Form C-141
Page 6

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | nAPP2216732906 |
| District RP | |
| Facility ID | |
| Application ID | |

# Closure

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

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

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

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

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

☑ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Joseph S. Hernandez on behalf of Devon Energy  Title: Senior Geologist

Signature: Joseph S. Hernandez  Date: 9/12/2022

email: jhernandez@ensolum.com  Telephone: 281-702-2329

**OCD Only**

Received by: Jocelyn Harimon  Date: 09/13/2022

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

Closure Approved by: Robert Hamlet  Date: 12/9/2022

Printed Name: Robert Hamlet  Title: Environmental Specialist - Advanced

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

| | |
|---|---|
| Incident ID | nAPP2216732906 |
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| Facility ID | |
| Application ID | |

# Release Notification

## Responsible Party

| | |
|---|---|
| Responsible Party WPX Energy Permain, LLC | OGRID 246289 |
| Contact Name Jim Raley | Contact Telephone 575-689-7597 |
| Contact email Jim.Raley@dvn.com | Incident # *(assigned by OCD)* nAPP2216732906 |
| Contact mailing address 5315 Buena Vista Drive, Carlsbad, NM 88220 | |

## Location of Release Source

Latitude 32.0076523 Longitude -103.8658676
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name ROSS DRAW UNIT #060 | Site Type Oil |
| Date Release Discovered: 6/15/2022 | API# *(if applicable)* 30-015-41979 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| O | 27 | 26S | 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) 5 | Volume Recovered (bbls) 0 |
| ☒ Produced Water | Volume Released (bbls) 5 | Volume Recovered (bbls) 0 |
| | Is the concentration of dissolved chloride 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

Nipple on wellhead developed pinhole leak, allowing for the release of approx.. 10 bbls (5 Oil/ 5 PW) to pad surface.

$$bbl\ estimate = \frac{saturated\ soil\ volume\ (ft^3)}{4.21\left(\frac{ft^3}{bbl\ equivalent}\right)} * estimated\ soil\ porosity(\%) + \text{recovered fluids (bbl)}$$

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | nAPP2216732906 |
| District RP | |
| Facility ID | |
| Application ID | |

| | |
|---|---|
| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>☐ Yes ☒ No | If YES, for what reason(s) does the responsible party consider this a major release? |
| If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? | |

## Initial Response

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

☒ 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:

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

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

Printed Name: ___Jim Raley_____ Title: _____Environmental Professional_____

Signature: _____ Date: ___6/16/2022_____

email: _____Jim.Raley@dvn.com_____ Telephone: ___575-689-7597_____

**OCD Only**

Received by: Jocelyn Harimon Date: 06/16/2022

**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

| | |
|---|---|
| Operator:<br>WPX Energy Permian, LLC<br>Devon Energy - Regulatory<br>Oklahoma City, OK 73102 | OGRID:<br>246289 |
| | Action Number:<br>117898 |
| | Action Type:<br>[C-141] Release Corrective Action (C-141) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| jharimon | None | 6/16/2022 |

| | |
|---|---|
| Incident ID | nAPP2216732906 |
| District RP | |
| Facility ID | |
| Application ID | |

# Site Assessment/Characterization

*This information must be provided to the appropriate district office no later than 90 days after the release discovery date.*

| | |
|---|---|
| What is the shallowest depth to groundwater beneath the area affected by the release? | >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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| Incident ID | nAPP2216732906 |
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Printed Name: Joseph S. Hernandez on behalf of Devon Energy Title: Senior Geologist

Signature: Joseph S. Hernandez Date: 9/12/2022

email: jhernandez@ensolum.com Telephone: 281-702-2329

**OCD Only**

Received by: Jocelyn Harimon Date: 09/13/202

| | |
|---|---|
| Incident ID | nAPP2216732906 |
| District RP | |
| Facility ID | |
| Application ID | |

# Closure

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

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

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

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

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

☑ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Joseph S. Hernandez on behalf of Devon Energy Title: Senior Geologist

Signature: Joseph S. Hernandez Date: 9/12/2022

email: jhernandez@ensolum.com Telephone: 281-702-2329

**OCD Only**

Received by: Jocelyn Harimon Date: 09/13/2022

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

ENSOLUM

# CLOSURE REQUEST REPORT

Site Location:

**Ross Draw Unit #060**
**Eddy County, New Mexico**
**Incident Number nAPP2216732906**

September 13, 2022
Ensolum Project No. 03A1987040

Prepared for:

**WPX Energy Permian, LLC**
**5315 Buena Vista Drive**
**Carlsbad, New Mexico 88220**
**Attention: Jim Raley**

Prepared by:

Joseph S. Hernandez
Senior Geologist

Daniel R. Moir, PG
Senior Managing Geologist

## TABLE OF CONTENTS



## LIST OF APPENDICES

## 1.0 INTRODUCTION

Ensolum, LLC (Ensolum) has prepared this Closure Request Report (CRR) to document site assessment, soil sampling activities, and corrective actions performed by WPX Permian Energy, LLC (WPX) at the Ross Draw Unit #060 (hereinafter referred to as the "Site") in Unit O, Section 27, Township 26 South, Range 30 East, in Eddy County, New Mexico **(Figure 1 in Appendix A)**. Based on remedial activities performed at the Site and laboratory analytical results from delineation and confirmation soil sampling activities indicating compliance with the regulatory standards, WPX respectfully submits this CRR, which summarizes remediation and soil sampling activities associated with a reportable release of produced water and crude oil at the Site.

### 1.1 Site Description & Background

The Site is located within Eddy County, New Mexico (32.0076523° N, 103.8658676° W) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM) **(Figure 1 in Appendix A)**.

On June 15, 2022, a nipple on wellhead developed a pinhole leak, resulting in approximately 5 barrels (bbls) of oil and 5 bbls of produced water to be released to the well pad. The release was contained to the well pad. Initial response efforts included the scraping of soil impacts within the subject release. Approximately 4 cubic yards of impacted soil were excavated from the subject release area during the initial response and disposed of in accordance with state and federal regulations. WPX reported the release to the New Mexico Oil Conservation Division (NMOCD) with a subsequent Corrective Action Form C-141 (Form C-141) on June 16, 2022. The release was assigned Incident Number nAPP2216732906.

### 1.2 Site Characterization

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

Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based a soil boring (MW-1) that was drilled by Talon LPE for WPX on December 9, 2020, located approximately 0.42 miles northwest of the Site at the Ross Draw Unit #57 Well Pad (RDU 57)). Using a truck mounted drill rig equipped with hollow stem auger, the soil boring was advanced to a total depth of 110 feet bgs. No fluids were observed within the soil boring after at least 72 hours. Following the observation period, the boring was plugged and abandoned. The well log is provided as **Appendix B**. The location of the soil boring is depicted on **Figure 1 in Appendix A**.

The closest continuously flowing or significant watercourse to the Site is a dry wash, located approximately 3,624 feet northwest 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 from a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (medium potential karst designation area).

Based on the results of the Site Characterization, the following NMOCD Table 1 Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total Petroleum Hydrocarbon (TPH)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg
- TPH: 2,500 mg/kg
- Chloride: 20,000 mg/kg

## 2.0 REMEDIATION AND SOIL SAMPLING ACTIVITIES

On July 7, 2022 delineation activities were conducted by Ensolum to characterize the subject release by verifying the presence or absence of impacted soil as compared to the Closure Criteria. Delineation samples (samples designated PH) were collected in potholes advanced with heavy equipment via backhoe. Delineation activites were directed by field sceening soil for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. A total of two soil samples were collected from each delineation soil sample location (PH01 through PH06): the sample with the highest observed field screening (ranging from 0.5 feet bgs to 1-foot bgs) and the greatest depth (ranging from 1-foot bgs to 4 feet bgs). The location of the delineation samples are shown in **Figure 2 in Appendix A**. Field screening results and observations for each delineation soil sample were recorded on lithologic/soil sampling logs **(Appendix C).** The soil samples were placed directly into a pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C), under strict chain-of-custody procedures, to Eurofins LLC (Eurofins) in Carlsbad, New Mexico, for analysis of the following chemicals of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH following EPA Method 8015M/D; and chloride following EPA Method 300.0. Photographic documentation during delineation activities is included in **Appendix D.**

Cocurrently with delineation activities, Ensolum collected two composite soil samples at a sampling frequency of 200 square feet from the floor (samples designated as FS) of the excavation performed during intial response efforts to confirm impacted soil above the Closure Criteria was successfully removed. 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 and FS02 were collected from the floor of the excavation at a depth of approximately 0.25 feet bgs. Floor samples collected contained soil from the sidewall and floor due to the shallow nature of the excavation. The soil samples were handled, collected and analyzed as previously described.

The approximate extent of excavation and confirmation soil sample locations is provided on **Figure 3 Appendix A**. Photographic documentation of remediation activities is included in **Appendix D**.

## 3.0 SOIL SAMPLING RESULTS

Laboratory analytical results for delineation soil samples PH01 and PH02 indicated all COCs were within the applicable Closure Criteria within the subject release. Additionally, delineation soil samples PH01 and PH02 are vertically delineated at 4 feet bgs to the most stringent standards. Laboratory analytical results for delineation soil samples PH03 and PH06 provide lateral definition of the subject release.

Laboratory analytical results for excavation soil samples FS01 and FS02 indicated COCs were within the Closure Criteria. Laboratory analytical results are summarized in the **Table 1** included in **Appendix E**. The executed chain-of-custody forms and laboratory analytical reports are provided in **Appendix F**. **Appendix G** provides correspondence email notification receipts associated with the subject release.

## 4.0 CLOSURE REQUEST

Based on the results documented in this report, the following findings and conclusions regarding the releases are presented:

- Laboratory analytical results for delineation soil samples PH01 and PH02 indicated all COCs were within the applicable Closure Criteria within the subject release. Additionally, delineation soil samples PH01 and PH02 are vertically delineated at 4 feet bgs to the most stringent standards. Laboratory analytical results for delineation soil samples PH03 and PH06 provide lateral definition of the subject release. Laboratory analytical results for excavation soil samples FS01 and FS02 indicate COCs were within the Closure Criteria; and

- Approximately 4 cubic yards of impacted soil were excavated from the subject release area during the initial response and disposed of in accordance with state and federal regulations. The excavation was backfilled with clean, imported soil and restored to “as close to its original state” as possible.

**WPX believes the remediation activities described above have met the requirements set forth in NMAC 19.15.29.13 to be protective of human health, the environment, and groundwater. As such, WPX respectfully requests Closure of Incident Number nAPP2216732906.**

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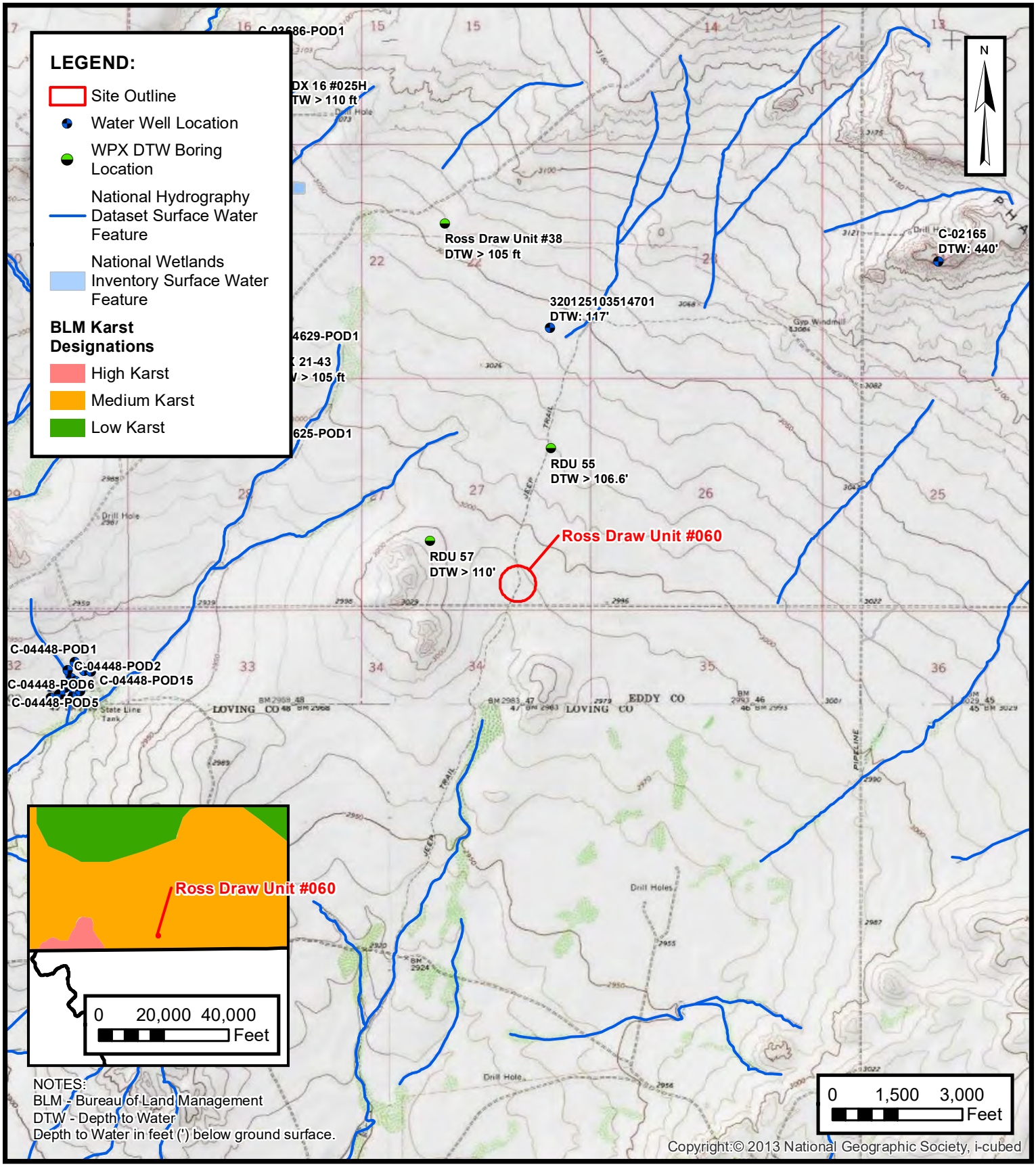
# APPENDIX A

# Figures

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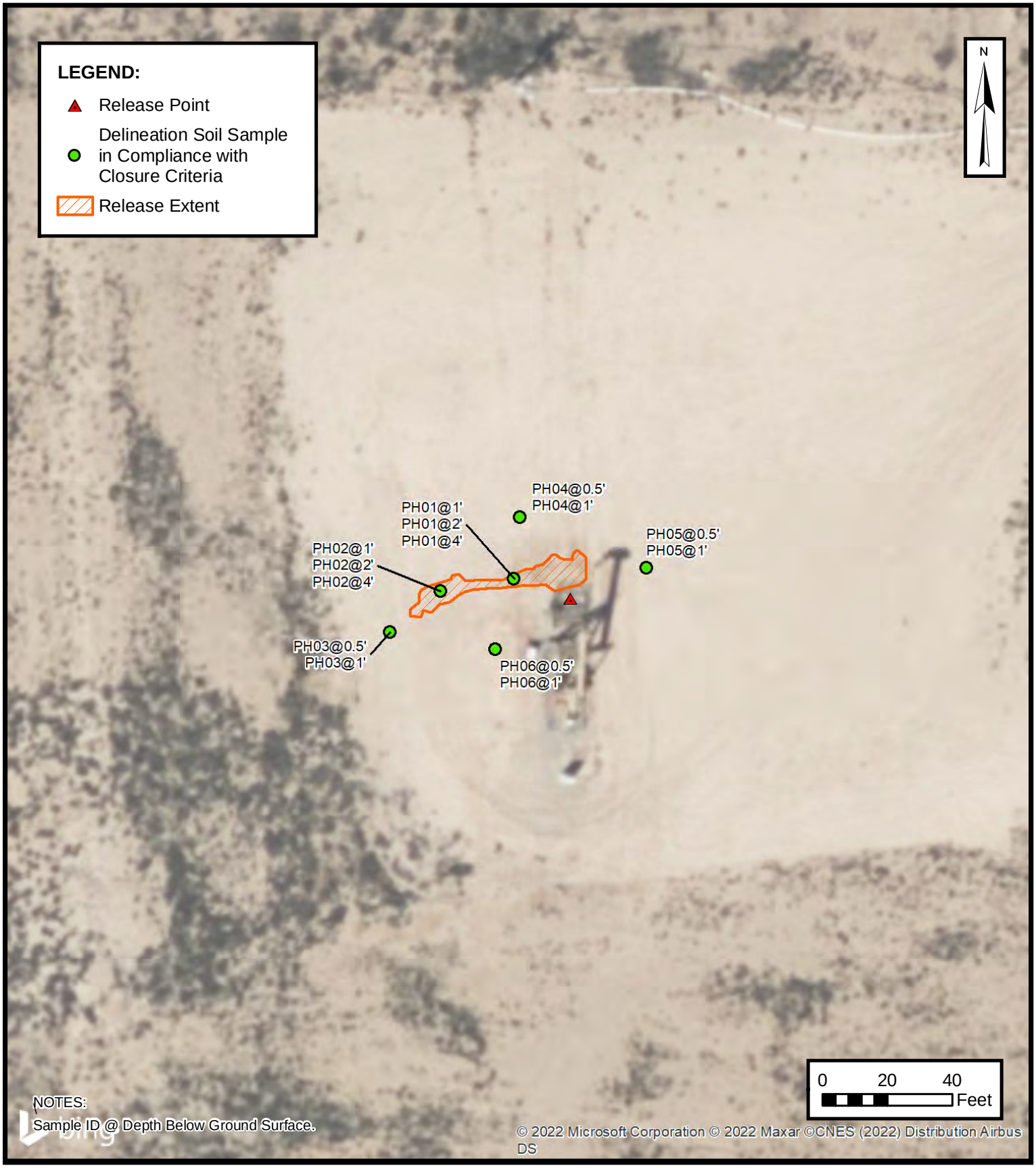
Environmental, Engineering and Hydrogeologic Consultants

