/24/22 18:09	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37814	10/25/22 12:00	SM	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3213-1
SDG: 03E1558098

Client Sample ID: PH01C

Date Collected: 10/13/22 13:15
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3213-4

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			37301	10/19/22 10:33	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37189	10/18/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37192	10/18/22 18:30	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37281	10/19/22 16:10	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 163H

Job ID: 890-3213-1
SDG: 03E1558098

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 163H

Job ID: 890-3213-1
SDG: 03E1558098

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 163H

Job ID: 890-3213-1
SDG: 03E1558098

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3213-1	PH01	Solid	10/13/22 11:05	10/17/22 12:12	2'
890-3213-2	PH01A	Solid	10/13/22 11:15	10/17/22 12:12	4'
890-3213-3	PH01B	Solid	10/13/22 11:30	10/17/22 12:12	7'
890-3213-4	PH01C	Solid	10/13/22 13:15	10/17/22 12:12	11'

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	989 854 0852	Email:	bbelill@ensolum.com

Work Order Comments

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

Project Name:	JRU 163H	Turn Around	
Project Number:	03E1558098	☑ Routine ☐ Rush	
Project Location:	32.38042, -103.88439	Due Date:	
Sampler's Name:	Meredith Roberts	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM-007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.8
Total Containers:		Corrected Temperature:	3.6

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	TPH	BTEX	Chlorides	Sample Comments
PH01	S	10/13/22	1105	2'	G	1		X	X	X	Incident #:
PH01A	↓	↓	1115	4'	↓	↓		↓	↓	↓	nAPP2219649599
PH01B			1130	7'							
PH01C			1315	11'							Cost Center: 1140601001

MK

890-3213 Chain of Custody

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2SO_4: H_2 NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: NaSO$_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Stuff	10/17/22 12:12	2		
3			4		
5			6		

Revised Date 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3213-1
SDG Number: 03E1558098

Login Number: 3213
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: 890-3213-1
SDG Number: 03E1558098

Login Number: 3213
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/18/22 10:45 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-3214-1
Laboratory Sample Delivery Group: 03E1558098
Client Project/Site: JRU 163H

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

Attn: Ben Belill

JKramer

Authorized for release by:
10/25/2022 11:13:41 AM

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

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 163H

Laboratory Job ID: 890-3214-1
SDG: 03E1558098

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

Job ID: 890-3214-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3214-1

Receipt
The samples were received on 10/17/2022 12:12 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: SW01 (890-3214-1) and SW02 (890-3214-2).

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

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

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

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

Client Sample ID: SW01

Lab Sample ID: 890-3214-1
Matrix: Solid
Date Collected: 10/14/22 11:00
Date Received: 10/17/22 12:12
Sample Depth: 0-2'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 18:30	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 18:30	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 18:30	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/24/22 09:35	10/24/22 18:30	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 18:30	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/24/22 09:35	10/24/22 18:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*	*10/24/22 09:35*	*10/24/22 18:30*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*	*10/24/22 09:35*	*10/24/22 18:30*	*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			10/25/22 12:00	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**54.2**		49.8		mg/Kg			10/19/22 09:39	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		10/18/22 10:12	10/18/22 13:37	1
Diesel Range Organics (Over C10-C28)	**54.2**		49.8		mg/Kg		10/18/22 10:12	10/18/22 13:37	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/18/22 10:12	10/18/22 13:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*109*		*70 - 130*	*10/18/22 10:12*	*10/18/22 13:37*	*1*
o-Terphenyl	*109*		*70 - 130*	*10/18/22 10:12*	*10/18/22 13:37*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**43.0**		5.01		mg/Kg			10/19/22 16:15	1

Client Sample ID: SW02

Lab Sample ID: 890-3214-2
Matrix: Solid
Date Collected: 10/14/22 13:50
Date Received: 10/17/22 12:12
Sample Depth: 0-2'

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		10/24/22 09:35	10/24/22 18:50	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/24/22 09:35	10/24/22 18:50	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/24/22 09:35	10/24/22 18:50	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/24/22 09:35	10/24/22 18:50	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/24/22 09:35	10/24/22 18:50	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/24/22 09:35	10/24/22 18:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*	*10/24/22 09:35*	*10/24/22 18:50*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

Client Sample ID: SW02

Date Collected: 10/14/22 13:50
Date Received: 10/17/22 12:12
Sample Depth: 0-2'

Lab Sample ID: 890-3214-2

Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*83*		*70 - 130*	*10/24/22 09:35*	*10/24/22 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			10/25/22 12:00	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**50.5**		49.9		mg/Kg			10/19/22 09:39	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/18/22 10:12	10/18/22 13:58	1
Diesel Range Organics (Over C10-C28)	**50.5**		49.9		mg/Kg		10/18/22 10:12	10/18/22 13:58	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/18/22 10:12	10/18/22 13:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*103*		*70 - 130*	*10/18/22 10:12*	*10/18/22 13:58*	*1*
o-Terphenyl	*100*		*70 - 130*	*10/18/22 10:12*	*10/18/22 13:58*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**277**		24.8		mg/Kg			10/19/22 14:33	5

Surrogate Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

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)										
890-3211-A-3-E MS	Matrix Spike	105	107										
890-3211-A-3-F MSD	Matrix Spike Duplicate	122	90										
890-3214-1	SW01	117	87										
890-3214-2	SW02	112	83										
LCS 880-37622/1-A	Lab Control Sample	100	103										
LCSD 880-37622/2-A	Lab Control Sample Dup	117	95										
MB 880-37622/5-A	Method Blank	87	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)										
890-3214-1	SW01	109	109										
890-3214-2	SW02	103	100										
890-3220-A-1-D MS	Matrix Spike	102	93										
890-3220-A-1-E MSD	Matrix Spike Duplicate	115	98										
LCS 880-37214/2-A	Lab Control Sample	83	84										
LCSD 880-37214/3-A	Lab Control Sample Dup	85	86										
MB 880-37214/1-A	Method Blank	119	118										

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37622/5-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37622