**SITE MAP**

WPX ENERGY PERMIAN, LLC
ROSS DRAW UNIT #060
Unit O Sec 27 T26S R30E
Eddy County, New Mexico

**FIGURE**
**1**

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**DELINEATION SOIL SAMPLE LOCATIONS**

WPX ENERGY PERMIAN, LLC

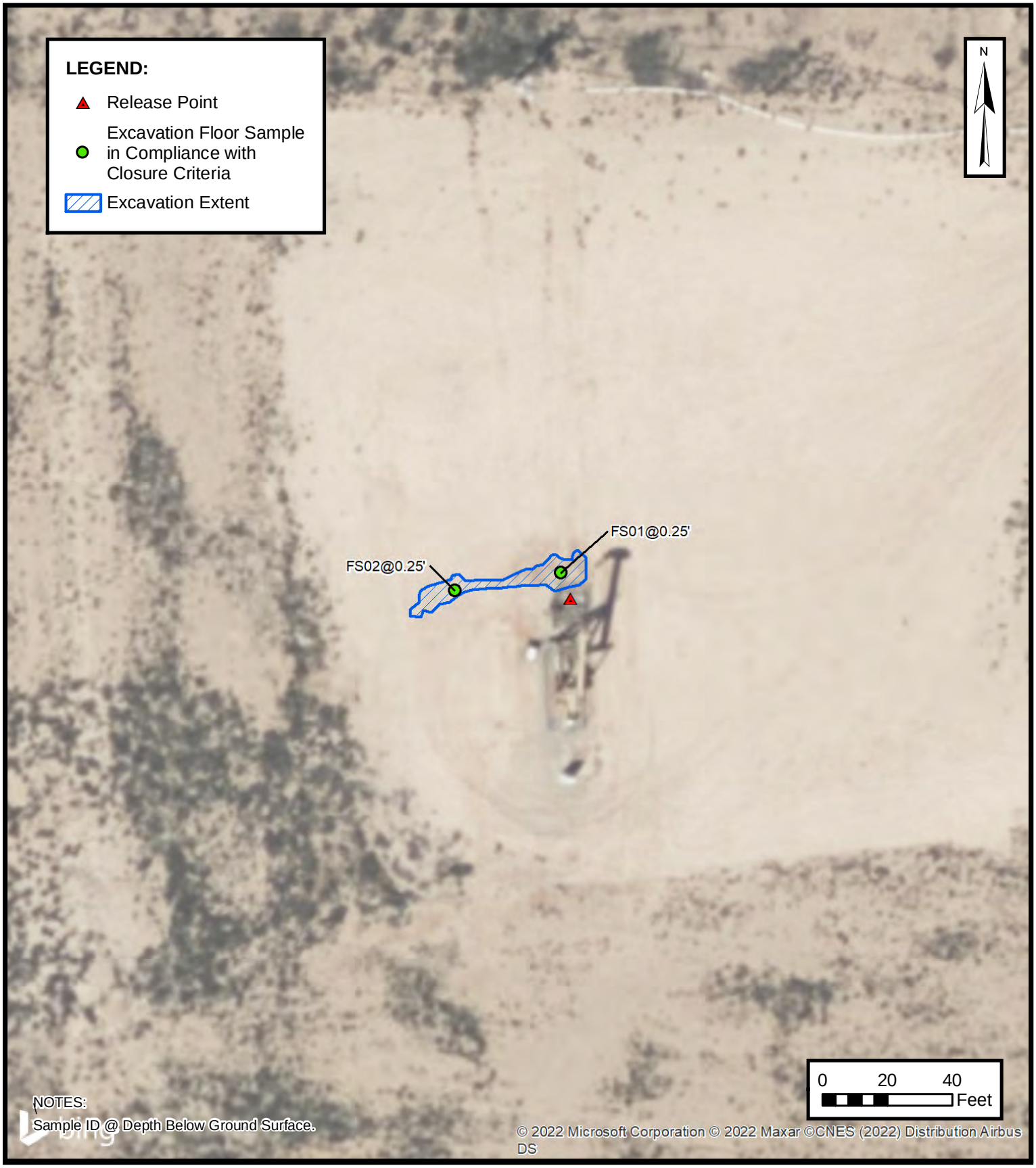
ROSS DRAW UNIT #060

Unit O Sec 27 T26S R30E

Eddy County, New Mexico

**FIGURE**

**2**

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**EXCAVATION SOIL SAMPLE LOCATIONS**

WPX ENERGY PERMIAN, LLC

ROSS DRAW UNIT #060

Unit O Sec 27 T26S R30E
Eddy County, New Mexico

**FIGURE**

**3**

ENSOLUM

# APPENDIX B

# Well Record

HRL COMPLIANCE SOLUTIONS

**BORING LOG/MONITORING WELL COMPLETION DIAGRAM**

| | | | |
|---|---|---|---|
| Boring/Well Number: MW-1 | | Location: Ross Draw Unit #57 | |
| Date: 12/9/2020 | | Client: WPX Energy | |
| Drilling Method: Air Rotary | Sampling Method: None | Logged By: J. Linn, PG | Drilled By: Talon LPE |
| Gravel Pack Type: 10/20 Sand | Gravel Pack Depth Interval: 3 Bags | Seal Type: None / Seal Depth Interval: None | Latitude: 32.01032 |
| Casing Type: PVC / Diameter: 2-inch / Depth Interval: 0-105 feet bgs | | Boring Total Depth (ft. BGS): 110 | Longitude: -103.87246 |
| Screen Type: PVC / Slot: 0.010-inch / Diameter: 2-inch / Depth Interval: 105-110 ft | | Well Total Depth (ft. BGS): 110 | Depth to Water (ft. BTOC): > 110 / DTW Date: 12/16/2020 |

| Depth Interval (ft) | Recovery (ft) | Plasticity | Moisture | Odor | Staining | PID (ppm) | USCS | Sample ID | Lithology/Remarks | Well Completion |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | NM | L/M | D | N | N | NM | SM | NS | Tan/pale orange/pale brown poorly graded fine sand | |
| 5 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 15 | | | | | | | | | | |
| 20 | | | | | | | | | | |
| 25 | | | | | | | | | | |
| 30 | | | | | | | | | | |
| 35 | | | | | | | | | | |
| 40 | NM | M | D | N | N | NM | SW | NS | Hard, dry pale pink orange well graded sand with gravel | |
| 45 | | | | | | | | | | |
| 50 | NM | M | D | N | N | NM | SM | NS | Pale orange red tan silty fine sand | |
| 55 | | | | | | | | | | |
| 60 | NM | L | D | N | N | NM | SW | NS | Dark brown greyish well graded sand | |
| 65 | | | | | | | | | | |
| 70 | NM | L/M | D to SL M | N | N | NM | SW | NS | Grey well graded sand | |
| 75 | | | | | | | | | | |
| 80 | | | | | | | | | | |
| 85 | | | | | | | | | | |
| 90 | | | | | | | | | | |
| 95 | | | | | | | | | | |
| 100 | NM | L/M | D | N | N | NM | SM | NS | Tan/pale orange/pale brown poorly graded fine sand - TD 110' bgs | |
| 105 | | | | | | | | | | |

ENSOLUM

# APPENDIX C

# Lithologic Soil Sampling Logs

ENSOLUM

| | | |
|---|---|---|
| | Sample Name: PH01 | Date: 7/5/22 |
| | Site Name: Ross Draw Unit #060 | |
| | Incident Number: nAPP2216732906 | |
| | Job Number: 03A1987040 | |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: Liz Cheli | Method: Backhoe |
| Coordinates: 32.0076523N, 103.8658676°W | Hole Diameter: NA | Total Depth: 4' |

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. No correction factors included.

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample ID | Sample Depth (ft bgs) | Depth (ft bgs) | USCS/Rock Symbol | Lithologic Descriptions |
|---|---|---|---|---|---|---|---|---|
| Excavation | | | | | | | | |
| | | | | | 0.5 | 0.5 | | |
| N | 1,832.2 | 2.0 | N | PH01 | 1 | 1 | SM | Silty sand, brown, poorly graded, fine-medium |
| N | 211.2 | 1.3 | N | PH01 | 2 | 2 | SM | SAA |
| | | | | PH01 | 3 | 3 | | |
| N | 369.6 | 0.7 | N | PH01 | 4 | 4 | SM | SAA |
| | | | | | | Total Depth | | |

ENSOLUM

| | | |
|---|---|---|
| | Sample Name: PH02 | Date: 7/5/22 |
| | Site Name: Ross Draw Unit #060 | |
| | Incident Number: nAPP2216732906 | |
| | Job Number: 03A1987040 | |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: Liz Cheli | Method: Backhoe |
| Coordinates: 32.0076523N, 103.8658676°W | Hole Diameter: NA | Total Depth: 4' |

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. No correction factors included. SAA - Same As Above

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample ID | Sample Depth (ft bgs) | Depth (ft bgs) | USCS/Rock Symbol | Lithologic Descriptions |
|---|---|---|---|---|---|---|---|---|
| Excavation | | | | | | | | |
| | | | | | 0.5 | 0.5 | | |
| N | 1,002.4 | 0.7 | N | PH02 | 1 | 1 | SM | Silty sand, brown, poorly graded, fine-medium |
| N | 1,702.4 | 0.8 | N | PH02 | 2 | 2 | SM | SAA |
| | | | | PH02 | 3 | 3 | | |
| N | 582.4 | 0.8 | N | PH02 | 4 | 4 | SM | SAA |
| Total Depth | | | | | | | | |

ENSOLUM

| | | |
|---|---|---|
| | Sample Name: PH03 | Date: 7/5/22 |
| | Site Name: Ross Draw Unit #060 | |
| | Incident Number: nAPP2216732906 | |
| | Job Number: 03A1987040 | |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: Liz Cheli | Method: Backhoe |
| Coordinates: 32.0076523N, 103.8658676°W | Hole Diameter: NA | Total Depth: 1' |

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. No correction factors included.

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample ID | Sample Depth (ft bgs) | Depth (ft bgs) | USCS/Rock Symbol | Lithologic Descriptions |
|---|---|---|---|---|---|---|---|---|
| N | <168 | 0.1 | N | PH03 | 0.5 | 0.5 | SM | Silty sand, brown, poorly graded, fine-medium |
| N | <168 | 0.1 | N | PH03 | 1 | 1 | SM | SAA |

Total Depth

ENSOLUM

| | | |
|---|---|---|
| | Sample Name: PH04 | Date: 7/5/22 |
| | Site Name: Ross Draw Unit #060 | |
| | Incident Number: nAPP2216732906 | |
| | Job Number: 03A1987040 | |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: Liz Cheli | Method: Backhoe |
| Coordinates: 32.0076523N, 103.8658676°W | Hole Diameter: NA | Total Depth: 1' |

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. No correction factors included.

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample ID | Sample Depth (ft bgs) | Depth (ft bgs) | USCS/Rock Symbol | Lithologic Descriptions |
|---|---|---|---|---|---|---|---|---|
| N | 470.4 | 0 | N | PH04 | 0.5 | 0.5 | SM | Silty sand, brown, poorly graded, fine-medium |
| N | 280 | 0.4 | N | PH04 | 1 | 1 | SM | SAA |

Total Depth

ENSOLUM

| | | |
|---|---|---|
| | Sample Name: PH05 | Date: 7/5/22 |
| | Site Name: Ross Draw Unit #060 | |
| | Incident Number: nAPP2216732906 | |
| | Job Number: 03A1987040 | |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: Liz Cheli | Method: Backhoe |
| Coordinates: 32.0076523N, 103.8658676°W | Hole Diameter: NA | Total Depth: 1' |

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. No correction factors included.

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample ID | Sample Depth (ft bgs) | Depth (ft bgs) | USCS/Rock Symbol | Lithologic Descriptions |
|---|---|---|---|---|---|---|---|---|
| N | 520.8 | 0.1 | N | PH05 | 0.5 | 0.5 | SM | Silty sand, brown, poorly graded, fine-medium |
| N | <168 | 0.1 | N | PH05 | 1 | 1 | SM | SAA |

Total Depth

ENSOLUM

| | | |
|---|---|---|
| | Sample Name: PH06 | Date: 7/5/22 |
| | Site Name: Ross Draw Unit #060 | |
| | Incident Number: nAPP2216732906 | |
| | Job Number: 03A1987040 | |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: Liz Cheli | Method: Backhoe |
| Coordinates: 32.0076523N, 103.8658676°W | Hole Diameter: NA | Total Depth: 1' |

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. No correction factors included.

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample ID | Sample Depth (ft bgs) | Depth (ft bgs) | USCS/Rock Symbol | Lithologic Descriptions |
|---|---|---|---|---|---|---|---|---|
| N | <168 | 0.8 | N | PH06 | 0.5 | 0.5 | SM | Silty sand, brown, poorly graded, fine-medium |
| N | <168 | 0.3 | N | PH06 | 1 | 1 | SM | SAA |

Total Depth

ENSOLUM

# APPENDIX D

# Photographic Log

ENSOLUM

**Photographic Log**
WPX Energy Permian, LLC
Ross Draw Unit #060
Incident Number nAPP2216732906
Ensolum Job Number: 03A19870040

**Photograph 1**
*Date: June 15, 2022*
*Description: View of the subject release area.*


**Photograph 2**
*Date: July 5, 2022*
*Description: View of the Site during delineation activities.*

**Photograph 3**
*Date: July 21, 2022*
*Description: View of the Site following restoration activities.*

**Photograph 4**
*Date: July 21, 2022*
*Description: View of the Site following restoration activities.*

ENSOLUM

# APPENDIX E

# Tables

ENSOLUM

**TABLE 1**
**SOIL SAMPLE ANALYTICAL RESULTS**
**WPX Energy Permian, LLC - Ross Draw Unit #060**
**Eddy County, New Mexico**
**Ensolum Project No. 03A1987040**

| Sample I.D. | Sample Date | Sample Depth (feet bgs) | Benzene (mg/kg) | Total BTEX (mg/kg) | TPH GRO (mg/kg) | TPH DRO (mg/kg) | TPH ORO (mg/kg) | GRO+DRO (mg/kg) | Total TPH (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| **NMOCD Table 1 Closure Criteria (NMAC 19.15.29)** | | | **10** | **50** | **NE** | **NE** | **NE** | **1,000** | **2,500** | **20,000** |
| **Delineation Soil Sample Analytical Results** | | | | | | | | | | |
| PH01 | 07/05/2022 | 1 | <0.00202 | <0.00403 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 1,620 |
| PH01 | 07/05/2022 | 2 | <0.00200 | <0.00399 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 1,630 |
| PH01 | 07/05/2022 | 4 | <0.00200 | <0.00401 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 402 |
| PH02 | 07/05/2022 | 1 | <0.00201 | <0.00402 | <49.8 | <49.8 | <49.8 | <49.8 | <49.8 | 901 |
| PH02 | 07/05/2022 | 2 | <0.00200 | <0.00399 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 1,440 |
| PH02 | 07/05/2022 | 4 | <0.00201 | <0.00402 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 561 |
| PH03 | 07/05/2022 | 0.5 | <0.00200 | <0.00401 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 26.4 |
| PH03 | 07/05/2022 | 1 | <0.00201 | <0.00402 | <49.8 | <49.8 | <49.8 | <49.8 | <49.8 | 37.2 |
| PH04 | 07/05/2022 | 0.5 | <0.00200 | <0.00399 | <49.8 | <49.8 | <49.8 | <49.8 | <49.8 | 410 |
| PH04 | 07/05/2022 | 1 | <0.00201 | <0.00402 | 88.9 | <49.9 | <49.9 | 88.9 | 88.9 | 259 |
| PH05 | 07/05/2022 | 0.5 | <0.00200 | <0.00399 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | 568 |
| PH05 | 07/05/2022 | 1 | <0.00200 | <0.00399 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 138 |
| PH06 | 07/05/2022 | 0.5 | <0.00201 | <0.00402 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | 130 |
| PH06 | 07/05/2022 | 1 | <0.00200 | <0.00401 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | 172 |
| **Excavation Soil Sample Analytical Results** | | | | | | | | | | |
| FS01 | 07/05/2022 | 0.25 | <0.00200 | <0.00399 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 444 |
| FS02 | 07/05/2022 | 0.25 | <0.00199 | <0.00398 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | 1,860 |

***Notes:***

*bgs: below ground surface*
*mg/kg: milligrams per kilogram*

*NMOCD: New Mexico Oil Conservation Division*
*BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes*

*DRO: Diesel Range Organics*

TPH: Total Petroleum Hydrocarbon
*ORO: Oil Range Organics*

*Concentrations in **bold** exceed the NMOCD Table 1 Closure Criteria and/or Reclamation Standard for Soils Impacted by a Release*

ENSOLUM

# APPENDIX F

# 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: 890-2504-1
Laboratory Sample Delivery Group: 03A1987040
Client Project/Site: RDU 60

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

Attn: Joseph Hernandez

JKramer

*Authorized for release by:*
*7/15/2022 9:13:14 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: RDU 60

Laboratory Job ID: 890-2504-1
SDG: 03A1987040

# Table of Contents

# Definitions/Glossary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## Qualifiers

### GC VOA

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

### GC Semi VOA

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

### HPLC/IC

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

## Glossary

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

# Case Narrative

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## Job ID: 890-2504-1

**Laboratory: Eurofins Carlsbad**

**Narrative**

**Job Narrative**
**890-2504-1**

**Receipt**
The samples were received on 7/6/2022 9:09 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

**GC VOA**
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 880-29204 and analytical batch 880-29449 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: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## Client Sample ID: PH01