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/24/22 09:35	10/24/22 10:58	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/24/22 09:35	10/24/22 10:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*	*10/24/22 09:35*	*10/24/22 10:58*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*10/24/22 09:35*	*10/24/22 10:58*	*1*

Lab Sample ID: LCS 880-37622/1-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37622

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09878		mg/Kg		99	70 - 130		
Toluene			0.100	0.09273		mg/Kg		93	70 - 130		
Ethylbenzene			0.100	0.09307		mg/Kg		93	70 - 130		
m-Xylene & p-Xylene			0.200	0.1928		mg/Kg		96	70 - 130		
o-Xylene			0.100	0.09522		mg/Kg		95	70 - 130		

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

Lab Sample ID: LCSD 880-37622/2-A
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37622

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1046		mg/Kg		105	70 - 130	6	35
Toluene			0.100	0.1043		mg/Kg		104	70 - 130	12	35
Ethylbenzene			0.100	0.1118		mg/Kg		112	70 - 130	18	35
m-Xylene & p-Xylene			0.200	0.2373		mg/Kg		119	70 - 130	21	35
o-Xylene			0.100	0.1176		mg/Kg		118	70 - 130	21	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 890-3211-A-3-E MS
Matrix: Solid
Analysis Batch: 37616

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37622

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U	0.0998	0.09725		mg/Kg		97	70 - 130		
Toluene	<0.00200	U	0.0998	0.08867		mg/Kg		89	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

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

Lab Sample ID: 890-3211-A-3-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37616 — **Prep Batch: 37622**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.0998	0.08819		mg/Kg		88	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1815		mg/Kg		91	70 - 130
o-Xylene	<0.00200	U	0.0998	0.08871		mg/Kg		89	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 890-3211-A-3-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37616 — **Prep Batch: 37622**

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	0.08785		mg/Kg		89	70 - 130	10	35
Toluene	<0.00200	U	0.0990	0.08833		mg/Kg		89	70 - 130	0	35
Ethylbenzene	<0.00200	U	0.0990	0.09287		mg/Kg		94	70 - 130	5	35
m-Xylene & p-Xylene	<0.00401	U	0.198	0.1989		mg/Kg		100	70 - 130	9	35
o-Xylene	<0.00200	U	0.0990	0.09869		mg/Kg		100	70 - 130	11	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*

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

Lab Sample ID: MB 880-37214/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37196 — **Prep Batch: 37214**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/18/22 10:12	10/18/22 11:15	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 10:12	10/18/22 11:15	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 10:12	10/18/22 11:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*119*		*70 - 130*	*10/18/22 10:12*	*10/18/22 11:15*	*1*
o-Terphenyl	*118*		*70 - 130*	*10/18/22 10:12*	*10/18/22 11:15*	*1*

Lab Sample ID: LCS 880-37214/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37196 — **Prep Batch: 37214**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1108		mg/Kg		111	70 - 130
Diesel Range Organics (Over C10-C28)			1000	744.4		mg/Kg		74	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

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

Lab Sample ID: LCS 880-37214/2-A
Matrix: Solid
Analysis Batch: 37196

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37214

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	83		70 - 130
o-Terphenyl	84		70 - 130

Lab Sample ID: LCSD 880-37214/3-A
Matrix: Solid
Analysis Batch: 37196

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37214

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1146		mg/Kg		115	70 - 130	3	20
Diesel Range Organics (Over C10-C28)			1000	783.3		mg/Kg		78	70 - 130	5	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	85		70 - 130
o-Terphenyl	86		70 - 130

Lab Sample ID: 890-3220-A-1-D MS
Matrix: Solid
Analysis Batch: 37196

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37214

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	998	1017		mg/Kg		99	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.8	U	998	989.7		mg/Kg		97	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	93		70 - 130

Lab Sample ID: 890-3220-A-1-E MSD
Matrix: Solid
Analysis Batch: 37196

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37214

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	998	1163		mg/Kg		114	70 - 130	13	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	1058		mg/Kg		104	70 - 130	7	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	115		70 - 130
o-Terphenyl	98		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37169/1-A
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/19/22 13:20	1

Lab Sample ID: LCS 880-37169/2-A
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	253.7		mg/Kg		101	90 - 110		

Lab Sample ID: LCSD 880-37169/3-A
Matrix: Solid
Analysis Batch: 37281

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	254.7		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 890-3212-A-1-B MS
Matrix: Solid
Analysis Batch: 37281

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	2820		2490	5384		mg/Kg		103	90 - 110		

Lab Sample ID: 890-3212-A-1-C MSD
Matrix: Solid
Analysis Batch: 37281

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	2820		2490	5392		mg/Kg		103	90 - 110	0	20

Lab Sample ID: 890-3220-A-3-F MS
Matrix: Solid
Analysis Batch: 37281

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	669		251	904.6		mg/Kg		94	90 - 110		

Lab Sample ID: 890-3220-A-3-G MSD
Matrix: Solid
Analysis Batch: 37281

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	669		251	902.5		mg/Kg		93	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

GC VOA

Analysis Batch: 37616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3214-1	SW01	Total/NA	Solid	8021B	37622
890-3214-2	SW02	Total/NA	Solid	8021B	37622
MB 880-37622/5-A	Method Blank	Total/NA	Solid	8021B	37622
LCS 880-37622/1-A	Lab Control Sample	Total/NA	Solid	8021B	37622
LCSD 880-37622/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37622
890-3211-A-3-E MS	Matrix Spike	Total/NA	Solid	8021B	37622
890-3211-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37622

Prep Batch: 37622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3214-1	SW01	Total/NA	Solid	5035	
890-3214-2	SW02	Total/NA	Solid	5035	
MB 880-37622/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37622/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37622/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3211-A-3-E MS	Matrix Spike	Total/NA	Solid	5035	
890-3211-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3214-1	SW01	Total/NA	Solid	Total BTEX	
890-3214-2	SW02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 37196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3214-1	SW01	Total/NA	Solid	8015B NM	37214
890-3214-2	SW02	Total/NA	Solid	8015B NM	37214
MB 880-37214/1-A	Method Blank	Total/NA	Solid	8015B NM	37214
LCS 880-37214/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37214
LCSD 880-37214/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37214
890-3220-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	37214
890-3220-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37214

Prep Batch: 37214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3214-1	SW01	Total/NA	Solid	8015NM Prep	
890-3214-2	SW02	Total/NA	Solid	8015NM Prep	
MB 880-37214/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37214/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37214/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3220-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3220-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3214-1	SW01	Total/NA	Solid	8015 NM	
890-3214-2	SW02	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

HPLC/IC

Leach Batch: 37169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3214-1	SW01	Soluble	Solid	DI Leach	
890-3214-2	SW02	Soluble	Solid	DI Leach	
MB 880-37169/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37169/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37169/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3212-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3212-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-3220-A-3-F MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3220-A-3-G MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3214-1	SW01	Soluble	Solid	300.0	37169
890-3214-2	SW02	Soluble	Solid	300.0	37169
MB 880-37169/1-A	Method Blank	Soluble	Solid	300.0	37169
LCS 880-37169/2-A	Lab Control Sample	Soluble	Solid	300.0	37169
LCSD 880-37169/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37169
890-3212-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	37169
890-3212-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37169
890-3220-A-3-F MS	Matrix Spike	Soluble	Solid	300.0	37169
890-3220-A-3-G MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37169

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3214-1
SDG: 03E1558098

Client Sample ID: SW01
Date Collected: 10/14/22 11:00
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3214-1
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	37622	10/24/22 09:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37616	10/24/22 18:30	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37815	10/25/22 12:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			37277	10/19/22 09:39	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37214	10/18/22 10:12	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37196	10/18/22 13:37	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37281	10/19/22 16:15	CH	EET MID

Client Sample ID: SW02
Date Collected: 10/14/22 13:50
Date Received: 10/17/22 12:12

Lab Sample ID: 890-3214-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	37622	10/24/22 09:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37616	10/24/22 18:50	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37815	10/25/22 12:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			37277	10/19/22 09:39	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	37214	10/18/22 10:12	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37196	10/18/22 13:58	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37281	10/19/22 14:33	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 163H

Job ID: 890-3214-1
SDG: 03E1558098

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 163H

Job ID: 890-3214-1
SDG: 03E1558098

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 163H

Job ID: 890-3214-1
SDG: 03E1558098

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3214-1	SW01	Solid	10/14/22 11:00	10/17/22 12:12	0-2'
890-3214-2	SW02	Solid	10/14/22 13:50	10/17/22 12:12	0-2'

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM, 88220
Phone:	989-854-0852 Email:		bbelill@ensolum.com

Work Order Comments

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

Project Name:	JRU 16 3H	Turn Around	
Project Number:	03E1558098	☑ Routine ☐ Rush	
Project Location:	32.38042, -103.88424	Due Date:	
Sampler's Name:	Meredith Roberts	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM-007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.8
Total Containers:		Corrected Temperature:	3.6

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	BTEX	Chlorides	TPH
SW01	S	10/14/22	1100	0-2'	C	1	X	X	X
SW02	S	10/14/22	1350	0-2'	C	1	X	X	X

890-3214 Chain of Custody

Preservative Codes

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

Sample Comments

incident #:
nAPP2219149599

Cost Center:
1140601001

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Stuf	10/17/22 1372	4		
3			6		
5					

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3214-1
SDG Number: 03E1558098

Login Number: 3214
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: 890-3214-1
SDG Number: 03E1558098

Login Number: 3214
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/18/22 10:45 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-3237-1
Laboratory Sample Delivery Group: 03E1558098
Client Project/Site: JRU 163H

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

Attn: Ben Belill

JKramer

Authorized for release by:
10/28/2022 10:52:59 AM

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

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 163H

Laboratory Job ID: 890-3237-1
SDG: 03E1558098

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

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
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 163H

Job ID: 890-3237-1
SDG: 03E1558098

Job ID: 890-3237-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3237-1

Receipt
The samples were received on 10/20/2022 9:38 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: FS01 (890-3237-1), FS02 (890-3237-2), FS03 (890-3237-3) and FS04 (890-3237-4).

GC VOA
Method 8021B: Surrogate recovery for the following samples were outside control limits: (LCS 880-37693/1-A) and (LCSD 880-37693/2-A). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following samples were outside control limits: (890-3234-A-9-D MS) and (890-3234-A-9-E MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following samples were outside control limits: FS01 (890-3237-1), FS02 (890-3237-2), FS03 (890-3237-3) and FS04 (890-3237-4). 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
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 880-37510 and analytical batch 880-37597 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 163H

Job ID: 890-3237-1
SDG: 03E1558098

Client Sample ID: FS01

Lab Sample ID: 890-3237-1
Matrix: Solid
Date Collected: 10/17/22 13:10
Date Received: 10/20/22 09:38
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		10/24/22 17:00	10/27/22 02:12	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/24/22 17:00	10/27/22 02:12	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/24/22 17:00	10/27/22 02:12	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/24/22 17:00	10/27/22 02:12	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/24/22 17:00	10/27/22 02:12	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/24/22 17:00	10/27/22 02:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*145*	*S1+*	*70 - 130*	*10/24/22 17:00*	*10/27/22 02:12*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*10/24/22 17:00*	*10/27/22 02:12*	*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			10/27/22 10:05	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**133**		49.8		mg/Kg			10/24/22 12:22	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		10/21/22 13:46	10/21/22 21:22	1
Diesel Range Organics (Over C10-C28)	**133**		49.8		mg/Kg		10/21/22 13:46	10/21/22 21:22	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/21/22 13:46	10/21/22 21:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*107*		*70 - 130*	*10/21/22 13:46*	*10/21/22 21:22*	*1*
o-Terphenyl	*123*		*70 - 130*	*10/21/22 13:46*	*10/21/22 21:22*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**357**		5.01		mg/Kg			10/23/22 17:30	1