**Lab Sample ID: 890-2504-1**
**Matrix: Solid**
**Date Collected: 07/05/22 11:40**
**Date Received: 07/06/22 09:09**
**Sample Depth: 1'**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00202 | U | 0.00202 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 04:51 | 1 |
| Toluene | <0.00202 | U | 0.00202 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 04:51 | 1 |
| Ethylbenzene | <0.00202 | U | 0.00202 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 04:51 | 1 |
| m-Xylene & p-Xylene | <0.00403 | U | 0.00403 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 04:51 | 1 |
| o-Xylene | <0.00202 | U | 0.00202 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 04:51 | 1 |
| Xylenes, Total | <0.00403 | U | 0.00403 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 04:51 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *108* | | *70 - 130* | *07/12/22 15:37* | *07/15/22 04:51* | *1* |
| *1,4-Difluorobenzene (Surr)* | *92* | | *70 - 130* | *07/12/22 15:37* | *07/15/22 04:51* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00403 | U | 0.00403 | | mg/Kg | | | 07/15/22 09:56 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <50.0 | U | 50.0 | | mg/Kg | | | 07/08/22 09:27 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 19:49 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 19:49 | 1 |
| OII Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 19:49 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *90* | | *70 - 130* | *07/07/22 09:20* | *07/07/22 19:49* | *1* |
| *o-Terphenyl* | *100* | | *70 - 130* | *07/07/22 09:20* | *07/07/22 19:49* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **1620** | | 24.9 | | mg/Kg | | | 07/12/22 08:23 | 5 |

## Client Sample ID: PH01

**Lab Sample ID: 890-2504-2**
**Matrix: Solid**
**Date Collected: 07/05/22 11:45**
**Date Received: 07/06/22 09:09**
**Sample Depth: 2'**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:12 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:12 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:12 | 1 |
| m-Xylene & p-Xylene | <0.00399 | U | 0.00399 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:12 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:12 | 1 |
| Xylenes, Total | <0.00399 | U | 0.00399 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:12 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *109* | | *70 - 130* | *07/12/22 15:37* | *07/15/22 05:12* | *1* |

Eurofins Carlsbad

# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## Client Sample ID: PH01

**Lab Sample ID: 890-2504-2**
**Matrix: Solid**
**Date Collected: 07/05/22 11:45**
**Date Received: 07/06/22 09:09**
**Sample Depth: 2'**

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

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,4-Difluorobenzene (Surr)* | *94* | | *70 - 130* | *07/12/22 15:37* | *07/15/22 05:12* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00399 | U | 0.00399 | | mg/Kg | | | 07/15/22 09:56 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <50.0 | U | 50.0 | | mg/Kg | | | 07/08/22 09:27 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 20:10 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 20:10 | 1 |
| OII Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 20:10 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *91* | | *70 - 130* | *07/07/22 09:20* | *07/07/22 20:10* | *1* |
| *o-Terphenyl* | *100* | | *70 - 130* | *07/07/22 09:20* | *07/07/22 20:10* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **1630** | | 25.0 | | mg/Kg | | | 07/12/22 08:32 | 5 |

## Client Sample ID: PH02

**Lab Sample ID: 890-2504-3**
**Matrix: Solid**
**Date Collected: 07/05/22 12:10**
**Date Received: 07/06/22 09:09**
**Sample Depth: 1'**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:32 | 1 |
| Toluene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:32 | 1 |
| Ethylbenzene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:32 | 1 |
| m-Xylene & p-Xylene | <0.00402 | U | 0.00402 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:32 | 1 |
| o-Xylene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:32 | 1 |
| Xylenes, Total | <0.00402 | U | 0.00402 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:32 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *110* | | *70 - 130* | *07/12/22 15:37* | *07/15/22 05:32* | *1* |
| *1,4-Difluorobenzene (Surr)* | *92* | | *70 - 130* | *07/12/22 15:37* | *07/15/22 05:32* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00402 | U | 0.00402 | | mg/Kg | | | 07/15/22 09:56 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <49.8 | U | 49.8 | | mg/Kg | | | 07/08/22 09:27 | 1 |

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# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## Client Sample ID: PH02

**Lab Sample ID: 890-2504-3**
**Matrix: Solid**
**Date Collected: 07/05/22 12:10**
**Date Received: 07/06/22 09:09**
**Sample Depth: 1'**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <49.8 | U | 49.8 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 20:32 | 1 |
| Diesel Range Organics (Over C10-C28) | <49.8 | U | 49.8 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 20:32 | 1 |
| Oil Range Organics (Over C28-C36) | <49.8 | U | 49.8 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 20:32 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *89* | | *70 - 130* | *07/07/22 09:20* | *07/07/22 20:32* | *1* |
| *o-Terphenyl* | *99* | | *70 - 130* | *07/07/22 09:20* | *07/07/22 20:32* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **901** | | 24.8 | | mg/Kg | | | 07/12/22 08:42 | 5 |

## Client Sample ID: PH02

**Lab Sample ID: 890-2504-4**
**Matrix: Solid**
**Date Collected: 07/05/22 12:15**
**Date Received: 07/06/22 09:09**
**Sample Depth: 2'**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:53 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:53 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:53 | 1 |
| m-Xylene & p-Xylene | <0.00399 | U | 0.00399 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:53 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:53 | 1 |
| Xylenes, Total | <0.00399 | U | 0.00399 | | mg/Kg | | 07/12/22 15:37 | 07/15/22 05:53 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *108* | | *70 - 130* | *07/12/22 15:37* | *07/15/22 05:53* | *1* |
| *1,4-Difluorobenzene (Surr)* | *93* | | *70 - 130* | *07/12/22 15:37* | *07/15/22 05:53* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00399 | U | 0.00399 | | mg/Kg | | | 07/15/22 09:56 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <50.0 | U | 50.0 | | mg/Kg | | | 07/08/22 09:27 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 20:53 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 20:53 | 1 |
| Oil Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 20:53 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *100* | | *70 - 130* | *07/07/22 09:20* | *07/07/22 20:53* | *1* |
| *o-Terphenyl* | *114* | | *70 - 130* | *07/07/22 09:20* | *07/07/22 20:53* | *1* |

# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

**Client Sample ID: PH02**
**Date Collected: 07/05/22 12:15**
**Date Received: 07/06/22 09:09**
**Sample Depth: 2'**

**Lab Sample ID: 890-2504-4**
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1440 | | 25.2 | | mg/Kg | | | 07/12/22 08:51 | 5 |

# Surrogate Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## 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) | | | | | | | | | | |
| 890-2501-A-3-E MS | Matrix Spike | 102 | 97 | | | | | | | | | | |
| 890-2501-A-3-F MSD | Matrix Spike Duplicate | 106 | 98 | | | | | | | | | | |
| 890-2504-1 | PH01 | 108 | 92 | | | | | | | | | | |
| 890-2504-2 | PH01 | 109 | 94 | | | | | | | | | | |
| 890-2504-3 | PH02 | 110 | 92 | | | | | | | | | | |
| 890-2504-4 | PH02 | 108 | 93 | | | | | | | | | | |
| LCS 880-29565/1-A | Lab Control Sample | 102 | 95 | | | | | | | | | | |
| LCSD 880-29565/2-A | Lab Control Sample Dup | 102 | 96 | | | | | | | | | | |
| MB 880-29565/5-A | Method Blank | 99 | 89 | | | | | | | | | | |
| MB 880-29668/5-A | Method Blank | 95 | 87 | | | | | | | | | | |

**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) | | | | | | | | | | |
| 880-16646-A-1-B MS | Matrix Spike | 104 | 102 | | | | | | | | | | |
| 880-16646-A-1-C MSD | Matrix Spike Duplicate | 109 | 108 | | | | | | | | | | |
| 890-2504-1 | PH01 | 90 | 100 | | | | | | | | | | |
| 890-2504-2 | PH01 | 91 | 100 | | | | | | | | | | |
| 890-2504-3 | PH02 | 89 | 99 | | | | | | | | | | |
| 890-2504-4 | PH02 | 100 | 114 | | | | | | | | | | |
| LCS 880-29181/2-A | Lab Control Sample | 101 | 103 | | | | | | | | | | |
| LCSD 880-29181/3-A | Lab Control Sample Dup | 100 | 104 | | | | | | | | | | |
| MB 880-29181/1-A | Method Blank | 97 | 115 | | | | | | | | | | |

**Surrogate Legend**

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

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

**Lab Sample ID: MB 880-29565/5-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 29565**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/14/22 23:00 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/14/22 23:00 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/14/22 23:00 | 1 |
| m-Xylene & p-Xylene | <0.00400 | U | 0.00400 | | mg/Kg | | 07/12/22 15:37 | 07/14/22 23:00 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/12/22 15:37 | 07/14/22 23:00 | 1 |
| Xylenes, Total | <0.00400 | U | 0.00400 | | mg/Kg | | 07/12/22 15:37 | 07/14/22 23:00 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *99* | | *70 - 130* | *07/12/22 15:37* | *07/14/22 23:00* | *1* |
| *1,4-Difluorobenzene (Surr)* | *89* | | *70 - 130* | *07/12/22 15:37* | *07/14/22 23:00* | *1* |

**Lab Sample ID: LCS 880-29565/1-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29565**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.100 | 0.09282 | | mg/Kg | | 93 | 70 - 130 |
| Toluene | 0.100 | 0.09125 | | mg/Kg | | 91 | 70 - 130 |
| Ethylbenzene | 0.100 | 0.09538 | | mg/Kg | | 95 | 70 - 130 |
| m-Xylene & p-Xylene | 0.200 | 0.1877 | | mg/Kg | | 94 | 70 - 130 |
| o-Xylene | 0.100 | 0.1042 | | mg/Kg | | 104 | 70 - 130 |

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

**Lab Sample ID: LCSD 880-29565/2-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 29565**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.100 | 0.07602 | | mg/Kg | | 76 | 70 - 130 | 20 | 35 |
| Toluene | 0.100 | 0.07517 | | mg/Kg | | 75 | 70 - 130 | 19 | 35 |
| Ethylbenzene | 0.100 | 0.07767 | | mg/Kg | | 78 | 70 - 130 | 20 | 35 |
| m-Xylene & p-Xylene | 0.200 | 0.1540 | | mg/Kg | | 77 | 70 - 130 | 20 | 35 |
| o-Xylene | 0.100 | 0.08619 | | mg/Kg | | 86 | 70 - 130 | 19 | 35 |

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

**Lab Sample ID: 890-2501-A-3-E MS**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29565**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.0994 | 0.08428 | | mg/Kg | | 85 | 70 - 130 |
| Toluene | <0.00200 | U | 0.0994 | 0.07480 | | mg/Kg | | 75 | 70 - 130 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

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

**Lab Sample ID: 890-2501-A-3-E MS**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29565**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | <0.00200 | U | 0.0994 | 0.07956 | | mg/Kg | | 80 | 70 - 130 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.199 | 0.1542 | | mg/Kg | | 76 | 70 - 130 |
| o-Xylene | <0.00200 | U | 0.0994 | 0.09184 | | mg/Kg | | 92 | 70 - 130 |

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

**Lab Sample ID: 890-2501-A-3-F MSD**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 29565**

| 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 | 0.09404 | | mg/Kg | | 94 | 70 - 130 | 11 | 35 |
| Toluene | <0.00200 | U | 0.0998 | 0.08567 | | mg/Kg | | 86 | 70 - 130 | 14 | 35 |
| Ethylbenzene | <0.00200 | U | 0.0998 | 0.08962 | | mg/Kg | | 90 | 70 - 130 | 12 | 35 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.200 | 0.1741 | | mg/Kg | | 86 | 70 - 130 | 12 | 35 |
| o-Xylene | <0.00200 | U | 0.0998 | 0.1030 | | mg/Kg | | 103 | 70 - 130 | 11 | 35 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *106* | | *70 - 130* |
| *1,4-Difluorobenzene (Surr)* | *98* | | *70 - 130* |

**Lab Sample ID: MB 880-29668/5-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| m-Xylene & p-Xylene | <0.00400 | U | 0.00400 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Xylenes, Total | <0.00400 | U | 0.00400 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *95* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 12:09* | *1* |
| *1,4-Difluorobenzene (Surr)* | *87* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 12:09* | *1* |

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

**Lab Sample ID: MB 880-29181/1-A**
**Matrix: Solid**
**Analysis Batch: 29163**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 29181**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 11:43 | 1 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

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

**Lab Sample ID: MB 880-29181/1-A**
**Matrix: Solid**
**Analysis Batch: 29163**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 29181**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 11:43 | 1 |
| OII Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:20 | 07/07/22 11:43 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *97* | | *70 - 130* | *07/07/22 09:20* | *07/07/22 11:43* | *1* |
| *o-Terphenyl* | *115* | | *70 - 130* | *07/07/22 09:20* | *07/07/22 11:43* | *1* |

**Lab Sample ID: LCS 880-29181/2-A**
**Matrix: Solid**
**Analysis Batch: 29163**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29181**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | 1000 | 773.3 | | mg/Kg | | 77 | 70 - 130 |
| Diesel Range Organics (Over C10-C28) | 1000 | 986.5 | | mg/Kg | | 99 | 70 - 130 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1-Chlorooctane* | *101* | | *70 - 130* |
| *o-Terphenyl* | *103* | | *70 - 130* |

**Lab Sample ID: LCSD 880-29181/3-A**
**Matrix: Solid**
**Analysis Batch: 29163**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 29181**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | 1000 | 767.7 | | mg/Kg | | 77 | 70 - 130 | 1 | 20 |
| Diesel Range Organics (Over C10-C28) | 1000 | 1004 | | mg/Kg | | 100 | 70 - 130 | 2 | 20 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *1-Chlorooctane* | *100* | | *70 - 130* |
| *o-Terphenyl* | *104* | | *70 - 130* |

**Lab Sample ID: 880-16646-A-1-B MS**
**Matrix: Solid**
**Analysis Batch: 29163**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29181**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <49.9 | U | 996 | 963.7 | | mg/Kg | | 97 | 70 - 130 |
| Diesel Range Organics (Over C10-C28) | <49.9 | U | 996 | 967.3 | | mg/Kg | | 95 | 70 - 130 |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *1-Chlorooctane* | *104* | | *70 - 130* |
| *o-Terphenyl* | *102* | | *70 - 130* |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

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

**Lab Sample ID: 880-16646-A-1-C MSD** — **Client Sample ID: Matrix Spike Duplicate**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 29163** — **Prep Batch: 29181**

| 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 | 995 | 1073 | | mg/Kg | | 108 | 70 - 130 | 11 | 20 |
| Diesel Range Organics (Over C10-C28) | <49.9 | U | 995 | 1016 | | mg/Kg | | 100 | 70 - 130 | 5 | 20 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *1-Chlorooctane* | *109* | | *70 - 130* |
| *o-Terphenyl* | *108* | | *70 - 130* |

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 880-29204/1-A** — **Client Sample ID: Method Blank**
**Matrix: Solid** — **Prep Type: Soluble**
**Analysis Batch: 29449**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.00 | U | 5.00 | | mg/Kg | | | 07/12/22 07:28 | 1 |

**Lab Sample ID: LCS 880-29204/2-A** — **Client Sample ID: Lab Control Sample**
**Matrix: Solid** — **Prep Type: Soluble**
**Analysis Batch: 29449**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Chloride | 250 | 264.5 | | mg/Kg | | 106 | 90 - 110 |

**Lab Sample ID: LCSD 880-29204/3-A** — **Client Sample ID: Lab Control Sample Dup**
**Matrix: Solid** — **Prep Type: Soluble**
**Analysis Batch: 29449**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 250 | 263.0 | | mg/Kg | | 105 | 90 - 110 | 1 | 20 |

**Lab Sample ID: 890-2503-A-13-C MS** — **Client Sample ID: Matrix Spike**
**Matrix: Solid** — **Prep Type: Soluble**
**Analysis Batch: 29449**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 5650 | F1 | 2490 | 7657 | F1 | mg/Kg | | 81 | 90 - 110 |

**Lab Sample ID: 890-2503-A-13-D MSD** — **Client Sample ID: Matrix Spike Duplicate**
**Matrix: Solid** — **Prep Type: Soluble**
**Analysis Batch: 29449**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 5650 | F1 | 2490 | 7625 | F1 | mg/Kg | | 79 | 90 - 110 | 0 | 20 |

# QC Association Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## GC VOA

### Prep Batch: 29565

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2504-1 | PH01 | Total/NA | Solid | 5035 | |
| 890-2504-2 | PH01 | Total/NA | Solid | 5035 | |
| 890-2504-3 | PH02 | Total/NA | Solid | 5035 | |
| 890-2504-4 | PH02 | Total/NA | Solid | 5035 | |
| MB 880-29565/5-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 880-29565/1-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| LCSD 880-29565/2-A | Lab Control Sample Dup | Total/NA | Solid | 5035 | |
| 890-2501-A-3-E MS | Matrix Spike | Total/NA | Solid | 5035 | |
| 890-2501-A-3-F MSD | Matrix Spike Duplicate | Total/NA | Solid | 5035 | |

### Prep Batch: 29668

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| MB 880-29668/5-A | Method Blank | Total/NA | Solid | 5035 | |

### Analysis Batch: 29704

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2504-1 | PH01 | Total/NA | Solid | 8021B | 29565 |
| 890-2504-2 | PH01 | Total/NA | Solid | 8021B | 29565 |
| 890-2504-3 | PH02 | Total/NA | Solid | 8021B | 29565 |
| 890-2504-4 | PH02 | Total/NA | Solid | 8021B | 29565 |
| MB 880-29565/5-A | Method Blank | Total/NA | Solid | 8021B | 29565 |
| MB 880-29668/5-A | Method Blank | Total/NA | Solid | 8021B | 29668 |
| LCS 880-29565/1-A | Lab Control Sample | Total/NA | Solid | 8021B | 29565 |
| LCSD 880-29565/2-A | Lab Control Sample Dup | Total/NA | Solid | 8021B | 29565 |
| 890-2501-A-3-E MS | Matrix Spike | Total/NA | Solid | 8021B | 29565 |
| 890-2501-A-3-F MSD | Matrix Spike Duplicate | Total/NA | Solid | 8021B | 29565 |

### Analysis Batch: 29824

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2504-1 | PH01 | Total/NA | Solid | Total BTEX | |
| 890-2504-2 | PH01 | Total/NA | Solid | Total BTEX | |
| 890-2504-3 | PH02 | Total/NA | Solid | Total BTEX | |
| 890-2504-4 | PH02 | Total/NA | Solid | Total BTEX | |

## GC Semi VOA

### Analysis Batch: 29163

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2504-1 | PH01 | Total/NA | Solid | 8015B NM | 29181 |
| 890-2504-2 | PH01 | Total/NA | Solid | 8015B NM | 29181 |
| 890-2504-3 | PH02 | Total/NA | Solid | 8015B NM | 29181 |
| 890-2504-4 | PH02 | Total/NA | Solid | 8015B NM | 29181 |
| MB 880-29181/1-A | Method Blank | Total/NA | Solid | 8015B NM | 29181 |
| LCS 880-29181/2-A | Lab Control Sample | Total/NA | Solid | 8015B NM | 29181 |
| LCSD 880-29181/3-A | Lab Control Sample Dup | Total/NA | Solid | 8015B NM | 29181 |
| 880-16646-A-1-B MS | Matrix Spike | Total/NA | Solid | 8015B NM | 29181 |
| 880-16646-A-1-C MSD | Matrix Spike Duplicate | Total/NA | Solid | 8015B NM | 29181 |

### Prep Batch: 29181

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2504-1 | PH01 | Total/NA | Solid | 8015NM Prep | |

# QC Association Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## GC Semi VOA (Continued)

### Prep Batch: 29181 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2504-2 | PH01 | Total/NA | Solid | 8015NM Prep | |
| 890-2504-3 | PH02 | Total/NA | Solid | 8015NM Prep | |
| 890-2504-4 | PH02 | Total/NA | Solid | 8015NM Prep | |
| MB 880-29181/1-A | Method Blank | Total/NA | Solid | 8015NM Prep | |
| LCS 880-29181/2-A | Lab Control Sample | Total/NA | Solid | 8015NM Prep | |
| LCSD 880-29181/3-A | Lab Control Sample Dup | Total/NA | Solid | 8015NM Prep | |
| 880-16646-A-1-B MS | Matrix Spike | Total/NA | Solid | 8015NM Prep | |
| 880-16646-A-1-C MSD | Matrix Spike Duplicate | Total/NA | Solid | 8015NM Prep | |

### Analysis Batch: 29268

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2504-1 | PH01 | Total/NA | Solid | 8015 NM | |
| 890-2504-2 | PH01 | Total/NA | Solid | 8015 NM | |
| 890-2504-3 | PH02 | Total/NA | Solid | 8015 NM | |
| 890-2504-4 | PH02 | Total/NA | Solid | 8015 NM | |

## HPLC/IC

### Leach Batch: 29204

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2504-1 | PH01 | Soluble | Solid | DI Leach | |
| 890-2504-2 | PH01 | Soluble | Solid | DI Leach | |
| 890-2504-3 | PH02 | Soluble | Solid | DI Leach | |
| 890-2504-4 | PH02 | Soluble | Solid | DI Leach | |
| MB 880-29204/1-A | Method Blank | Soluble | Solid | DI Leach | |
| LCS 880-29204/2-A | Lab Control Sample | Soluble | Solid | DI Leach | |
| LCSD 880-29204/3-A | Lab Control Sample Dup | Soluble | Solid | DI Leach | |
| 890-2503-A-13-C MS | Matrix Spike | Soluble | Solid | DI Leach | |
| 890-2503-A-13-D MSD | Matrix Spike Duplicate | Soluble | Solid | DI Leach | |

### Analysis Batch: 29449

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2504-1 | PH01 | Soluble | Solid | 300.0 | 29204 |
| 890-2504-2 | PH01 | Soluble | Solid | 300.0 | 29204 |
| 890-2504-3 | PH02 | Soluble | Solid | 300.0 | 29204 |
| 890-2504-4 | PH02 | Soluble | Solid | 300.0 | 29204 |
| MB 880-29204/1-A | Method Blank | Soluble | Solid | 300.0 | 29204 |
| LCS 880-29204/2-A | Lab Control Sample | Soluble | Solid | 300.0 | 29204 |
| LCSD 880-29204/3-A | Lab Control Sample Dup | Soluble | Solid | 300.0 | 29204 |
| 890-2503-A-13-C MS | Matrix Spike | Soluble | Solid | 300.0 | 29204 |
| 890-2503-A-13-D MSD | Matrix Spike Duplicate | Soluble | Solid | 300.0 | 29204 |

# Lab Chronicle

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## Client Sample ID: PH01
**Date Collected: 07/05/22 11:40**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2504-1
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 4.96 g | 5 mL | 29565 | 07/12/22 15:37 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/15/22 04:51 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29824 | 07/15/22 09:56 | SM | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29268 | 07/08/22 09:27 | SM | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.01 g | 10 mL | 29181 | 07/07/22 09:20 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29163 | 07/07/22 19:49 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5.02 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 5 | | | 29449 | 07/12/22 08:23 | CH | XEN MID |

## Client Sample ID: PH01
**Date Collected: 07/05/22 11:45**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2504-2
**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 | 29565 | 07/12/22 15:37 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/15/22 05:12 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29824 | 07/15/22 09:56 | SM | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29268 | 07/08/22 09:27 | SM | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.00 g | 10 mL | 29181 | 07/07/22 09:20 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29163 | 07/07/22 20:10 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 5 | | | 29449 | 07/12/22 08:32 | CH | XEN MID |

## Client Sample ID: PH02
**Date Collected: 07/05/22 12:10**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2504-3
**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 | | | 4.98 g | 5 mL | 29565 | 07/12/22 15:37 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/15/22 05:32 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29824 | 07/15/22 09:56 | SM | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29268 | 07/08/22 09:27 | SM | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.05 g | 10 mL | 29181 | 07/07/22 09:20 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29163 | 07/07/22 20:32 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5.05 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 5 | | | 29449 | 07/12/22 08:42 | CH | XEN MID |

## Client Sample ID: PH02
**Date Collected: 07/05/22 12:15**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2504-4
**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 | | | 5.01 g | 5 mL | 29565 | 07/12/22 15:37 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/15/22 05:53 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29824 | 07/15/22 09:56 | SM | XEN MID |

# Lab Chronicle

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## Client Sample ID: PH02

**Date Collected: 07/05/22 12:15**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2504-4

**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 | | | 29268 | 07/08/22 09:27 | SM | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.00 g | 10 mL | 29181 | 07/07/22 09:20 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29163 | 07/07/22 20:53 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 4.96 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 5 | | | 29449 | 07/12/22 08:51 | CH | XEN MID |

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

## 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: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

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

**Protocol References:**

ASTM = ASTM International

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

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

# Sample Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2504-1
SDG: 03A1987040

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Depth |
|---|---|---|---|---|---|
| 890-2504-1 | PH01 | Solid | 07/05/22 11:40 | 07/06/22 09:09 | 1' |
| 890-2504-2 | PH01 | Solid | 07/05/22 11:45 | 07/06/22 09:09 | 2' |
| 890-2504-3 | PH02 | Solid | 07/05/22 12:10 | 07/06/22 09:09 | 1' |
| 890-2504-4 | PH02 | Solid | 07/05/22 12:15 | 07/06/22 09:09 | 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: _____

www.xenco.com Page 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Joseph Hernandez | Bill to: (if different) | Jim Raley |
| Company Name: | Ensolum | Company Name: | Devon Energy |
| Address: | 3122 Nati Parks Hwy | Address: | 5315 Buena Vista Dr. |
| City, State ZIP: | Carlsbad NM 88220 | City, State ZIP: | Carlsbad NM 88220 |
| Phone: | 281 702 2329 | Email: | Jhernandez@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: | RDU 60 | Turn Around | Pres. Code |
| Project Number: | 03A1987040 | ☒ Routine ☐ Rush | |
| Project Location: | Eddy County NM | Due Date: 5 day tat | |
| Sampler's Name: | Liz Crell | TAT starts the day received by the lab, if received by 4:30pm | |
| PO #: | N/A | | |

| 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: | 1.4 |
| Total Containers: | | Corrected Temperature: | 1.2 |

ANALYSIS REQUEST

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Grab/ Comp | # of Cont | 4ph epa method 8015 mlp | Btex epa method 8021B | Chloride epa method 300.0 |
|---|---|---|---|---|---|---|---|---|---|
| PH01 @1' | S | 7/15/22 | 1140 | 1' | G | 1 | X | X | X |
| PH01 @2' | ↓ | ↓ | 1145 | 2' | ↓ | ↓ | ↓ | ↓ | ↓ |
| PH02 @1' | | | 1210 | 1' | | | | | |
| PH02 @2' | ↓ | ↓ | 1215 | 2' | ↓ | ↓ | ↓ | ↓ | ↓ |

890-2504 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 number
napp2216732906

Cost center
1061215701

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 | | 7-6-22 901 | 2 | | |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date: 08/25/2020 Rev. 2020.2

# Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2504-1
SDG Number: 03A1987040

**Login Number: 2504**
**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: 890-2504-1
SDG Number: 03A1987040

**Login Number: 2504**
**List Number: 2**
**Creator: Rodriguez, Leticia**

**List Source: Eurofins Midland**
**List Creation: 07/07/22 10:57 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: 890-2505-1
Laboratory Sample Delivery Group: 03A1987040
Client Project/Site: RDU 60

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

Attn: Joseph Hernandez

JKramer

*Authorized for release by:*
*7/14/2022 6:47:59 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: RDU 60

Laboratory Job ID: 890-2505-1
SDG: 03A1987040

# Table of Contents

# Definitions/Glossary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

## Qualifiers

### GC VOA

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

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| F1 | MS and/or MSD recovery exceeds control limits. |
| S1+ | Surrogate recovery exceeds control limits, high biased. |
| U | Indicates the analyte was analyzed for but not detected. |

### HPLC/IC

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

## Glossary

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

# Case Narrative

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

## Job ID: 890-2505-1

**Laboratory: Eurofins Carlsbad**

**Narrative**

**Job Narrative**
**890-2505-1**

**Receipt**
The samples were received on 7/6/2022 9:09 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

**GC VOA**
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 880-29204 and analytical batch 880-29449 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: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

## Client Sample ID: FS01

**Lab Sample ID: 890-2505-1**
**Matrix: Solid**
**Date Collected: 07/05/22 11:35**
**Date Received: 07/06/22 09:09**
**Sample Depth: 0.25'**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:13 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:13 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:13 | 1 |
| m-Xylene & p-Xylene | <0.00399 | U | 0.00399 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:13 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:13 | 1 |
| Xylenes, Total | <0.00399 | U | 0.00399 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:13 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *105* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 17:13* | *1* |
| *1,4-Difluorobenzene (Surr)* | *91* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 17:13* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00399 | U | 0.00399 | | mg/Kg | | | 07/14/22 19:41 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <50.0 | U | 50.0 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 15:43 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 15:43 | 1 |
| OII Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 15:43 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *104* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 15:43* | *1* |
| *o-Terphenyl* | *112* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 15:43* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **444** | | 49.8 | | mg/Kg | | | 07/12/22 09:18 | 10 |

## Client Sample ID: FS02

**Lab Sample ID: 890-2505-2**
**Matrix: Solid**
**Date Collected: 07/05/22 12:05**
**Date Received: 07/06/22 09:09**
**Sample Depth: 0.25'**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00199 | U | 0.00199 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:34 | 1 |
| Toluene | <0.00199 | U | 0.00199 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:34 | 1 |
| Ethylbenzene | <0.00199 | U | 0.00199 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:34 | 1 |
| m-Xylene & p-Xylene | <0.00398 | U | 0.00398 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:34 | 1 |
| o-Xylene | <0.00199 | U | 0.00199 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:34 | 1 |
| Xylenes, Total | <0.00398 | U | 0.00398 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:34 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *104* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 17:34* | *1* |

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# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

## Client Sample ID: FS02

**Date Collected: 07/05/22 12:05**
**Date Received: 07/06/22 09:09**
**Sample Depth: 0.25'**

## Lab Sample ID: 890-2505-2

**Matrix: Solid**

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

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,4-Difluorobenzene (Surr)* | *85* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 17:34* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00398 | U | 0.00398 | | mg/Kg | | | 07/14/22 19:41 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <49.9 | U | 49.9 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 16:26 | 1 |
| Diesel Range Organics (Over C10-C28) | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 16:26 | 1 |
| OII Range Organics (Over C28-C36) | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 16:26 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *105* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 16:26* | *1* |
| *o-Terphenyl* | *112* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 16:26* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **1860** | | 50.0 | | mg/Kg | | | 07/12/22 09:28 | 10 |

# Surrogate Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

## 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) |
| 890-2505-1 | FS01 | 105 | 91 |
| 890-2505-2 | FS02 | 104 | 85 |
| 890-2547-A-21-A MS | Matrix Spike | 101 | 98 |
| 890-2547-A-21-B MSD | Matrix Spike Duplicate | 102 | 98 |
| LCS 880-29668/1-A | Lab Control Sample | 102 | 97 |
| LCSD 880-29668/2-A | Lab Control Sample Dup | 103 | 97 |
| MB 880-29668/5-A | Method Blank | 95 | 87 |

**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) |
| 890-2505-1 | FS01 | 104 | 112 |
| 890-2505-2 | FS02 | 105 | 112 |
| 890-2507-A-1-F MS | Matrix Spike | 115 | 115 |
| 890-2507-A-1-G MSD | Matrix Spike Duplicate | 116 | 116 |
| LCS 880-29183/2-A | Lab Control Sample | 124 | 136 S1+ |
| LCSD 880-29183/3-A | Lab Control Sample Dup | 105 | 109 |
| MB 880-29183/1-A | Method Blank | 114 | 128 |

**Surrogate Legend**

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

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

**Lab Sample ID: MB 880-29668/5-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| m-Xylene & p-Xylene | <0.00400 | U | 0.00400 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Xylenes, Total | <0.00400 | U | 0.00400 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *95* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 12:09* | *1* |
| *1,4-Difluorobenzene (Surr)* | *87* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 12:09* | *1* |

**Lab Sample ID: LCS 880-29668/1-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.100 | 0.1010 | | mg/Kg | | 101 | 70 - 130 |
| Toluene | 0.100 | 0.1014 | | mg/Kg | | 101 | 70 - 130 |
| Ethylbenzene | 0.100 | 0.1042 | | mg/Kg | | 104 | 70 - 130 |
| m-Xylene & p-Xylene | 0.200 | 0.2071 | | mg/Kg | | 104 | 70 - 130 |
| o-Xylene | 0.100 | 0.1137 | | mg/Kg | | 114 | 70 - 130 |

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

**Lab Sample ID: LCSD 880-29668/2-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.100 | 0.09464 | | mg/Kg | | 95 | 70 - 130 | 7 | 35 |
| Toluene | 0.100 | 0.09323 | | mg/Kg | | 93 | 70 - 130 | 8 | 35 |
| Ethylbenzene | 0.100 | 0.09660 | | mg/Kg | | 97 | 70 - 130 | 8 | 35 |
| m-Xylene & p-Xylene | 0.200 | 0.1923 | | mg/Kg | | 96 | 70 - 130 | 7 | 35 |
| o-Xylene | 0.100 | 0.1056 | | mg/Kg | | 106 | 70 - 130 | 7 | 35 |

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

**Lab Sample ID: 890-2547-A-21-A MS**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.0998 | 0.08907 | | mg/Kg | | 89 | 70 - 130 |
| Toluene | <0.00200 | U | 0.0998 | 0.08627 | | mg/Kg | | 86 | 70 - 130 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

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

**Lab Sample ID: 890-2547-A-21-A MS**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | <0.00200 | U | 0.0998 | 0.09019 | | mg/Kg | | 90 | 70 - 130 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.200 | 0.1790 | | mg/Kg | | 90 | 70 - 130 |
| o-Xylene | <0.00200 | U | 0.0998 | 0.09784 | | mg/Kg | | 98 | 70 - 130 |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *101* | | *70 - 130* |
| *1,4-Difluorobenzene (Surr)* | *98* | | *70 - 130* |

**Lab Sample ID: 890-2547-A-21-B MSD**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| 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 | 0.08773 | | mg/Kg | | 88 | 70 - 130 | 2 | 35 |
| Toluene | <0.00200 | U | 0.0994 | 0.08563 | | mg/Kg | | 86 | 70 - 130 | 1 | 35 |
| Ethylbenzene | <0.00200 | U | 0.0994 | 0.08825 | | mg/Kg | | 89 | 70 - 130 | 2 | 35 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.199 | 0.1751 | | mg/Kg | | 88 | 70 - 130 | 2 | 35 |
| o-Xylene | <0.00200 | U | 0.0994 | 0.09619 | | mg/Kg | | 97 | 70 - 130 | 2 | 35 |

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

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

**Lab Sample ID: MB 880-29183/1-A**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 10:03 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 10:03 | 1 |
| OII Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 10:03 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *114* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 10:03* | *1* |
| *o-Terphenyl* | *128* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 10:03* | *1* |

**Lab Sample ID: LCS 880-29183/2-A**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | 1000 | 1136 | | mg/Kg | | 114 | 70 - 130 |
| Diesel Range Organics (Over C10-C28) | 1000 | 1143 | | mg/Kg | | 114 | 70 - 130 |

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# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

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

**Lab Sample ID: LCS 880-29183/2-A**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| 1-Chlorooctane | 124 | | 70 - 130 |
| o-Terphenyl | 136 | S1+ | 70 - 130 |

**Lab Sample ID: LCSD 880-29183/3-A**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | | | 1000 | 1093 | | mg/Kg | | 109 | 70 - 130 | 4 | 20 |
| Diesel Range Organics (Over C10-C28) | | | 1000 | 1022 | | mg/Kg | | 102 | 70 - 130 | 11 | 20 |

| Surrogate | LCSD %Recovery | LCSD Qualifier | Limits |
|---|---|---|---|
| 1-Chlorooctane | 105 | | 70 - 130 |
| o-Terphenyl | 109 | | 70 - 130 |

**Lab Sample ID: 890-2507-A-1-F MS**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U F1 | 997 | 1311 | F1 | mg/Kg | | 132 | 70 - 130 | | |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 997 | 1006 | | mg/Kg | | 101 | 70 - 130 | | |