Client Sample ID: FS02

Lab Sample ID: 890-3237-2
Matrix: Solid
Date Collected: 10/17/22 13:20
Date Received: 10/20/22 09:38
Sample Depth: 2'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/24/22 17:00	10/27/22 02:37	1
Toluene	**0.00272**		0.00200		mg/Kg		10/24/22 17:00	10/27/22 02:37	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/24/22 17:00	10/27/22 02:37	1
m-Xylene & p-Xylene	**0.0625**		0.00402		mg/Kg		10/27/22 09:43	10/27/22 20:27	1
o-Xylene	**0.312**		0.00200		mg/Kg		10/24/22 17:00	10/27/22 02:37	1
Xylenes, Total	**0.546**		0.00401		mg/Kg		10/24/22 17:00	10/27/22 02:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*273*	*S1+*	*70 - 130*	*10/24/22 17:00*	*10/27/22 02:37*	*1*

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Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

Client Sample ID: FS02

Lab Sample ID: 890-3237-2
Matrix: Solid
Date Collected: 10/17/22 13:20
Date Received: 10/20/22 09:38
Sample Depth: 2'

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*	*10/24/22 17:00*	*10/27/22 02:37*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.377**		0.00402	mg/Kg			10/27/22 10:05	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**493**		49.9	mg/Kg			10/24/22 12:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	**53.1**		49.9	mg/Kg		10/21/22 13:46	10/21/22 22:27	1
Diesel Range Organics (Over C10-C28)	**389**		49.9	mg/Kg		10/21/22 13:46	10/21/22 22:27	1
Oil Range Organics (Over C28-C36)	**51.3**		49.9	mg/Kg		10/21/22 13:46	10/21/22 22:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	*92*		*70 - 130*	*10/21/22 13:46*	*10/21/22 22:27*	*1*
o-Terphenyl	*110*		*70 - 130*	*10/21/22 13:46*	*10/21/22 22:27*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**168**		25.1	mg/Kg			10/23/22 17:35	5

Client Sample ID: FS03

Lab Sample ID: 890-3237-3
Matrix: Solid
Date Collected: 10/17/22 13:30
Date Received: 10/20/22 09:38
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		10/24/22 17:00	10/27/22 03:02	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/24/22 17:00	10/27/22 03:02	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/24/22 17:00	10/27/22 03:02	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/24/22 17:00	10/27/22 03:02	1
o-Xylene	**0.0416**		0.00199	mg/Kg		10/24/22 17:00	10/27/22 03:02	1
Xylenes, Total	**0.0416**		0.00398	mg/Kg		10/24/22 17:00	10/27/22 03:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*	*10/24/22 17:00*	*10/27/22 03:02*	*1*
1,4-Difluorobenzene (Surr)	*158*	*S1+*	*70 - 130*	*10/24/22 17:00*	*10/27/22 03:02*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.0416**		0.00398	mg/Kg			10/27/22 10:05	1

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

Client Sample ID: FS03

Lab Sample ID: 890-3237-3
Matrix: Solid
Date Collected: 10/17/22 13:30
Date Received: 10/20/22 09:38
Sample Depth: 2'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**70.0**		49.8		mg/Kg			10/24/22 12:22	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		10/21/22 13:46	10/21/22 22:48	1
Diesel Range Organics (Over C10-C28)	**70.0**		49.8		mg/Kg		10/21/22 13:46	10/21/22 22:48	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/21/22 13:46	10/21/22 22:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*81*		*70 - 130*	*10/21/22 13:46*	*10/21/22 22:48*	*1*
o-Terphenyl	*96*		*70 - 130*	*10/21/22 13:46*	*10/21/22 22:48*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**64.8**		5.01		mg/Kg			10/24/22 13:28	1

Client Sample ID: FS04

Lab Sample ID: 890-3237-4
Matrix: Solid
Date Collected: 10/17/22 13:40
Date Received: 10/20/22 09:38
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		10/25/22 17:00	10/27/22 03:28	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/25/22 17:00	10/27/22 03:28	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/25/22 17:00	10/27/22 03:28	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/25/22 17:00	10/27/22 03:28	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/25/22 17:00	10/27/22 03:28	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/25/22 17:00	10/27/22 03:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*138*	*S1+*	*70 - 130*	*10/25/22 17:00*	*10/27/22 03:28*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*	*10/25/22 17:00*	*10/27/22 03:28*	*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			10/27/22 10:05	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/24/22 12:22	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/21/22 13:46	10/21/22 23:09	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/21/22 13:46	10/21/22 23:09	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/21/22 13:46	10/21/22 23:09	1

Client Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

Client Sample ID: FS04

Date Collected: 10/17/22 13:40
Date Received: 10/20/22 09:38
Sample Depth: 2'

Lab Sample ID: 890-3237-4

Matrix: Solid

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*79*		*70 - 130*	*10/21/22 13:46*	*10/21/22 23:09*	*1*
o-Terphenyl	*95*		*70 - 130*	*10/21/22 13:46*	*10/21/22 23:09*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**750**		24.9		mg/Kg			10/23/22 17:54	5

Surrogate Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

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)
890-3234-A-9-D MS	Matrix Spike	134 S1+	92
890-3234-A-9-E MSD	Matrix Spike Duplicate	132 S1+	101
890-3237-1	FS01	145 S1+	99
890-3237-2	FS02	273 S1+	94
890-3237-3	FS03	112	158 S1+
890-3237-4	FS04	138 S1+	97
890-3252-A-2-B MS	Matrix Spike	114	101
890-3252-A-2-C MSD	Matrix Spike Duplicate	125	93
LCS 880-37686/1-A	Lab Control Sample	111	98
LCS 880-37693/1-A	Lab Control Sample	143 S1+	98
LCS 880-37987/1-A	Lab Control Sample	96	96
LCSD 880-37686/2-A	Lab Control Sample Dup	111	94
LCSD 880-37693/2-A	Lab Control Sample Dup	136 S1+	99
LCSD 880-37987/2-A	Lab Control Sample Dup	104	101
MB 880-37693/5-A	Method Blank	85	87
MB 880-37850/8	Method Blank	83	96
MB 880-37987/5-A	Method Blank	111	106