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

**Lab Sample ID: 890-2507-A-1-G MSD**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U F1 | 996 | 1172 | | mg/Kg | | 118 | 70 - 130 | 11 | 20 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 996 | 1003 | | mg/Kg | | 101 | 70 - 130 | 0 | 20 |

| Surrogate | MSD %Recovery | MSD Qualifier | Limits |
|---|---|---|---|
| 1-Chlorooctane | 116 | | 70 - 130 |
| o-Terphenyl | 116 | | 70 - 130 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 880-29204/1-A**
**Matrix: Solid**
**Analysis Batch: 29449**

**Client Sample ID: Method Blank**
**Prep Type: Soluble**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.00 | U | 5.00 | | mg/Kg | | | 07/12/22 07:28 | 1 |

**Lab Sample ID: LCS 880-29204/2-A**
**Matrix: Solid**
**Analysis Batch: 29449**

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

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 250 | 264.5 | | mg/Kg | | 106 | 90 - 110 | | |

**Lab Sample ID: LCSD 880-29204/3-A**
**Matrix: Solid**
**Analysis Batch: 29449**

**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 | 263.0 | | mg/Kg | | 105 | 90 - 110 | 1 | 20 |

**Lab Sample ID: 890-2503-A-13-C MS**
**Matrix: Solid**
**Analysis Batch: 29449**

**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 | 5650 | F1 | 2490 | 7657 | F1 | mg/Kg | | 81 | 90 - 110 | | |

**Lab Sample ID: 890-2503-A-13-D MSD**
**Matrix: Solid**
**Analysis Batch: 29449**

**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 | 5650 | F1 | 2490 | 7625 | F1 | mg/Kg | | 79 | 90 - 110 | 0 | 20 |

# QC Association Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

## GC VOA

### Prep Batch: 29668

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2505-1 | FS01 | Total/NA | Solid | 5035 | |
| 890-2505-2 | FS02 | Total/NA | Solid | 5035 | |
| MB 880-29668/5-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 880-29668/1-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| LCSD 880-29668/2-A | Lab Control Sample Dup | Total/NA | Solid | 5035 | |
| 890-2547-A-21-A MS | Matrix Spike | Total/NA | Solid | 5035 | |
| 890-2547-A-21-B MSD | Matrix Spike Duplicate | Total/NA | Solid | 5035 | |

### Analysis Batch: 29704

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2505-1 | FS01 | Total/NA | Solid | 8021B | 29668 |
| 890-2505-2 | FS02 | Total/NA | Solid | 8021B | 29668 |
| MB 880-29668/5-A | Method Blank | Total/NA | Solid | 8021B | 29668 |
| LCS 880-29668/1-A | Lab Control Sample | Total/NA | Solid | 8021B | 29668 |
| LCSD 880-29668/2-A | Lab Control Sample Dup | Total/NA | Solid | 8021B | 29668 |
| 890-2547-A-21-A MS | Matrix Spike | Total/NA | Solid | 8021B | 29668 |
| 890-2547-A-21-B MSD | Matrix Spike Duplicate | Total/NA | Solid | 8021B | 29668 |

### Analysis Batch: 29778

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2505-1 | FS01 | Total/NA | Solid | Total BTEX | |
| 890-2505-2 | FS02 | Total/NA | Solid | Total BTEX | |

## GC Semi VOA

### Analysis Batch: 29167

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2505-1 | FS01 | Total/NA | Solid | 8015B NM | 29183 |
| 890-2505-2 | FS02 | Total/NA | Solid | 8015B NM | 29183 |
| MB 880-29183/1-A | Method Blank | Total/NA | Solid | 8015B NM | 29183 |
| LCS 880-29183/2-A | Lab Control Sample | Total/NA | Solid | 8015B NM | 29183 |
| LCSD 880-29183/3-A | Lab Control Sample Dup | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-A-1-F MS | Matrix Spike | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-A-1-G MSD | Matrix Spike Duplicate | Total/NA | Solid | 8015B NM | 29183 |

### Prep Batch: 29183

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2505-1 | FS01 | Total/NA | Solid | 8015NM Prep | |
| 890-2505-2 | FS02 | Total/NA | Solid | 8015NM Prep | |
| MB 880-29183/1-A | Method Blank | Total/NA | Solid | 8015NM Prep | |
| LCS 880-29183/2-A | Lab Control Sample | Total/NA | Solid | 8015NM Prep | |
| LCSD 880-29183/3-A | Lab Control Sample Dup | Total/NA | Solid | 8015NM Prep | |
| 890-2507-A-1-F MS | Matrix Spike | Total/NA | Solid | 8015NM Prep | |
| 890-2507-A-1-G MSD | Matrix Spike Duplicate | Total/NA | Solid | 8015NM Prep | |

### Analysis Batch: 29287

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2505-1 | FS01 | Total/NA | Solid | 8015 NM | |
| 890-2505-2 | FS02 | Total/NA | Solid | 8015 NM | |

# QC Association Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

## HPLC/IC

### Leach Batch: 29204

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2505-1 | FS01 | Soluble | Solid | DI Leach | |
| 890-2505-2 | FS02 | Soluble | Solid | DI Leach | |
| MB 880-29204/1-A | Method Blank | Soluble | Solid | DI Leach | |
| LCS 880-29204/2-A | Lab Control Sample | Soluble | Solid | DI Leach | |
| LCSD 880-29204/3-A | Lab Control Sample Dup | Soluble | Solid | DI Leach | |
| 890-2503-A-13-C MS | Matrix Spike | Soluble | Solid | DI Leach | |
| 890-2503-A-13-D MSD | Matrix Spike Duplicate | Soluble | Solid | DI Leach | |

### Analysis Batch: 29449

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2505-1 | FS01 | Soluble | Solid | 300.0 | 29204 |
| 890-2505-2 | FS02 | Soluble | Solid | 300.0 | 29204 |
| MB 880-29204/1-A | Method Blank | Soluble | Solid | 300.0 | 29204 |
| LCS 880-29204/2-A | Lab Control Sample | Soluble | Solid | 300.0 | 29204 |
| LCSD 880-29204/3-A | Lab Control Sample Dup | Soluble | Solid | 300.0 | 29204 |
| 890-2503-A-13-C MS | Matrix Spike | Soluble | Solid | 300.0 | 29204 |
| 890-2503-A-13-D MSD | Matrix Spike Duplicate | Soluble | Solid | 300.0 | 29204 |

# Lab Chronicle

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

## Client Sample ID: FS01

**Date Collected: 07/05/22 11:35**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2505-1

**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 | 29668 | 07/13/22 13:45 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/14/22 17:13 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29778 | 07/14/22 19:41 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29287 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.01 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 15:43 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5.02 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 10 | | | 29449 | 07/12/22 09:18 | CH | XEN MID |

## Client Sample ID: FS02

**Date Collected: 07/05/22 12:05**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2505-2

**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 | 29668 | 07/13/22 13:45 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/14/22 17:34 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29778 | 07/14/22 19:41 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29287 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.02 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 16:26 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 10 | | | 29449 | 07/12/22 09:28 | CH | XEN MID |

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

## 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: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

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

**Protocol References:**

ASTM = ASTM International

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

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

# Sample Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2505-1
SDG: 03A1987040

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Depth |
|---|---|---|---|---|---|
| 890-2505-1 | FS01 | Solid | 07/05/22 11:35 | 07/06/22 09:09 | 0.25' |
| 890-2505-2 | FS02 | Solid | 07/05/22 12:05 | 07/06/22 09:09 | 0.25' |

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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: | Joseph Hernandez | Bill to: (if different) | Jim Raley |
| Company Name: | Ensolum | Company Name: | Devon Energy |
| Address: | 3122 Nati Parks Hwy | Address: | 5315 Buena Vista Dr. |
| City, State ZIP: | Carlsbad NM 88220 | City, State ZIP: | Carlsbad NM 88220 |
| Phone: | 281 702 2329 | Email: | Jhernandez@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: | RDU 60 | Turn Around | |
| Project Number: | 03A1987040 | ☒ Routine ☐ Rush | |
| Project Location: | Eddy County NM | Due Date: | Standard |
| Sampler's Name: | Liz Chelli | TAT starts the day received by the lab, if received by 4:30pm | |
| PO #: | N/A | | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | (Yes) No | Wet Ice: | (Yes) No |
| Samples Received Intact: | (Yes) No | Thermometer ID: | NM-007 |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | -0.2 |
| Sample Custody Seals: | Yes No (N/A) | Temperature Reading: | 1.4 |
| Total Containers: | | Corrected Temperature: | 1.2 |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Grab/ Comp | # of Cont | Pres. Code | Parameters: btex epa method 8021B | tph epa method 8015M | Chloride epa method 300.0 | Sample Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FS01 | S | 7/5/22 | 1135 | 0.25' | C | 1 | | X | X | X | incident number |
| FS02 | S | 7/5/22 | 1205 | 0.25' | C | 1 | | X | X | X | nAPP2216732906 |
| | | | | | | | | | | | |
| | | | | | | | | | | | Cost Center |
| | | | | | | | | | | | 1061215701 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

890-2505 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 | | 7.6.22 0909 | 2 | | |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date: 08/25/2020 Rev: 2020.2

# Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2505-1
SDG Number: 03A1987040

**Login Number: 2505**
**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: 890-2505-1
SDG Number: 03A1987040

**Login Number: 2505**
**List Number: 2**
**Creator: Rodriguez, Leticia**

**List Source: Eurofins Midland**
**List Creation: 07/07/22 10:57 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: 890-2506-1
Laboratory Sample Delivery Group: 03A1987040
Client Project/Site: RDU 60

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

Attn: Joseph Hernandez

JKramer

*Authorized for release by:*
*7/18/2022 12:53:39 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: RDU 60

Laboratory Job ID: 890-2506-1
SDG: 03A1987040

# Table of Contents

# Definitions/Glossary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

## Qualifiers

### GC VOA

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

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| F1 | MS and/or MSD recovery exceeds control limits. |
| 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: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

## Job ID: 890-2506-1

### Laboratory: Eurofins Carlsbad

**Narrative**

**Job Narrative**
**890-2506-1**

**Receipt**
The samples were received on 7/6/2022 9:09 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

**GC VOA**
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: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

## Client Sample ID: PH01

**Date Collected: 07/05/22 11:50**
**Date Received: 07/06/22 09:09**
**Sample Depth: 4'**

**Lab Sample ID: 890-2506-1**
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:54 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:54 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:54 | 1 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.00401 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:54 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:54 | 1 |
| Xylenes, Total | <0.00401 | U | 0.00401 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 17:54 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *106* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 17:54* | *1* |
| *1,4-Difluorobenzene (Surr)* | *90* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 17:54* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00401 | U | 0.00401 | | mg/Kg | | | 07/14/22 19:41 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <50.0 | U | 50.0 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 16:48 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 16:48 | 1 |
| Oil Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 16:48 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *100* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 16:48* | *1* |
| *o-Terphenyl* | *107* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 16:48* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **402** | | 4.99 | | mg/Kg | | | 07/12/22 09:37 | 1 |

## Client Sample ID: PH02

**Date Collected: 07/05/22 12:20**
**Date Received: 07/06/22 09:09**
**Sample Depth: 4'**

**Lab Sample ID: 890-2506-2**
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:15 | 1 |
| Toluene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:15 | 1 |
| Ethylbenzene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:15 | 1 |
| m-Xylene & p-Xylene | <0.00402 | U | 0.00402 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:15 | 1 |
| o-Xylene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:15 | 1 |
| Xylenes, Total | <0.00402 | U | 0.00402 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:15 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *111* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 18:15* | *1* |

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# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

## Client Sample ID: PH02

**Date Collected: 07/05/22 12:20**
**Date Received: 07/06/22 09:09**
**Sample Depth: 4'**

## Lab Sample ID: 890-2506-2

**Matrix: Solid**

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

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *1,4-Difluorobenzene (Surr)* | *89* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 18:15* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00402 | U | 0.00402 | | mg/Kg | | | 07/14/22 19:41 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <50.0 | U | 50.0 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 17:10 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 17:10 | 1 |
| OII Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 17:10 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *119* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 17:10* | *1* |
| *o-Terphenyl* | *127* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 17:10* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **561** | | 4.98 | | mg/Kg | | | 07/16/22 03:31 | 1 |

# Surrogate Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

## 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) |
| 890-2506-1 | PH01 | 106 | 90 |
| 890-2506-2 | PH02 | 111 | 89 |
| 890-2547-A-21-A MS | Matrix Spike | 101 | 98 |
| 890-2547-A-21-B MSD | Matrix Spike Duplicate | 102 | 98 |
| LCS 880-29668/1-A | Lab Control Sample | 102 | 97 |
| LCSD 880-29668/2-A | Lab Control Sample Dup | 103 | 97 |
| MB 880-29668/5-A | Method Blank | 95 | 87 |

**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) |
| 890-2506-1 | PH01 | 100 | 107 |
| 890-2506-2 | PH02 | 119 | 127 |
| 890-2507-A-1-F MS | Matrix Spike | 115 | 115 |
| 890-2507-A-1-G MSD | Matrix Spike Duplicate | 116 | 116 |
| LCS 880-29183/2-A | Lab Control Sample | 124 | 136 S1+ |
| LCSD 880-29183/3-A | Lab Control Sample Dup | 105 | 109 |
| MB 880-29183/1-A | Method Blank | 114 | 128 |

**Surrogate Legend**

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

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

**Lab Sample ID: MB 880-29668/5-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| m-Xylene & p-Xylene | <0.00400 | U | 0.00400 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Xylenes, Total | <0.00400 | U | 0.00400 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *95* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 12:09* | *1* |
| *1,4-Difluorobenzene (Surr)* | *87* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 12:09* | *1* |

**Lab Sample ID: LCS 880-29668/1-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.100 | 0.1010 | | mg/Kg | | 101 | 70 - 130 |
| Toluene | 0.100 | 0.1014 | | mg/Kg | | 101 | 70 - 130 |
| Ethylbenzene | 0.100 | 0.1042 | | mg/Kg | | 104 | 70 - 130 |
| m-Xylene & p-Xylene | 0.200 | 0.2071 | | mg/Kg | | 104 | 70 - 130 |
| o-Xylene | 0.100 | 0.1137 | | mg/Kg | | 114 | 70 - 130 |

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

**Lab Sample ID: LCSD 880-29668/2-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.100 | 0.09464 | | mg/Kg | | 95 | 70 - 130 | 7 | 35 |
| Toluene | 0.100 | 0.09323 | | mg/Kg | | 93 | 70 - 130 | 8 | 35 |
| Ethylbenzene | 0.100 | 0.09660 | | mg/Kg | | 97 | 70 - 130 | 8 | 35 |
| m-Xylene & p-Xylene | 0.200 | 0.1923 | | mg/Kg | | 96 | 70 - 130 | 7 | 35 |
| o-Xylene | 0.100 | 0.1056 | | mg/Kg | | 106 | 70 - 130 | 7 | 35 |

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

**Lab Sample ID: 890-2547-A-21-A MS**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.0998 | 0.08907 | | mg/Kg | | 89 | 70 - 130 |
| Toluene | <0.00200 | U | 0.0998 | 0.08627 | | mg/Kg | | 86 | 70 - 130 |

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# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

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

**Lab Sample ID: 890-2547-A-21-A MS** — **Client Sample ID: Matrix Spike**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 29704** — **Prep Batch: 29668**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | <0.00200 | U | 0.0998 | 0.09019 | | mg/Kg | | 90 | 70 - 130 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.200 | 0.1790 | | mg/Kg | | 90 | 70 - 130 |
| o-Xylene | <0.00200 | U | 0.0998 | 0.09784 | | mg/Kg | | 98 | 70 - 130 |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *101* | | *70 - 130* |
| *1,4-Difluorobenzene (Surr)* | *98* | | *70 - 130* |

**Lab Sample ID: 890-2547-A-21-B MSD** — **Client Sample ID: Matrix Spike Duplicate**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 29704** — **Prep Batch: 29668**

| 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 | 0.08773 | | mg/Kg | | 88 | 70 - 130 | 2 | 35 |
| Toluene | <0.00200 | U | 0.0994 | 0.08563 | | mg/Kg | | 86 | 70 - 130 | 1 | 35 |
| Ethylbenzene | <0.00200 | U | 0.0994 | 0.08825 | | mg/Kg | | 89 | 70 - 130 | 2 | 35 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.199 | 0.1751 | | mg/Kg | | 88 | 70 - 130 | 2 | 35 |
| o-Xylene | <0.00200 | U | 0.0994 | 0.09619 | | mg/Kg | | 97 | 70 - 130 | 2 | 35 |

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

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

**Lab Sample ID: MB 880-29183/1-A** — **Client Sample ID: Method Blank**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 29167** — **Prep Batch: 29183**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 10:03 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 10:03 | 1 |
| Oil Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 10:03 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *114* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 10:03* | *1* |
| *o-Terphenyl* | *128* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 10:03* | *1* |

**Lab Sample ID: LCS 880-29183/2-A** — **Client Sample ID: Lab Control Sample**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 29167** — **Prep Batch: 29183**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | 1000 | 1136 | | mg/Kg | | 114 | 70 - 130 |
| Diesel Range Organics (Over C10-C28) | 1000 | 1143 | | mg/Kg | | 114 | 70 - 130 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

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

**Lab Sample ID: LCS 880-29183/2-A**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| 1-Chlorooctane | 124 | | 70 - 130 |
| o-Terphenyl | 136 | S1+ | 70 - 130 |

**Lab Sample ID: LCSD 880-29183/3-A**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | | | 1000 | 1093 | | mg/Kg | | 109 | 70 - 130 | 4 | 20 |
| Diesel Range Organics (Over C10-C28) | | | 1000 | 1022 | | mg/Kg | | 102 | 70 - 130 | 11 | 20 |

| Surrogate | LCSD %Recovery | LCSD Qualifier | Limits |
|---|---|---|---|
| 1-Chlorooctane | 105 | | 70 - 130 |
| o-Terphenyl | 109 | | 70 - 130 |