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)
890-3237-1	FS01	107	123
890-3237-1 MS	FS01	84	91
890-3237-1 MSD	FS01	83	89
890-3237-2	FS02	92	110
890-3237-3	FS03	81	96
890-3237-4	FS04	79	95
LCS 880-37501/2-A	Lab Control Sample	97	120
LCSD 880-37501/3-A	Lab Control Sample Dup	96	116
MB 880-37501/1-A	Method Blank	90	108

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: LCS 880-37686/1-A
Matrix: Solid
Analysis Batch: 37962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37686

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.08480		mg/Kg		85	70 - 130		
Toluene			0.100	0.09591		mg/Kg		96	70 - 130		
Ethylbenzene			0.100	0.08819		mg/Kg		88	70 - 130		
m-Xylene & p-Xylene			0.200	0.1857		mg/Kg		93	70 - 130		
o-Xylene			0.100	0.1003		mg/Kg		100	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 880-37686/2-A
Matrix: Solid
Analysis Batch: 37962

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37686

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09111		mg/Kg		91	70 - 130	7	35
Toluene			0.100	0.1067		mg/Kg		107	70 - 130	11	35
Ethylbenzene			0.100	0.09617		mg/Kg		96	70 - 130	9	35
m-Xylene & p-Xylene			0.200	0.2029		mg/Kg		101	70 - 130	9	35
o-Xylene			0.100	0.1086		mg/Kg		109	70 - 130	8	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*

Lab Sample ID: 890-3252-A-2-B MS
Matrix: Solid
Analysis Batch: 37962

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37686

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U	0.0998	0.09028		mg/Kg		90	70 - 130		
Toluene	<0.00201	U	0.0998	0.09150		mg/Kg		92	70 - 130		
Ethylbenzene	<0.00201	U	0.0998	0.08339		mg/Kg		84	70 - 130		
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1745		mg/Kg		87	70 - 130		
o-Xylene	<0.00201	U	0.0998	0.09453		mg/Kg		95	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: 890-3252-A-2-C MSD
Matrix: Solid
Analysis Batch: 37962

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37686

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0990	0.06966		mg/Kg		70	70 - 130	26	35
Toluene	<0.00201	U	0.0990	0.08940		mg/Kg		90	70 - 130	2	35
Ethylbenzene	<0.00201	U	0.0990	0.08208		mg/Kg		83	70 - 130	2	35

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

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

Lab Sample ID: 890-3252-A-2-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37962 — **Prep Batch: 37686**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
m-Xylene & p-Xylene	<0.00402	U	0.198	0.1737		mg/Kg		88	70 - 130	0	35
o-Xylene	<0.00201	U	0.0990	0.09585		mg/Kg		97	70 - 130	1	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*125*		*70 - 130*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: MB 880-37693/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37850 — **Prep Batch: 37693**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/24/22 17:00	10/26/22 19:47	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/24/22 17:00	10/26/22 19:47	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/24/22 17:00	10/26/22 19:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/24/22 17:00	10/26/22 19:47	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/24/22 17:00	10/26/22 19:47	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/24/22 17:00	10/26/22 19:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*70 - 130*	*10/24/22 17:00*	*10/26/22 19:47*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*	*10/24/22 17:00*	*10/26/22 19:47*	*1*

Lab Sample ID: LCS 880-37693/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37850 — **Prep Batch: 37693**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1174		mg/Kg		117	70 - 130		
Toluene			0.100	0.1151		mg/Kg		115	70 - 130		
Ethylbenzene			0.100	0.1276		mg/Kg		128	70 - 130		
m-Xylene & p-Xylene			0.200	0.2485		mg/Kg		124	70 - 130		
o-Xylene			0.100	0.1220		mg/Kg		122	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*143*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 880-37693/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37850 — **Prep Batch: 37693**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1193		mg/Kg		119	70 - 130	2	35
Toluene			0.100	0.1084		mg/Kg		108	70 - 130	6	35
Ethylbenzene			0.100	0.1273		mg/Kg		127	70 - 130	0	35
m-Xylene & p-Xylene			0.200	0.2460		mg/Kg		123	70 - 130	1	35
o-Xylene			0.100	0.1197		mg/Kg		120	70 - 130	2	35

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

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

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	136	S1+	70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: 890-3234-A-9-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37850 — **Prep Batch: 37693**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U	0.100	0.1047		mg/Kg		105	70 - 130
Toluene	<0.00202	U	0.100	0.1024		mg/Kg		102	70 - 130
Ethylbenzene	<0.00202	U	0.100	0.1145		mg/Kg		114	70 - 130
m-Xylene & p-Xylene	<0.00403	U	0.200	0.2199		mg/Kg		110	70 - 130
o-Xylene	<0.00202	U	0.100	0.1091		mg/Kg		109	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	134	S1+	70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 890-3234-A-9-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37850 — **Prep Batch: 37693**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U	0.0990	0.09760		mg/Kg		99	70 - 130	7	35
Toluene	<0.00202	U	0.0990	0.09269		mg/Kg		94	70 - 130	10	35
Ethylbenzene	<0.00202	U	0.0990	0.1003		mg/Kg		101	70 - 130	13	35
m-Xylene & p-Xylene	<0.00403	U	0.198	0.1938		mg/Kg		98	70 - 130	13	35
o-Xylene	<0.00202	U	0.0990	0.1020		mg/Kg		103	70 - 130	7	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	132	S1+	70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: MB 880-37850/8 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37850

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg			10/26/22 12:53	1
Toluene	<0.00200	U	0.00200		mg/Kg			10/26/22 12:53	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg			10/26/22 12:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg			10/26/22 12:53	1
o-Xylene	<0.00200	U	0.00200		mg/Kg			10/26/22 12:53	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg			10/26/22 12:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130		10/26/22 12:53	1
1,4-Difluorobenzene (Surr)	96		70 - 130		10/26/22 12:53	1