**Lab Sample ID: 890-2507-A-1-F MS**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U F1 | 997 | 1311 | F1 | mg/Kg | | 132 | 70 - 130 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 997 | 1006 | | mg/Kg | | 101 | 70 - 130 |

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

**Lab Sample ID: 890-2507-A-1-G MSD**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U F1 | 996 | 1172 | | mg/Kg | | 118 | 70 - 130 | 11 | 20 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 996 | 1003 | | mg/Kg | | 101 | 70 - 130 | 0 | 20 |

| Surrogate | MSD %Recovery | MSD Qualifier | Limits |
|---|---|---|---|
| 1-Chlorooctane | 116 | | 70 - 130 |
| o-Terphenyl | 116 | | 70 - 130 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 880-29204/1-A**
**Matrix: Solid**
**Analysis Batch: 29449**

**Client Sample ID: Method Blank**
**Prep Type: Soluble**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.00 | U | 5.00 | | mg/Kg | | | 07/12/22 07:28 | 1 |

**Lab Sample ID: LCS 880-29204/2-A**
**Matrix: Solid**
**Analysis Batch: 29449**

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

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 250 | 264.5 | | mg/Kg | | 106 | 90 - 110 | | |

**Lab Sample ID: LCSD 880-29204/3-A**
**Matrix: Solid**
**Analysis Batch: 29449**

**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 | 263.0 | | mg/Kg | | 105 | 90 - 110 | 1 | 20 |

**Lab Sample ID: 890-2507-A-2-G MS**
**Matrix: Solid**
**Analysis Batch: 29449**

**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 | 37.2 | | 248 | 297.4 | | mg/Kg | | 105 | 90 - 110 | | |

**Lab Sample ID: 890-2507-A-2-H MSD**
**Matrix: Solid**
**Analysis Batch: 29449**

**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 | 37.2 | | 248 | 297.1 | | mg/Kg | | 105 | 90 - 110 | 0 | 20 |

# QC Association Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

## GC VOA

### Prep Batch: 29668

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2506-1 | PH01 | Total/NA | Solid | 5035 | |
| 890-2506-2 | PH02 | Total/NA | Solid | 5035 | |
| MB 880-29668/5-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 880-29668/1-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| LCSD 880-29668/2-A | Lab Control Sample Dup | Total/NA | Solid | 5035 | |
| 890-2547-A-21-A MS | Matrix Spike | Total/NA | Solid | 5035 | |
| 890-2547-A-21-B MSD | Matrix Spike Duplicate | Total/NA | Solid | 5035 | |

### Analysis Batch: 29704

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2506-1 | PH01 | Total/NA | Solid | 8021B | 29668 |
| 890-2506-2 | PH02 | Total/NA | Solid | 8021B | 29668 |
| MB 880-29668/5-A | Method Blank | Total/NA | Solid | 8021B | 29668 |
| LCS 880-29668/1-A | Lab Control Sample | Total/NA | Solid | 8021B | 29668 |
| LCSD 880-29668/2-A | Lab Control Sample Dup | Total/NA | Solid | 8021B | 29668 |
| 890-2547-A-21-A MS | Matrix Spike | Total/NA | Solid | 8021B | 29668 |
| 890-2547-A-21-B MSD | Matrix Spike Duplicate | Total/NA | Solid | 8021B | 29668 |

### Analysis Batch: 29779

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2506-1 | PH01 | Total/NA | Solid | Total BTEX | |
| 890-2506-2 | PH02 | Total/NA | Solid | Total BTEX | |

## GC Semi VOA

### Analysis Batch: 29167

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2506-1 | PH01 | Total/NA | Solid | 8015B NM | 29183 |
| 890-2506-2 | PH02 | Total/NA | Solid | 8015B NM | 29183 |
| MB 880-29183/1-A | Method Blank | Total/NA | Solid | 8015B NM | 29183 |
| LCS 880-29183/2-A | Lab Control Sample | Total/NA | Solid | 8015B NM | 29183 |
| LCSD 880-29183/3-A | Lab Control Sample Dup | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-A-1-F MS | Matrix Spike | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-A-1-G MSD | Matrix Spike Duplicate | Total/NA | Solid | 8015B NM | 29183 |

### Prep Batch: 29183

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2506-1 | PH01 | Total/NA | Solid | 8015NM Prep | |
| 890-2506-2 | PH02 | Total/NA | Solid | 8015NM Prep | |
| MB 880-29183/1-A | Method Blank | Total/NA | Solid | 8015NM Prep | |
| LCS 880-29183/2-A | Lab Control Sample | Total/NA | Solid | 8015NM Prep | |
| LCSD 880-29183/3-A | Lab Control Sample Dup | Total/NA | Solid | 8015NM Prep | |
| 890-2507-A-1-F MS | Matrix Spike | Total/NA | Solid | 8015NM Prep | |
| 890-2507-A-1-G MSD | Matrix Spike Duplicate | Total/NA | Solid | 8015NM Prep | |

### Analysis Batch: 29288

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2506-1 | PH01 | Total/NA | Solid | 8015 NM | |
| 890-2506-2 | PH02 | Total/NA | Solid | 8015 NM | |

# QC Association Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

## HPLC/IC

### Leach Batch: 29204

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2506-1 | PH01 | Soluble | Solid | DI Leach | |
| 890-2506-2 | PH02 | Soluble | Solid | DI Leach | |
| MB 880-29204/1-A | Method Blank | Soluble | Solid | DI Leach | |
| LCS 880-29204/2-A | Lab Control Sample | Soluble | Solid | DI Leach | |
| LCSD 880-29204/3-A | Lab Control Sample Dup | Soluble | Solid | DI Leach | |
| 890-2507-A-2-G MS | Matrix Spike | Soluble | Solid | DI Leach | |
| 890-2507-A-2-H MSD | Matrix Spike Duplicate | Soluble | Solid | DI Leach | |

### Analysis Batch: 29449

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2506-1 | PH01 | Soluble | Solid | 300.0 | 29204 |
| MB 880-29204/1-A | Method Blank | Soluble | Solid | 300.0 | 29204 |
| LCS 880-29204/2-A | Lab Control Sample | Soluble | Solid | 300.0 | 29204 |
| LCSD 880-29204/3-A | Lab Control Sample Dup | Soluble | Solid | 300.0 | 29204 |
| 890-2507-A-2-G MS | Matrix Spike | Soluble | Solid | 300.0 | 29204 |
| 890-2507-A-2-H MSD | Matrix Spike Duplicate | Soluble | Solid | 300.0 | 29204 |

### Analysis Batch: 29656

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2506-2 | PH02 | Soluble | Solid | 300.0 | 29204 |

# Lab Chronicle

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

## Client Sample ID: PH01

**Date Collected: 07/05/22 11:50**
**Date Received: 07/06/22 09:09**

**Lab Sample ID: 890-2506-1**
**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 | 29668 | 07/13/22 13:45 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/14/22 17:54 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29779 | 07/14/22 19:41 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29288 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.01 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 16:48 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5.01 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 1 | | | 29449 | 07/12/22 09:37 | CH | XEN MID |

## Client Sample ID: PH02

**Date Collected: 07/05/22 12:20**
**Date Received: 07/06/22 09:09**

**Lab Sample ID: 890-2506-2**
**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 | 29668 | 07/13/22 13:45 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/14/22 18:15 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29779 | 07/14/22 19:41 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29288 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.01 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 17:10 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5.02 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 1 | | | 29656 | 07/16/22 03:31 | CH | XEN MID |

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

## 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: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

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

**Protocol References:**

ASTM = ASTM International

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

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

# Sample Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2506-1
SDG: 03A1987040

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Depth |
|---|---|---|---|---|---|
| 890-2506-1 | PH01 | Solid | 07/05/22 11:50 | 07/06/22 09:09 | 4' |
| 890-2506-2 | PH02 | Solid | 07/05/22 12:20 | 07/06/22 09:09 | 4' |

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# Chain of Custody

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

Work Order No: _____

www.xenco.com Page 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Joseph Hernandez | Bill to: (if different) | Jim Raley |
| Company Name: | Ensolum | Company Name: | Devon Energy |
| Address: | 3122 Natl. Parks Hwy | Address: | 5315 Buena Vista Dr. |
| City, State ZIP: | Carlsbad NM 88220 | City, State ZIP: | Carlsbad NM 88220 |
| Phone: | 281 702 7329 | Email: | Jhernandez@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: | RDU 60 | Turn Around | |
| Project Number: | 03A1987040 | ☒ Routine ☐ Rush | |
| Project Location: | Eddy County NM | Due Date: | 5 day tat |
| Sampler's Name: | Liz Chai | TAT starts the day received by the lab, if received by 4:30pm | |
| PO #: | N/A | | |

| 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: | 1.4 | |
| Total Containers: | | Corrected Temperature: | 1.2 | |

**ANALYSIS REQUEST**

**Preservative Codes**

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

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Grab/ Comp | # of Cont | Pres. Code | BTEX epa method 8021B | TPH epa method 8015 MOD | Chloride epa method 300.0 | Sample Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PH01 @4' | S | 7/5/22 | 1150 | 4' | G | 1 | | X | X | X | Incident number |
| PH02 @4' | S | 7/5/22 | 1220 | 4' | G | 1 | | X | X | X | nAPP2216732906 |
| | | | | | | | | | | | |
| | | | | | | | | | | | cost center |
| | | | | | | | | | | | 1061215701 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

890-2506 Chain of Custody

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

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

| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | | 7.6.22 0900 | 2 | | |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date: 08/25/2020 Rev. 2020.2

# Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2506-1
SDG Number: 03A1987040

**Login Number: 2506**
**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: 890-2506-1
SDG Number: 03A1987040

**Login Number: 2506**
**List Number: 2**
**Creator: Rodriguez, Leticia**

**List Source: Eurofins Midland**
**List Creation: 07/07/22 10:57 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: 890-2507-1
Laboratory Sample Delivery Group: 03A1987040
Client Project/Site: RDU 60

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

Attn: Joseph Hernandez

JKramer

*Authorized for release by:*
*7/18/2022 10:38:36 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: RDU 60

Laboratory Job ID: 890-2507-1
SDG: 03A1987040

# Table of Contents

# Definitions/Glossary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Qualifiers

### GC VOA

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

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| F1 | MS and/or MSD recovery exceeds control limits. |
| 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: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Job ID: 890-2507-1

**Laboratory: Eurofins Carlsbad**

**Narrative**

**Job Narrative**
**890-2507-1**

**Receipt**
The samples were received on 7/6/2022 9:09 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

**GC VOA**
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: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Client Sample ID: PH03

**Date Collected: 07/05/22 13:28**
**Date Received: 07/06/22 09:09**
**Sample Depth: 0.5'**

**Lab Sample ID: 890-2507-1**
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:35 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:35 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:35 | 1 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.00401 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:35 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:35 | 1 |
| Xylenes, Total | <0.00401 | U | 0.00401 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:35 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *106* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 18:35* | *1* |
| *1,4-Difluorobenzene (Surr)* | *90* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 18:35* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00401 | U | 0.00401 | | mg/Kg | | | 07/14/22 19:40 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <50.0 | U | 50.0 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U F1 | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 11:45 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 11:45 | 1 |
| Oil Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 11:45 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *106* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 11:45* | *1* |
| *o-Terphenyl* | *115* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 11:45* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **26.4** | | 24.8 | | mg/Kg | | | 07/12/22 10:32 | 5 |

## Client Sample ID: PH03

**Date Collected: 07/05/22 13:30**
**Date Received: 07/06/22 09:09**
**Sample Depth: 1'**

**Lab Sample ID: 890-2507-2**
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:56 | 1 |
| Toluene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:56 | 1 |
| Ethylbenzene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:56 | 1 |
| m-Xylene & p-Xylene | <0.00402 | U | 0.00402 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:56 | 1 |
| o-Xylene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:56 | 1 |
| Xylenes, Total | <0.00402 | U | 0.00402 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 18:56 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *109* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 18:56* | *1* |

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# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Client Sample ID: PH03

**Date Collected: 07/05/22 13:30**
**Date Received: 07/06/22 09:09**
**Sample Depth: 1'**

**Lab Sample ID: 890-2507-2**
**Matrix: Solid**

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

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,4-Difluorobenzene (Surr)* | *90* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 18:56* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00402 | U | 0.00402 | | mg/Kg | | | 07/14/22 19:40 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <49.8 | U | 49.8 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <49.8 | U | 49.8 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 12:49 | 1 |
| Diesel Range Organics (Over C10-C28) | <49.8 | U | 49.8 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 12:49 | 1 |
| OII Range Organics (Over C28-C36) | <49.8 | U | 49.8 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 12:49 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *103* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 12:49* | *1* |
| *o-Terphenyl* | *110* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 12:49* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **37.2** | | 4.95 | | mg/Kg | | | 07/12/22 10:41 | 1 |

## Client Sample ID: PH04

**Date Collected: 07/05/22 13:40**
**Date Received: 07/06/22 09:09**
**Sample Depth: 0.5'**

**Lab Sample ID: 890-2507-3**
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:16 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:16 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:16 | 1 |
| m-Xylene & p-Xylene | <0.00399 | U | 0.00399 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:16 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:16 | 1 |
| Xylenes, Total | <0.00399 | U | 0.00399 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:16 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *103* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 19:16* | *1* |
| *1,4-Difluorobenzene (Surr)* | *87* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 19:16* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00399 | U | 0.00399 | | mg/Kg | | | 07/14/22 19:40 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <49.8 | U | 49.8 | | mg/Kg | | | 07/08/22 11:23 | 1 |

# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Client Sample ID: PH04
**Date Collected: 07/05/22 13:40**
**Date Received: 07/06/22 09:09**
**Sample Depth: 0.5'**

**Lab Sample ID: 890-2507-3**
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <49.8 | U | 49.8 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 13:11 | 1 |
| Diesel Range Organics (Over C10-C28) | <49.8 | U | 49.8 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 13:11 | 1 |
| OII Range Organics (Over C28-C36) | <49.8 | U | 49.8 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 13:11 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *107* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 13:11* | *1* |
| *o-Terphenyl* | *113* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 13:11* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **410** | | 24.9 | | mg/Kg | | | 07/12/22 11:09 | 5 |

## Client Sample ID: PH04
**Date Collected: 07/05/22 13:45**
**Date Received: 07/06/22 09:09**
**Sample Depth: 1'**

**Lab Sample ID: 890-2507-4**
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:37 | 1 |
| Toluene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:37 | 1 |
| Ethylbenzene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:37 | 1 |
| m-Xylene & p-Xylene | <0.00402 | U | 0.00402 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:37 | 1 |
| o-Xylene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:37 | 1 |
| Xylenes, Total | <0.00402 | U | 0.00402 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:37 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *109* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 19:37* | *1* |
| *1,4-Difluorobenzene (Surr)* | *88* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 19:37* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00402 | U | 0.00402 | | mg/Kg | | | 07/14/22 19:40 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Total TPH** | **88.9** | | 49.9 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Organics (GRO)-C6-C10** | **88.9** | | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 13:32 | 1 |
| Diesel Range Organics (Over C10-C28) | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 13:32 | 1 |
| OII Range Organics (Over C28-C36) | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 13:32 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *110* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 13:32* | *1* |
| *o-Terphenyl* | *119* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 13:32* | *1* |

# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Client Sample ID: PH04

**Lab Sample ID: 890-2507-4**
**Matrix: Solid**
**Date Collected: 07/05/22 13:45**
**Date Received: 07/06/22 09:09**
**Sample Depth: 1'**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 259 | | 5.04 | | mg/Kg | | | 07/12/22 11:18 | 1 |

## Client Sample ID: PH05

**Lab Sample ID: 890-2507-5**
**Matrix: Solid**
**Date Collected: 07/05/22 14:00**
**Date Received: 07/06/22 09:09**
**Sample Depth: 0.5'**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:57 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:57 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:57 | 1 |
| m-Xylene & p-Xylene | <0.00399 | U | 0.00399 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:57 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:57 | 1 |
| Xylenes, Total | <0.00399 | U | 0.00399 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 19:57 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *107* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 19:57* | *1* |
| *1,4-Difluorobenzene (Surr)* | *88* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 19:57* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00399 | U | 0.00399 | | mg/Kg | | | 07/14/22 19:40 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <49.9 | U | 49.9 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 13:54 | 1 |
| Diesel Range Organics (Over C10-C28) | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 13:54 | 1 |
| Oil Range Organics (Over C28-C36) | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 13:54 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *103* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 13:54* | *1* |
| *o-Terphenyl* | *110* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 13:54* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 568 | | 4.99 | | mg/Kg | | | 07/12/22 11:46 | 1 |

# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Client Sample ID: PH05

**Date Collected: 07/05/22 14:05**
**Date Received: 07/06/22 09:09**
**Sample Depth: 1'**

**Lab Sample ID: 890-2507-6**
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 17:42 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 17:42 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 17:42 | 1 |
| m-Xylene & p-Xylene | <0.00399 | U | 0.00399 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 17:42 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 17:42 | 1 |
| Xylenes, Total | <0.00399 | U | 0.00399 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 17:42 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *130* | | *70 - 130* | *07/13/22 13:52* | *07/14/22 17:42* | *1* |
| *1,4-Difluorobenzene (Surr)* | *83* | | *70 - 130* | *07/13/22 13:52* | *07/14/22 17:42* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00399 | U | 0.00399 | | mg/Kg | | | 07/14/22 19:40 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <50.0 | U | 50.0 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 14:16 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 14:16 | 1 |
| OII Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 14:16 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *107* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 14:16* | *1* |
| *o-Terphenyl* | *113* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 14:16* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **138** | | 5.02 | | mg/Kg | | | 07/12/22 11:55 | 1 |

## Client Sample ID: PH06

**Date Collected: 07/05/22 14:30**
**Date Received: 07/06/22 09:09**
**Sample Depth: 0.5'**

**Lab Sample ID: 890-2507-7**
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:08 | 1 |
| Toluene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:08 | 1 |
| Ethylbenzene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:08 | 1 |
| m-Xylene & p-Xylene | <0.00402 | U | 0.00402 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:08 | 1 |
| o-Xylene | <0.00201 | U | 0.00201 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:08 | 1 |
| Xylenes, Total | <0.00402 | U | 0.00402 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:08 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *130* | | *70 - 130* | *07/13/22 13:52* | *07/14/22 18:08* | *1* |

# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Client Sample ID: PH06
**Date Collected: 07/05/22 14:30**
**Date Received: 07/06/22 09:09**
**Sample Depth: 0.5'**

## Lab Sample ID: 890-2507-7
**Matrix: Solid**

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

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,4-Difluorobenzene (Surr)* | *75* | | *70 - 130* | *07/13/22 13:52* | *07/14/22 18:08* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00402 | U | 0.00402 | | mg/Kg | | | 07/14/22 19:40 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <49.9 | U | 49.9 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/15/22 00:49 | 1 |
| Diesel Range Organics (Over C10-C28) | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/15/22 00:49 | 1 |
| OII Range Organics (Over C28-C36) | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/15/22 00:49 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *97* | | *70 - 130* | *07/07/22 09:35* | *07/15/22 00:49* | *1* |
| *o-Terphenyl* | *111* | | *70 - 130* | *07/07/22 09:35* | *07/15/22 00:49* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **130** | | 24.9 | | mg/Kg | | | 07/12/22 12:04 | 5 |

## Client Sample ID: PH06
**Date Collected: 07/05/22 14:35**
**Date Received: 07/06/22 09:09**
**Sample Depth: 1'**

## Lab Sample ID: 890-2507-8
**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:34 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:34 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:34 | 1 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.00401 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:34 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:34 | 1 |
| Xylenes, Total | <0.00401 | U | 0.00401 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 18:34 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *140* | *S1+* | *70 - 130* | *07/13/22 13:52* | *07/14/22 18:34* | *1* |
| *1,4-Difluorobenzene (Surr)* | *78* | | *70 - 130* | *07/13/22 13:52* | *07/14/22 18:34* | *1* |

### Method: Total BTEX - Total BTEX Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total BTEX | <0.00401 | U | 0.00401 | | mg/Kg | | | 07/14/22 19:40 | 1 |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total TPH | <49.9 | U | 49.9 | | mg/Kg | | | 07/08/22 11:23 | 1 |

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# Client Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Client Sample ID: PH06

**Date Collected: 07/05/22 14:35**
**Date Received: 07/06/22 09:09**
**Sample Depth: 1'**

## Lab Sample ID: 890-2507-8

**Matrix: Solid**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 14:59 | 1 |
| Diesel Range Organics (Over C10-C28) | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 14:59 | 1 |
| Oil Range Organics (Over C28-C36) | <49.9 | U | 49.9 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 14:59 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1-Chlorooctane* | *103* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 14:59* | *1* |
| *o-Terphenyl* | *110* | | *70 - 130* | *07/07/22 09:35* | *07/07/22 14:59* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **172** | | 25.0 | | mg/Kg | | | 07/12/22 12:14 | 5 |

# Surrogate Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## 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) |
| 890-2507-1 | PH03 | 106 | 90 |
| 890-2507-2 | PH03 | 109 | 90 |
| 890-2507-3 | PH04 | 103 | 87 |
| 890-2507-4 | PH04 | 109 | 88 |
| 890-2507-5 | PH05 | 107 | 88 |
| 890-2507-6 | PH05 | 130 | 83 |
| 890-2507-7 | PH06 | 130 | 75 |
| 890-2507-8 | PH06 | 140 S1+ | 78 |
| 890-2547-A-21-A MS | Matrix Spike | 101 | 98 |
| 890-2547-A-21-B MSD | Matrix Spike Duplicate | 102 | 98 |
| 890-2547-A-31-F MS | Matrix Spike | 132 S1+ | 82 |
| 890-2547-A-31-G MSD | Matrix Spike Duplicate | 123 | 84 |
| LCS 880-29668/1-A | Lab Control Sample | 102 | 97 |
| LCS 880-29669/1-A | Lab Control Sample | 122 | 86 |
| LCSD 880-29668/2-A | Lab Control Sample Dup | 103 | 97 |
| LCSD 880-29669/2-A | Lab Control Sample Dup | 124 | 84 |
| MB 880-29668/5-A | Method Blank | 95 | 87 |
| MB 880-29669/5-A | Method Blank | 95 | 77 |

**Surrogate Legend**

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

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

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

| | | Percent Surrogate Recovery (Acceptance Limits) | |
|---|---|---|---|
| | | 1CO1 | OTPH1 |
| Lab Sample ID | Client Sample ID | (70-130) | (70-130) |
| 890-2507-1 | PH03 | 106 | 115 |
| 890-2507-1 MS | PH03 | 115 | 115 |
| 890-2507-1 MSD | PH03 | 116 | 116 |
| 890-2507-2 | PH03 | 103 | 110 |
| 890-2507-3 | PH04 | 107 | 113 |
| 890-2507-4 | PH04 | 110 | 119 |
| 890-2507-5 | PH05 | 103 | 110 |
| 890-2507-6 | PH05 | 107 | 113 |
| 890-2507-7 | PH06 | 97 | 111 |
| 890-2507-8 | PH06 | 103 | 110 |
| LCS 880-29183/2-A | Lab Control Sample | 124 | 136 S1+ |
| LCSD 880-29183/3-A | Lab Control Sample Dup | 105 | 109 |
| MB 880-29183/1-A | Method Blank | 114 | 128 |

**Surrogate Legend**

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

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

**Lab Sample ID: MB 880-29668/5-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Toluene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Ethylbenzene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| m-Xylene & p-Xylene | <0.00400 | U | 0.00400 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| o-Xylene | <0.00200 | U | 0.00200 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |
| Xylenes, Total | <0.00400 | U | 0.00400 | | mg/Kg | | 07/13/22 13:45 | 07/14/22 12:09 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *95* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 12:09* | *1* |
| *1,4-Difluorobenzene (Surr)* | *87* | | *70 - 130* | *07/13/22 13:45* | *07/14/22 12:09* | *1* |

**Lab Sample ID: LCS 880-29668/1-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.100 | 0.1010 | | mg/Kg | | 101 | 70 - 130 |
| Toluene | 0.100 | 0.1014 | | mg/Kg | | 101 | 70 - 130 |
| Ethylbenzene | 0.100 | 0.1042 | | mg/Kg | | 104 | 70 - 130 |
| m-Xylene & p-Xylene | 0.200 | 0.2071 | | mg/Kg | | 104 | 70 - 130 |
| o-Xylene | 0.100 | 0.1137 | | mg/Kg | | 114 | 70 - 130 |

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

**Lab Sample ID: LCSD 880-29668/2-A**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.100 | 0.09464 | | mg/Kg | | 95 | 70 - 130 | 7 | 35 |
| Toluene | 0.100 | 0.09323 | | mg/Kg | | 93 | 70 - 130 | 8 | 35 |
| Ethylbenzene | 0.100 | 0.09660 | | mg/Kg | | 97 | 70 - 130 | 8 | 35 |
| m-Xylene & p-Xylene | 0.200 | 0.1923 | | mg/Kg | | 96 | 70 - 130 | 7 | 35 |
| o-Xylene | 0.100 | 0.1056 | | mg/Kg | | 106 | 70 - 130 | 7 | 35 |

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

**Lab Sample ID: 890-2547-A-21-A MS**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | U | 0.0998 | 0.08907 | | mg/Kg | | 89 | 70 - 130 |
| Toluene | <0.00200 | U | 0.0998 | 0.08627 | | mg/Kg | | 86 | 70 - 130 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

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

**Lab Sample ID: 890-2547-A-21-A MS**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | <0.00200 | U | 0.0998 | 0.09019 | | mg/Kg | | 90 | 70 - 130 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.200 | 0.1790 | | mg/Kg | | 90 | 70 - 130 |
| o-Xylene | <0.00200 | U | 0.0998 | 0.09784 | | mg/Kg | | 98 | 70 - 130 |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *101* | | *70 - 130* |
| *1,4-Difluorobenzene (Surr)* | *98* | | *70 - 130* |

**Lab Sample ID: 890-2547-A-21-B MSD**
**Matrix: Solid**
**Analysis Batch: 29704**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 29668**

| 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 | 0.08773 | | mg/Kg | | 88 | 70 - 130 | 2 | 35 |
| Toluene | <0.00200 | U | 0.0994 | 0.08563 | | mg/Kg | | 86 | 70 - 130 | 1 | 35 |
| Ethylbenzene | <0.00200 | U | 0.0994 | 0.08825 | | mg/Kg | | 89 | 70 - 130 | 2 | 35 |
| m-Xylene & p-Xylene | <0.00401 | U | 0.199 | 0.1751 | | mg/Kg | | 88 | 70 - 130 | 2 | 35 |
| o-Xylene | <0.00200 | U | 0.0994 | 0.09619 | | mg/Kg | | 97 | 70 - 130 | 2 | 35 |

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

**Lab Sample ID: MB 880-29669/5-A**
**Matrix: Solid**
**Analysis Batch: 29700**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 29669**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000400 | U | 0.000400 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 11:30 | 1 |
| Toluene | <0.000400 | U | 0.000400 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 11:30 | 1 |
| Ethylbenzene | <0.000400 | U | 0.000400 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 11:30 | 1 |
| m-Xylene & p-Xylene | <0.000800 | U | 0.000800 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 11:30 | 1 |
| o-Xylene | <0.000400 | U | 0.000400 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 11:30 | 1 |
| Xylenes, Total | <0.000800 | U | 0.000800 | | mg/Kg | | 07/13/22 13:52 | 07/14/22 11:30 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *95* | | *70 - 130* | *07/13/22 13:52* | *07/14/22 11:30* | *1* |
| *1,4-Difluorobenzene (Surr)* | *77* | | *70 - 130* | *07/13/22 13:52* | *07/14/22 11:30* | *1* |

**Lab Sample ID: LCS 880-29669/1-A**
**Matrix: Solid**
**Analysis Batch: 29700**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29669**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.100 | 0.08017 | | mg/Kg | | 80 | 70 - 130 |
| Toluene | 0.100 | 0.09066 | | mg/Kg | | 91 | 70 - 130 |
| Ethylbenzene | 0.100 | 0.09604 | | mg/Kg | | 96 | 70 - 130 |
| m-Xylene & p-Xylene | 0.200 | 0.1957 | | mg/Kg | | 98 | 70 - 130 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

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

**Lab Sample ID: LCS 880-29669/1-A**
**Matrix: Solid**
**Analysis Batch: 29700**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29669**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| o-Xylene | | | 0.100 | 0.1016 | | mg/Kg | | 102 | 70 - 130 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *122* | | *70 - 130* |
| *1,4-Difluorobenzene (Surr)* | *86* | | *70 - 130* |

**Lab Sample ID: LCSD 880-29669/2-A**
**Matrix: Solid**
**Analysis Batch: 29700**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 29669**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | | | 0.100 | 0.08199 | | mg/Kg | | 82 | 70 - 130 | 2 | 35 |
| Toluene | | | 0.100 | 0.09295 | | mg/Kg | | 93 | 70 - 130 | 2 | 35 |
| Ethylbenzene | | | 0.100 | 0.1000 | | mg/Kg | | 100 | 70 - 130 | 4 | 35 |
| m-Xylene & p-Xylene | | | 0.200 | 0.2038 | | mg/Kg | | 102 | 70 - 130 | 4 | 35 |
| o-Xylene | | | 0.100 | 0.1057 | | mg/Kg | | 106 | 70 - 130 | 4 | 35 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *124* | | *70 - 130* |
| *1,4-Difluorobenzene (Surr)* | *84* | | *70 - 130* |

**Lab Sample ID: 890-2547-A-31-F MS**
**Matrix: Solid**
**Analysis Batch: 29700**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 29669**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00201 | U | 0.100 | 0.08999 | | mg/Kg | | 90 | 70 - 130 | | |
| Toluene | <0.00201 | U | 0.100 | 0.09472 | | mg/Kg | | 95 | 70 - 130 | | |
| Ethylbenzene | <0.00201 | U | 0.100 | 0.09481 | | mg/Kg | | 95 | 70 - 130 | | |
| m-Xylene & p-Xylene | <0.00402 | U | 0.200 | 0.1929 | | mg/Kg | | 96 | 70 - 130 | | |
| o-Xylene | <0.00201 | U | 0.100 | 0.1003 | | mg/Kg | | 100 | 70 - 130 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *132* | *S1+* | *70 - 130* |
| *1,4-Difluorobenzene (Surr)* | *82* | | *70 - 130* |

**Lab Sample ID: 890-2547-A-31-G MSD**
**Matrix: Solid**
**Analysis Batch: 29700**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 29669**

| 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 | 0.09020 | | mg/Kg | | 91 | 70 - 130 | 0 | 35 |
| Toluene | <0.00201 | U | 0.0990 | 0.09342 | | mg/Kg | | 94 | 70 - 130 | 1 | 35 |
| Ethylbenzene | <0.00201 | U | 0.0990 | 0.09341 | | mg/Kg | | 94 | 70 - 130 | 1 | 35 |
| m-Xylene & p-Xylene | <0.00402 | U | 0.198 | 0.1875 | | mg/Kg | | 95 | 70 - 130 | 3 | 35 |
| o-Xylene | <0.00201 | U | 0.0990 | 0.09750 | | mg/Kg | | 98 | 70 - 130 | 3 | 35 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

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

**Lab Sample ID: 890-2547-A-31-G MSD**
**Matrix: Solid**
**Analysis Batch: 29700**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 29669**

| Surrogate | MSD %Recovery | MSD Qualifier | Limits |
|---|---|---|---|
| 4-Bromofluorobenzene (Surr) | 123 | | 70 - 130 |
| 1,4-Difluorobenzene (Surr) | 84 | | 70 - 130 |

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

**Lab Sample ID: MB 880-29183/1-A**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 10:03 | 1 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 10:03 | 1 |
| OII Range Organics (Over C28-C36) | <50.0 | U | 50.0 | | mg/Kg | | 07/07/22 09:35 | 07/07/22 10:03 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 114 | | 70 - 130 | 07/07/22 09:35 | 07/07/22 10:03 | 1 |
| o-Terphenyl | 128 | | 70 - 130 | 07/07/22 09:35 | 07/07/22 10:03 | 1 |

**Lab Sample ID: LCS 880-29183/2-A**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | | | 1000 | 1136 | | mg/Kg | | 114 | 70 - 130 | | |
| Diesel Range Organics (Over C10-C28) | | | 1000 | 1143 | | mg/Kg | | 114 | 70 - 130 | | |

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| 1-Chlorooctane | 124 | | 70 - 130 |
| o-Terphenyl | 136 | S1+ | 70 - 130 |

**Lab Sample ID: LCSD 880-29183/3-A**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | | | 1000 | 1093 | | mg/Kg | | 109 | 70 - 130 | 4 | 20 |
| Diesel Range Organics (Over C10-C28) | | | 1000 | 1022 | | mg/Kg | | 102 | 70 - 130 | 11 | 20 |

| Surrogate | LCSD %Recovery | LCSD Qualifier | Limits |
|---|---|---|---|
| 1-Chlorooctane | 105 | | 70 - 130 |
| o-Terphenyl | 109 | | 70 - 130 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

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

**Lab Sample ID: 890-2507-1 MS**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: PH03**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U F1 | 997 | 1311 | F1 | mg/Kg | | 132 | 70 - 130 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 997 | 1006 | | mg/Kg | | 101 | 70 - 130 |

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

**Lab Sample ID: 890-2507-1 MSD**
**Matrix: Solid**
**Analysis Batch: 29167**

**Client Sample ID: PH03**
**Prep Type: Total/NA**
**Prep Batch: 29183**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO)-C6-C10 | <50.0 | U F1 | 996 | 1172 | | mg/Kg | | 118 | 70 - 130 | 11 | 20 |
| Diesel Range Organics (Over C10-C28) | <50.0 | U | 996 | 1003 | | mg/Kg | | 101 | 70 - 130 | 0 | 20 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *1-Chlorooctane* | *116* | | *70 - 130* |
| *o-Terphenyl* | *116* | | *70 - 130* |

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 880-29204/1-A**
**Matrix: Solid**
**Analysis Batch: 29449**

**Client Sample ID: Method Blank**
**Prep Type: Soluble**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.00 | U | 5.00 | | mg/Kg | | | 07/12/22 07:28 | 1 |

**Lab Sample ID: LCS 880-29204/2-A**
**Matrix: Solid**
**Analysis Batch: 29449**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Chloride | 250 | 264.5 | | mg/Kg | | 106 | 90 - 110 |

**Lab Sample ID: LCSD 880-29204/3-A**
**Matrix: Solid**
**Analysis Batch: 29449**

**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 | 263.0 | | mg/Kg | | 105 | 90 - 110 | 1 | 20 |

# QC Sample Results

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

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

**Lab Sample ID: 890-2507-2 MS**
**Matrix: Solid**
**Analysis Batch: 29449**

**Client Sample ID: PH03**
**Prep Type: Soluble**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 37.2 | | 248 | 297.4 | | mg/Kg | | 105 | 90 - 110 | | |

**Lab Sample ID: 890-2507-2 MSD**
**Matrix: Solid**
**Analysis Batch: 29449**

**Client Sample ID: PH03**
**Prep Type: Soluble**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 37.2 | | 248 | 297.1 | | mg/Kg | | 105 | 90 - 110 | 0 | 20 |

# QC Association Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## GC VOA

### Prep Batch: 29668

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-1 | PH03 | Total/NA | Solid | 5035 | |
| 890-2507-2 | PH03 | Total/NA | Solid | 5035 | |
| 890-2507-3 | PH04 | Total/NA | Solid | 5035 | |
| 890-2507-4 | PH04 | Total/NA | Solid | 5035 | |
| 890-2507-5 | PH05 | Total/NA | Solid | 5035 | |
| MB 880-29668/5-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 880-29668/1-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| LCSD 880-29668/2-A | Lab Control Sample Dup | Total/NA | Solid | 5035 | |
| 890-2547-A-21-A MS | Matrix Spike | Total/NA | Solid | 5035 | |
| 890-2547-A-21-B MSD | Matrix Spike Duplicate | Total/NA | Solid | 5035 | |