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

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

Lab Sample ID: MB 880-37987/5-A
Matrix: Solid
Analysis Batch: 37962

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37987

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/27/22 09:43	10/27/22 14:04	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/27/22 09:43	10/27/22 14:04	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/27/22 09:43	10/27/22 14:04	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/27/22 09:43	10/27/22 14:04	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/27/22 09:43	10/27/22 14:04	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/27/22 09:43	10/27/22 14:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*	*10/27/22 09:43*	*10/27/22 14:04*	*1*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*	*10/27/22 09:43*	*10/27/22 14:04*	*1*

Lab Sample ID: LCS 880-37987/1-A
Matrix: Solid
Analysis Batch: 37962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37987

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09096		mg/Kg		91	70 - 130		
Toluene			0.100	0.09666		mg/Kg		97	70 - 130		
Ethylbenzene			0.100	0.08571		mg/Kg		86	70 - 130		
m-Xylene & p-Xylene			0.200	0.1777		mg/Kg		89	70 - 130		
o-Xylene			0.100	0.09292		mg/Kg		93	70 - 130		

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

Lab Sample ID: LCSD 880-37987/2-A
Matrix: Solid
Analysis Batch: 37962

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37987

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1002		mg/Kg		100	70 - 130	10	35
Toluene			0.100	0.1110		mg/Kg		111	70 - 130	14	35
Ethylbenzene			0.100	0.09703		mg/Kg		97	70 - 130	12	35
m-Xylene & p-Xylene			0.200	0.2041		mg/Kg		102	70 - 130	14	35
o-Xylene			0.100	0.1074		mg/Kg		107	70 - 130	14	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

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

Lab Sample ID: MB 880-37501/1-A
Matrix: Solid
Analysis Batch: 37440

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37501

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/21/22 13:46	10/21/22 20:18	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/21/22 13:46	10/21/22 20:18	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/21/22 13:46	10/21/22 20:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*90*		*70 - 130*	*10/21/22 13:46*	*10/21/22 20:18*	*1*
o-Terphenyl	*108*		*70 - 130*	*10/21/22 13:46*	*10/21/22 20:18*	*1*

Lab Sample ID: LCS 880-37501/2-A
Matrix: Solid
Analysis Batch: 37440

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37501

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1112		mg/Kg		111	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1053		mg/Kg		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*97*		*70 - 130*
o-Terphenyl	*120*		*70 - 130*

Lab Sample ID: LCSD 880-37501/3-A
Matrix: Solid
Analysis Batch: 37440

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37501

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	950.0		mg/Kg		95	70 - 130	16	20
Diesel Range Organics (Over C10-C28)			1000	1029		mg/Kg		103	70 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*96*		*70 - 130*
o-Terphenyl	*116*		*70 - 130*

Lab Sample ID: 890-3237-1 MS
Matrix: Solid
Analysis Batch: 37440

Client Sample ID: FS01
Prep Type: Total/NA
Prep Batch: 37501

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	998	1078		mg/Kg		105	70 - 130		
Diesel Range Organics (Over C10-C28)	133		998	1006		mg/Kg		87	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

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

Lab Sample ID: 890-3237-1 MS
Matrix: Solid
Analysis Batch: 37440

Client Sample ID: FS01
Prep Type: Total/NA
Prep Batch: 37501

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	84		70 - 130
o-Terphenyl	91		70 - 130

Lab Sample ID: 890-3237-1 MSD
Matrix: Solid
Analysis Batch: 37440

Client Sample ID: FS01
Prep Type: Total/NA
Prep Batch: 37501

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	998	1136		mg/Kg		111	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	133		998	1003		mg/Kg		87	70 - 130	0	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	83		70 - 130
o-Terphenyl	89		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37510/1-A
Matrix: Solid
Analysis Batch: 37597

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/23/22 16:51	1

Lab Sample ID: LCS 880-37510/2-A
Matrix: Solid
Analysis Batch: 37597

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	258.4		mg/Kg		103	90 - 110		

Lab Sample ID: LCSD 880-37510/3-A
Matrix: Solid
Analysis Batch: 37597

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	255.9		mg/Kg		102	90 - 110	1	20

Lab Sample ID: 890-3236-A-1-C MS
Matrix: Solid
Analysis Batch: 37597

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	403	F1	252	626.5	F1	mg/Kg		89	90 - 110		

QC Sample Results

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-3236-A-1-D MSD
Matrix: Solid
Analysis Batch: 37597

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	403	F1	252	629.1		mg/Kg		90	90 - 110	0	20

Lab Sample ID: 890-3245-A-1-C MS
Matrix: Solid
Analysis Batch: 37597

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	141		251	406.8		mg/Kg		106	90 - 110

Lab Sample ID: 890-3245-A-1-D MSD
Matrix: Solid
Analysis Batch: 37597

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	141		251	405.1		mg/Kg		106	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

GC VOA

Prep Batch: 37686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-37686/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37686/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3252-A-2-B MS	Matrix Spike	Total/NA	Solid	5035	
890-3252-A-2-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 37693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-1	FS01	Total/NA	Solid	5035	
890-3237-2	FS02	Total/NA	Solid	5035	
890-3237-3	FS03	Total/NA	Solid	5035	
890-3237-4	FS04	Total/NA	Solid	5035	
MB 880-37693/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37693/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37693/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3234-A-9-D MS	Matrix Spike	Total/NA	Solid	5035	
890-3234-A-9-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-1	FS01	Total/NA	Solid	8021B	37693
890-3237-2	FS02	Total/NA	Solid	8021B	37693
890-3237-3	FS03	Total/NA	Solid	8021B	37693
890-3237-4	FS04	Total/NA	Solid	8021B	37693
MB 880-37693/5-A	Method Blank	Total/NA	Solid	8021B	37693
MB 880-37850/8	Method Blank	Total/NA	Solid	8021B	
LCS 880-37693/1-A	Lab Control Sample	Total/NA	Solid	8021B	37693
LCSD 880-37693/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37693
890-3234-A-9-D MS	Matrix Spike	Total/NA	Solid	8021B	37693
890-3234-A-9-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37693