### Prep Batch: 29669

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-6 | PH05 | Total/NA | Solid | 5035 | |
| 890-2507-7 | PH06 | Total/NA | Solid | 5035 | |
| 890-2507-8 | PH06 | Total/NA | Solid | 5035 | |
| MB 880-29669/5-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 880-29669/1-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| LCSD 880-29669/2-A | Lab Control Sample Dup | Total/NA | Solid | 5035 | |
| 890-2547-A-31-F MS | Matrix Spike | Total/NA | Solid | 5035 | |
| 890-2547-A-31-G MSD | Matrix Spike Duplicate | Total/NA | Solid | 5035 | |

### Analysis Batch: 29700

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-6 | PH05 | Total/NA | Solid | 8021B | 29669 |
| 890-2507-7 | PH06 | Total/NA | Solid | 8021B | 29669 |
| 890-2507-8 | PH06 | Total/NA | Solid | 8021B | 29669 |
| MB 880-29669/5-A | Method Blank | Total/NA | Solid | 8021B | 29669 |
| LCS 880-29669/1-A | Lab Control Sample | Total/NA | Solid | 8021B | 29669 |
| LCSD 880-29669/2-A | Lab Control Sample Dup | Total/NA | Solid | 8021B | 29669 |
| 890-2547-A-31-F MS | Matrix Spike | Total/NA | Solid | 8021B | 29669 |
| 890-2547-A-31-G MSD | Matrix Spike Duplicate | Total/NA | Solid | 8021B | 29669 |

### Analysis Batch: 29704

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-1 | PH03 | Total/NA | Solid | 8021B | 29668 |
| 890-2507-2 | PH03 | Total/NA | Solid | 8021B | 29668 |
| 890-2507-3 | PH04 | Total/NA | Solid | 8021B | 29668 |
| 890-2507-4 | PH04 | Total/NA | Solid | 8021B | 29668 |
| 890-2507-5 | PH05 | Total/NA | Solid | 8021B | 29668 |
| MB 880-29668/5-A | Method Blank | Total/NA | Solid | 8021B | 29668 |
| LCS 880-29668/1-A | Lab Control Sample | Total/NA | Solid | 8021B | 29668 |
| LCSD 880-29668/2-A | Lab Control Sample Dup | Total/NA | Solid | 8021B | 29668 |
| 890-2547-A-21-A MS | Matrix Spike | Total/NA | Solid | 8021B | 29668 |
| 890-2547-A-21-B MSD | Matrix Spike Duplicate | Total/NA | Solid | 8021B | 29668 |

### Analysis Batch: 29777

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-1 | PH03 | Total/NA | Solid | Total BTEX | |
| 890-2507-2 | PH03 | Total/NA | Solid | Total BTEX | |
| 890-2507-3 | PH04 | Total/NA | Solid | Total BTEX | |

# QC Association Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## GC VOA (Continued)

### Analysis Batch: 29777 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-4 | PH04 | Total/NA | Solid | Total BTEX | |
| 890-2507-5 | PH05 | Total/NA | Solid | Total BTEX | |
| 890-2507-6 | PH05 | Total/NA | Solid | Total BTEX | |
| 890-2507-7 | PH06 | Total/NA | Solid | Total BTEX | |
| 890-2507-8 | PH06 | Total/NA | Solid | Total BTEX | |

## GC Semi VOA

### Analysis Batch: 29167

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-1 | PH03 | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-2 | PH03 | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-3 | PH04 | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-4 | PH04 | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-5 | PH05 | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-6 | PH05 | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-8 | PH06 | Total/NA | Solid | 8015B NM | 29183 |
| MB 880-29183/1-A | Method Blank | Total/NA | Solid | 8015B NM | 29183 |
| LCS 880-29183/2-A | Lab Control Sample | Total/NA | Solid | 8015B NM | 29183 |
| LCSD 880-29183/3-A | Lab Control Sample Dup | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-1 MS | PH03 | Total/NA | Solid | 8015B NM | 29183 |
| 890-2507-1 MSD | PH03 | Total/NA | Solid | 8015B NM | 29183 |

### Prep Batch: 29183

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-1 | PH03 | Total/NA | Solid | 8015NM Prep | |
| 890-2507-2 | PH03 | Total/NA | Solid | 8015NM Prep | |
| 890-2507-3 | PH04 | Total/NA | Solid | 8015NM Prep | |
| 890-2507-4 | PH04 | Total/NA | Solid | 8015NM Prep | |
| 890-2507-5 | PH05 | Total/NA | Solid | 8015NM Prep | |
| 890-2507-6 | PH05 | Total/NA | Solid | 8015NM Prep | |
| 890-2507-7 | PH06 | Total/NA | Solid | 8015NM Prep | |
| 890-2507-8 | PH06 | Total/NA | Solid | 8015NM Prep | |
| MB 880-29183/1-A | Method Blank | Total/NA | Solid | 8015NM Prep | |
| LCS 880-29183/2-A | Lab Control Sample | Total/NA | Solid | 8015NM Prep | |
| LCSD 880-29183/3-A | Lab Control Sample Dup | Total/NA | Solid | 8015NM Prep | |
| 890-2507-1 MS | PH03 | Total/NA | Solid | 8015NM Prep | |
| 890-2507-1 MSD | PH03 | Total/NA | Solid | 8015NM Prep | |

### Analysis Batch: 29286

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-1 | PH03 | Total/NA | Solid | 8015 NM | |
| 890-2507-2 | PH03 | Total/NA | Solid | 8015 NM | |
| 890-2507-3 | PH04 | Total/NA | Solid | 8015 NM | |
| 890-2507-4 | PH04 | Total/NA | Solid | 8015 NM | |
| 890-2507-5 | PH05 | Total/NA | Solid | 8015 NM | |
| 890-2507-6 | PH05 | Total/NA | Solid | 8015 NM | |
| 890-2507-7 | PH06 | Total/NA | Solid | 8015 NM | |
| 890-2507-8 | PH06 | Total/NA | Solid | 8015 NM | |

# QC Association Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## GC Semi VOA

### Analysis Batch: 29692

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-7 | PH06 | Total/NA | Solid | 8015B NM | 29183 |

## HPLC/IC

### Leach Batch: 29204

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-1 | PH03 | Soluble | Solid | DI Leach | |
| 890-2507-2 | PH03 | Soluble | Solid | DI Leach | |
| 890-2507-3 | PH04 | Soluble | Solid | DI Leach | |
| 890-2507-4 | PH04 | Soluble | Solid | DI Leach | |
| 890-2507-5 | PH05 | Soluble | Solid | DI Leach | |
| 890-2507-6 | PH05 | Soluble | Solid | DI Leach | |
| 890-2507-7 | PH06 | Soluble | Solid | DI Leach | |
| 890-2507-8 | PH06 | Soluble | Solid | DI Leach | |
| MB 880-29204/1-A | Method Blank | Soluble | Solid | DI Leach | |
| LCS 880-29204/2-A | Lab Control Sample | Soluble | Solid | DI Leach | |
| LCSD 880-29204/3-A | Lab Control Sample Dup | Soluble | Solid | DI Leach | |
| 890-2507-2 MS | PH03 | Soluble | Solid | DI Leach | |
| 890-2507-2 MSD | PH03 | Soluble | Solid | DI Leach | |

### Analysis Batch: 29449

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 890-2507-1 | PH03 | Soluble | Solid | 300.0 | 29204 |
| 890-2507-2 | PH03 | Soluble | Solid | 300.0 | 29204 |
| 890-2507-3 | PH04 | Soluble | Solid | 300.0 | 29204 |
| 890-2507-4 | PH04 | Soluble | Solid | 300.0 | 29204 |
| 890-2507-5 | PH05 | Soluble | Solid | 300.0 | 29204 |
| 890-2507-6 | PH05 | Soluble | Solid | 300.0 | 29204 |
| 890-2507-7 | PH06 | Soluble | Solid | 300.0 | 29204 |
| 890-2507-8 | PH06 | Soluble | Solid | 300.0 | 29204 |
| MB 880-29204/1-A | Method Blank | Soluble | Solid | 300.0 | 29204 |
| LCS 880-29204/2-A | Lab Control Sample | Soluble | Solid | 300.0 | 29204 |
| LCSD 880-29204/3-A | Lab Control Sample Dup | Soluble | Solid | 300.0 | 29204 |
| 890-2507-2 MS | PH03 | Soluble | Solid | 300.0 | 29204 |
| 890-2507-2 MSD | PH03 | Soluble | Solid | 300.0 | 29204 |

# Lab Chronicle

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Client Sample ID: PH03
**Date Collected: 07/05/22 13:28**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2507-1
**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 | 29668 | 07/13/22 13:45 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/14/22 18:35 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29777 | 07/14/22 19:40 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29286 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.01 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 11:45 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5.05 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 5 | | | 29449 | 07/12/22 10:32 | CH | XEN MID |

## Client Sample ID: PH03
**Date Collected: 07/05/22 13:30**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2507-2
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 4.98 g | 5 mL | 29668 | 07/13/22 13:45 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/14/22 18:56 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29777 | 07/14/22 19:40 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29286 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.04 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 12:49 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5.05 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 1 | | | 29449 | 07/12/22 10:41 | CH | XEN MID |

## Client Sample ID: PH04
**Date Collected: 07/05/22 13:40**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2507-3
**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 | 29668 | 07/13/22 13:45 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/14/22 19:16 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29777 | 07/14/22 19:40 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29286 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.05 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 13:11 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5.02 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 5 | | | 29449 | 07/12/22 11:09 | CH | XEN MID |

## Client Sample ID: PH04
**Date Collected: 07/05/22 13:45**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2507-4
**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 | 29668 | 07/13/22 13:45 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/14/22 19:37 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29777 | 07/14/22 19:40 | AJ | XEN MID |

# Lab Chronicle

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Client Sample ID: PH04
**Date Collected: 07/05/22 13:45**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2507-4
**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 | | | 29286 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.03 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 13:32 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 4.96 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 1 | | | 29449 | 07/12/22 11:18 | CH | XEN MID |

## Client Sample ID: PH05
**Date Collected: 07/05/22 14:00**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2507-5
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.01 g | 5 mL | 29668 | 07/13/22 13:45 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 29704 | 07/14/22 19:57 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29777 | 07/14/22 19:40 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29286 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.03 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 13:54 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5.01 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 1 | | | 29449 | 07/12/22 11:46 | CH | XEN MID |

## Client Sample ID: PH05
**Date Collected: 07/05/22 14:05**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2507-6
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.01 g | 5 mL | 29669 | 07/13/22 13:52 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | | | 29700 | 07/14/22 17:42 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29777 | 07/14/22 19:40 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29286 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.00 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 14:16 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 4.98 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 1 | | | 29449 | 07/12/22 11:55 | CH | XEN MID |

## Client Sample ID: PH06
**Date Collected: 07/05/22 14:30**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2507-7
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 4.97 g | 5 mL | 29669 | 07/13/22 13:52 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | | | 29700 | 07/14/22 18:08 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29777 | 07/14/22 19:40 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29286 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.02 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29692 | 07/15/22 00:49 | SM | XEN MID |

Eurofins Carlsbad

# Lab Chronicle

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## Client Sample ID: PH06
**Date Collected: 07/05/22 14:30**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2507-7
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Soluble | Leach | DI Leach | | | 5.02 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 5 | | | 29449 | 07/12/22 12:04 | CH | XEN MID |

## Client Sample ID: PH06
**Date Collected: 07/05/22 14:35**
**Date Received: 07/06/22 09:09**

## Lab Sample ID: 890-2507-8
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 4.99 g | 5 mL | 29669 | 07/13/22 13:52 | MR | XEN MID |
| Total/NA | Analysis | 8021B | | 1 | | | 29700 | 07/14/22 18:34 | MR | XEN MID |
| Total/NA | Analysis | Total BTEX | | 1 | | | 29777 | 07/14/22 19:40 | AJ | XEN MID |
| Total/NA | Analysis | 8015 NM | | 1 | | | 29286 | 07/08/22 11:23 | AJ | XEN MID |
| Total/NA | Prep | 8015NM Prep | | | 10.03 g | 10 mL | 29183 | 07/07/22 09:35 | AM | XEN MID |
| Total/NA | Analysis | 8015B NM | | 1 | | | 29167 | 07/07/22 14:59 | AJ | XEN MID |
| Soluble | Leach | DI Leach | | | 5.01 g | 50 mL | 29204 | 07/07/22 12:33 | SMC | XEN MID |
| Soluble | Analysis | 300.0 | | 5 | | | 29449 | 07/12/22 12:14 | CH | XEN MID |

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

## 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: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

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

**Protocol References:**

ASTM = ASTM International

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

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

# Sample Summary

Client: Ensolum
Project/Site: RDU 60

Job ID: 890-2507-1
SDG: 03A1987040

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Depth |
|---|---|---|---|---|---|
| 890-2507-1 | PH03 | Solid | 07/05/22 13:28 | 07/06/22 09:09 | 0.5' |
| 890-2507-2 | PH03 | Solid | 07/05/22 13:30 | 07/06/22 09:09 | 1' |
| 890-2507-3 | PH04 | Solid | 07/05/22 13:40 | 07/06/22 09:09 | 0.5' |
| 890-2507-4 | PH04 | Solid | 07/05/22 13:45 | 07/06/22 09:09 | 1' |
| 890-2507-5 | PH05 | Solid | 07/05/22 14:00 | 07/06/22 09:09 | 0.5' |
| 890-2507-6 | PH05 | Solid | 07/05/22 14:05 | 07/06/22 09:09 | 1' |
| 890-2507-7 | PH06 | Solid | 07/05/22 14:30 | 07/06/22 09:09 | 0.5' |
| 890-2507-8 | PH06 | Solid | 07/05/22 14:35 | 07/06/22 09:09 | 1' |

eurofins | Environment Testing Xenco

# Chain of Custody

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

Work Order No: _____

www.xenco.com Page 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Joseph Hernandez | Bill to: (if different) | Jim Raley |
| Company Name: | Ensolum | Company Name: | Devon Energy |
| Address: | 3122 Natl. Parks Hwy | Address: | 5315 Buena Vista Dr. |
| City, State ZIP: | Carlsbad NM 88220 | City, State ZIP: | Carlsbad NM 88220 |
| Phone: | 281702.2329 | Email: | jhernandez@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: | ROW 60 | Turn Around | ☑ Routine ☐ Rush |
| Project Number: | 03A1987040 | Due Date: | 5 day tat |
| Project Location: | Eddy County NM | TAT starts the day received by the lab, if received by 4:30pm | |
| Sampler's Name: | LJ Chen | | |
| PO #: | N/A | | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | Yes No | Wet Ice: | Yes No |
| Samples Received Intact: | Yes No | Thermometer ID: | TWM_007 |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | -0.2 |
| Sample Custody Seals: | Yes No N/A | Temperature Reading: | 1.4 |
| Total Containers: | | Corrected Temperature: | 1.2 |

**Preservative Codes**

None: NO | DI Water: $H_2O$
Cool: Cool | MeOH: Me
HCL: HC | $HNO_3$: HN
$H_2SO_4$: $H_2$ | NaOH: Na
$H_3PO_4$: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: NaSO$_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Grab/ Comp | # of Cont | Pres. Code | tph epa method 8015MD | btex epa method 8021B | Chloride epa method 300.0 | Sample Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PH03 @ 0.5' | S | 7/5/22 | 1328 | 0.5' | G | 1 | | X | X | X | incident number |
| PH03 @ 1' | | | 1330 | 1' | | | | | | | nAPP2216732906 |
| PH04 @ 0.5' | | | 1340 | 0.5' | | | | | | | |
| PH04 @ 1' | | | 1345 | 1' | | | | | | | Cost Center |
| PH05 @ 0.5' | | | 1400 | 0.5' | | | | | | | 106121570 |
| PH05 @ 1' | | | 1405 | 1' | | | | | | | |
| PH06 @ 0.5' | | | 1430 | 0.5' | | | | | | | |
| PH06 @ 1' | ↓ | ↓ | 1435 | 1' | ↓ | ↓ | | ↓ | ↓ | ↓ | |

890-2507 Chain of Custody

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

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

| | Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|
| 1 | | | 7.6.22 9071 | 2 | | |
| 3 | | | | 4 | | |
| 5 | | | | 6 | | |

Revised Date: 08/25/2020 Rev. 2020.2

# Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2507-1
SDG Number: 03A1987040

**Login Number: 2507**
**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: 890-2507-1
SDG Number: 03A1987040

**Login Number: 2507**
**List Number: 2**
**Creator: Rodriguez, Leticia**

**List Source: Eurofins Midland**
**List Creation: 07/07/22 10:57 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 G

# Email Correspondence

**From:** Joseph Hernandez
**To:** ocd.enviro@state.nm.us; "CFO_Spill, BLM_NM"
**Cc:** Devon-Team; Raley, Jim
**Subject:** WPX Site Sampling Activity Update (7/5-7/9/22)
**Date:** Friday, July 1, 2022 4:02:00 PM
**Attachments:** image001.png
image002.png
image003.png
image004.png

---

Good afternoon,

WPX anticipates conducting final confirmation soil sampling activities at the following sites between July 5 through July 9, 2022:

Site: RDX Federal 21 #044
API: 30-015-41193
Incident Number: nAPP2115533694

Site: RDX Federal 28 #011
API: 30-015-42109
Incident Number: nAPP2215732821

Site: Ross Draw Unit #060
API: 30-015-41979
Incident Number: nAPP2216732906

**Joseph Hernandez**
Senior Geologist
281-702-2329
**Ensolum, LLC**

**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 142755

## CONDITIONS

| | |
|---|---|
| Operator:<br>WPX Energy Permian, LLC<br>Devon Energy - Regulatory<br>Oklahoma City, OK 73102 | OGRID:<br>246289 |
| | Action Number:<br>142755 |
| | Action Type:<br>[C-141] Release Corrective Action (C-141) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| rhamlet | We have received your closure report and final C-141 for Incident #NAPP2216732906 ROSS DRAW UNIT #060, thank you. This closure is approved. | 12/9/2022 |