Analysis Batch: 37962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-2	FS02	Total/NA	Solid	8021B	37987
MB 880-37987/5-A	Method Blank	Total/NA	Solid	8021B	37987
LCS 880-37686/1-A	Lab Control Sample	Total/NA	Solid	8021B	37686
LCS 880-37987/1-A	Lab Control Sample	Total/NA	Solid	8021B	37987
LCSD 880-37686/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37686
LCSD 880-37987/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37987
890-3252-A-2-B MS	Matrix Spike	Total/NA	Solid	8021B	37686
890-3252-A-2-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37686

Prep Batch: 37987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-2	FS02	Total/NA	Solid	5035	
MB 880-37987/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37987/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37987/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 37996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-1	FS01	Total/NA	Solid	Total BTEX	

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

GC VOA (Continued)

Analysis Batch: 37996 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-2	FS02	Total/NA	Solid	Total BTEX	
890-3237-3	FS03	Total/NA	Solid	Total BTEX	
890-3237-4	FS04	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 37440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-1	FS01	Total/NA	Solid	8015B NM	37501
890-3237-2	FS02	Total/NA	Solid	8015B NM	37501
890-3237-3	FS03	Total/NA	Solid	8015B NM	37501
890-3237-4	FS04	Total/NA	Solid	8015B NM	37501
MB 880-37501/1-A	Method Blank	Total/NA	Solid	8015B NM	37501
LCS 880-37501/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37501
LCSD 880-37501/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37501
890-3237-1 MS	FS01	Total/NA	Solid	8015B NM	37501
890-3237-1 MSD	FS01	Total/NA	Solid	8015B NM	37501

Prep Batch: 37501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-1	FS01	Total/NA	Solid	8015NM Prep	
890-3237-2	FS02	Total/NA	Solid	8015NM Prep	
890-3237-3	FS03	Total/NA	Solid	8015NM Prep	
890-3237-4	FS04	Total/NA	Solid	8015NM Prep	
MB 880-37501/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37501/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37501/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3237-1 MS	FS01	Total/NA	Solid	8015NM Prep	
890-3237-1 MSD	FS01	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-1	FS01	Total/NA	Solid	8015 NM	
890-3237-2	FS02	Total/NA	Solid	8015 NM	
890-3237-3	FS03	Total/NA	Solid	8015 NM	
890-3237-4	FS04	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-1	FS01	Soluble	Solid	DI Leach	
890-3237-2	FS02	Soluble	Solid	DI Leach	
890-3237-3	FS03	Soluble	Solid	DI Leach	
890-3237-4	FS04	Soluble	Solid	DI Leach	
MB 880-37510/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37510/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37510/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3236-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3236-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-3245-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3245-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

HPLC/IC

Analysis Batch: 37597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3237-1	FS01	Soluble	Solid	300.0	37510
890-3237-2	FS02	Soluble	Solid	300.0	37510
890-3237-3	FS03	Soluble	Solid	300.0	37510
890-3237-4	FS04	Soluble	Solid	300.0	37510
MB 880-37510/1-A	Method Blank	Soluble	Solid	300.0	37510
LCS 880-37510/2-A	Lab Control Sample	Soluble	Solid	300.0	37510
LCSD 880-37510/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37510
890-3236-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	37510
890-3236-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37510
890-3245-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	37510
890-3245-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37510

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

Client Sample ID: FS01

Lab Sample ID: 890-3237-1
Matrix: Solid
Date Collected: 10/17/22 13:10
Date Received: 10/20/22 09:38

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	37693	10/24/22 17:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37850	10/27/22 02:12	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37996	10/27/22 10:05	SM	EET MID
Total/NA	Analysis	8015 NM		1			37665	10/24/22 12:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37501	10/21/22 13:46	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37440	10/21/22 21:22	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	37510	10/21/22 14:10	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37597	10/23/22 17:30	CH	EET MID

Client Sample ID: FS02

Lab Sample ID: 890-3237-2
Matrix: Solid
Date Collected: 10/17/22 13:20
Date Received: 10/20/22 09:38

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	37987	10/27/22 09:43	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37962	10/27/22 20:27	MNR	EET MID
Total/NA	Prep	5035			4.99 g	5 mL	37693	10/24/22 17:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37850	10/27/22 02:37	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37996	10/27/22 10:05	SM	EET MID
Total/NA	Analysis	8015 NM		1			37665	10/24/22 12:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37501	10/21/22 13:46	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37440	10/21/22 22:27	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37510	10/21/22 14:10	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37597	10/23/22 17:35	CH	EET MID

Client Sample ID: FS03

Lab Sample ID: 890-3237-3
Matrix: Solid
Date Collected: 10/17/22 13:30
Date Received: 10/20/22 09:38

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	37693	10/24/22 17:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37850	10/27/22 03:02	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37996	10/27/22 10:05	SM	EET MID
Total/NA	Analysis	8015 NM		1			37665	10/24/22 12:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37501	10/21/22 13:46	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37440	10/21/22 22:48	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	37510	10/21/22 14:10	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37597	10/24/22 13:28	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

Client Sample ID: FS04

Date Collected: 10/17/22 13:40
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3237-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	37693	10/25/22 17:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37850	10/27/22 03:28	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37996	10/27/22 10:05	SM	EET MID
Total/NA	Analysis	8015 NM		1			37665	10/24/22 12:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	37501	10/21/22 13:46	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37440	10/21/22 23:09	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	37510	10/21/22 14:10	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37597	10/23/22 17:54	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: JRU 163H

Job ID: 890-3237-1
SDG: 03E1558098

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 163H

Job ID: 890-3237-1
SDG: 03E1558098

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 163H

Job ID: 890-3237-1
SDG: 03E1558098

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3237-1	FS01	Solid	10/17/22 13:10	10/20/22 09:38	2'
890-3237-2	FS02	Solid	10/17/22 13:20	10/20/22 09:38	2'
890-3237-3	FS03	Solid	10/17/22 13:30	10/20/22 09:38	2'
890-3237-4	FS04	Solid	10/17/22 13:40	10/20/22 09:38	2'

eurofins | Environment Testing Xenco

Chain of Custody

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

www.xenco.com

Work Order No: _____

Page 1 of 1

Project Manager:	Ben Belill	Bill to: (if different)	XTO Energy
Company Name:	Ensolum	Company Name:	Garrett Green
Address:	3122 National Parks Hwy	Address:	3104 E. Green St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	(989) 854 0852 Email:	bbelill@ensolum.com	

Work Order Comments

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

Project Name:	JRU 163H	Turn Around	
Project Number:	03E1558098	☒ Routine ☐ Rush	
Project Location:	Rural Eddy County	Due Date:	
Sampler's Name:	Ben Belill	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Samples Received Intact:	Yes No	Thermometer ID:	IR-007
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	3.8
Total Containers:		Corrected Temperature:	3.6

ANALYSIS REQUEST

Preservative Codes

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

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Parameters: Chlorides	TPH	BTEX
FS01	S	10/17/22	1310	2'	Comp	1	X	X	X
FS02			1320	2'			X	X	X
FS03			1330	2'			X	X	X
FS04	↓	↓	1340	2'	↓	↓	X	X	X

890-3237 Chain of Custody

Sample Comments

Incident Number
NAPP2219649599

Cost Center
114060 1001

BTW 10/17/22

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 BTBelill	Amanda Stuff	10/20/22 938	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3237-1
SDG Number: 03E1558098

Login Number: 3237
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: 890-3237-1
SDG Number: 03E1558098

Login Number: 3237
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/21/22 10:46 AM

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

ENSOLUM

APPENDIX E

NMOCD Email Notifications

From:	Hamlet, Robert, EMNRD
To:	Green, Garrett J
Cc:	DelawareSpills /SM; Tacoma Morrissey; Ben Belill; Bratcher, Michael, EMNRD; Nobui, Jennifer, EMNRD; Harimon, Jocelyn, EMNRD
Subject:	(Extension Approval) - James Ranch Unit 163H (Incident Number NAPP2219649599)
Date:	Friday, October 7, 2022 5:38:56 PM

[**EXTERNAL EMAIL**]

RE: Incident #**NAPP2219649599**

Garrett,

Your request for an extension to **January 7th, 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
http://www.emnrd.state.nm.us/OCD/

From: Green, Garrett J <garrett.green@exxonmobil.com>
Sent: Friday, October 7, 2022 1:47 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>
Cc: DelawareSpills /SM <DelawareSpills@exxonmobil.com>; Tacoma Morrissey <tmorrissey@ensolum.com>; Ben Belill <bbelill@ensolum.com>
Subject: [EXTERNAL] Extension Request - James Ranch Unit 163H (Incident Number NAPP2219649599)

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

All,

XTO - James Ranch Unit 163H – Incident Number NAPP2219649599

XTO is requesting an extension for the current deadline of October 9, 2022, for submitting a remediation work plan or closure request required in 19.15.29.12.B.(1) NMAC at the James Ranch

Unit 163H (Incident Number NAPP2219649599). The release occurred on July 11, 2022. An initial assessment of the release was completed August 19, 2022. Delineation and excavation activities are scheduled to be conducted throughout the week of October 10, 2022. In order to complete the remediation activities, review laboratory analytical results, and submit a remediation work plan or closure request, XTO is requesting a 90-day extension for the release until January 7, 2023.

Thank you,

Garrett Green
Environmental Coordinator
Delaware Business Unit
(575) 200-0729
Garrett.Green@ExxonMobil.com

XTO Energy, Inc.
3104 E. Greene Street | Carlsbad, NM 88220 | M: (575)200-0729

From: Tacoma Morrissey
To: Ben Belill
Subject: Fwd: XTO - Sampling Notification (Week of 10/10/22 - 10/14/22)
Date: Monday, November 28, 2022 5:54:02 PM

Hey Ben,

Is this the one you're missing?

Tacoma Morrissey
Senior Geologist
337-257-8307
Ensolum, LLC

From: Green, Garrett J <garrett.green@exxonmobil.com>
Sent: Friday, October 7, 2022 2:49:52 PM
To: ocd.enviro@emnrd.nm.gov <ocd.enviro@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: DelawareSpills /SM <DelawareSpills@exxonmobil.com>; Tacoma Morrissey <tmorrissey@ensolum.com>
Subject: XTO - Sampling Notification (Week of 10/10/22 - 10/14/22)

[**EXTERNAL EMAIL**]

All,

XTO plans to complete final sampling activities at the following sites the week of Oct 10, 2022.

Monday
- BEU 29W Vader 100H / nAPP2102831345
- PLU 78 SWD / NAPP2126639352

Tuesday
- BEU 29W Vader 100H / nAPP2102831345
- PLU 78 SWD / NAPP2126639352

Wednesday
- BEU 29W Vader 100H / nAPP2102831345
- JRU 163 / nAPP2219649599
- PLU 411/ nAPP2219646774

Thursday
- BEU 29W Vader 100H / nAPP2102831345
- JRU 163 / nAPP2219649599
- PLU 411/ nAPP2219646774

Friday

- BEU 29W Vader 100H / nAPP2102831345

Thank you,

Garrett Green
Environmental Coordinator
Delaware Business Unit
(575) 200-0729
Garrett.Green@ExxonMobil.com

XTO Energy, Inc.
3104 E. Greene Street | Carlsbad, NM 88220 | M: (575)200-0729

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 173386

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 173386
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	XTO's deferral requests to complete final remediation during any future major construction/alteration or final plugging/abandonment, whichever occurs first. Ensolum and XTO do not believe deferment will result in imminent risk to human health, the environment, or groundwater. The areas requested for deferral are "FS01", "FS02", and "FS04". The areas have been delineated and documented in the report. At this time, OCD approves this request. The Deferral Request and C-141 will be accepted for record and marked accordingly. The release will remain open in OCD database files and reflect an open environmental issue. This is a federal site and will require like approval from the BLM.	5/9/2023