State of New Mexico
Oil Conservation Division

Incident ID	NMAP1826970471
District RP	2RP-4984
Facility ID	
Application ID	pMAP1826970173

Remediation Plan

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

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

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

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

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

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

Signature: _____ Date: 9/9/2022

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

OCD Only

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

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

Signature: [signature] Date: 9/19/22

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	NMAP1826970471
District RP	2RP-4984
Facility ID	N/A
Application ID	pMAP1826970173

Release Notification

Responsible Party

Responsible Party: **WPX Energy/ RKI**	OGRID: **246289**
Contact Name: **Jim Raley**	Contact Telephone: **575-689-7597**
Contact email: **james.raley@wpxenergy.com**	Incident # *(assigned by OCD)* NMAP1826970471
Contact mailing address: **5315 Buena Vista Dr., Carlsbad, NM 88220**	

Location of Release Source

Latitude: **32.0069847** Longitude: **-103.9574661**
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: **EP USA #005**	Site Type: **Oil**
Date Release Discovered: **9/17/2018**	API#: **30-015-25020**

Unit Letter	Section	Township	Range	County
N	**26**	**26S**	**29E**	**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) **3**	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
Interior corrosion on 1" nipple located on wellhead allowed small hole to develop. This allowed fluids to escape to pad surface. Small area off pad was also impacted approx 50' on east side of well pad. BLM permission granted to excavate impacted area off-site.

State of New Mexico
Oil Conservation Division

Incident ID	NMAP1826970471
District RP	2RP-4984
Facility ID	N/A
Application ID	pMAP1826970173

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

Signature: Jim Raley

Date: **9/25/2018**

email: james.raley@wpxenergy.com

Telephone: **575-689-7597**

OCD Only

Received by: _____

Date: 09/26/18

State of New Mexico
Oil Conservation Division

Incident ID	NMAP1826970471
District RP	2RP-4984
Facility ID	
Application ID	pMAP1826970173

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?	51-100 (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.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NMAP1826970471
District RP	2RP-4984
Facility ID	
Application ID	pMAP1826970173

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: Joseph S. Hernandez, Ensolum
on behalf of Devon Energy

Title: Senior Geologist

Signature:

Date: 9/9/2022

email: jhernandez@ensolum.com

Telephone: 281-702-2329

OCD Only

Received by: Jocelyn Harimon

Date: 09/09/2022

Incident ID	NMAP1826970471
District RP	2RP-4984
Facility ID	
Application ID	pMAP1826970173

Remediation Plan

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

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

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

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

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

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

Signature: _____ Date: 9/9/2022

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

OCD Only

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

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

Signature: _____ Date: _____

ENSOLUM

REMEDIATION WORK PLAN ADDENDUM

Site Location:

EP USA #005
Eddy County, New Mexico
Incident Number
NMAP1826970471

September 9, 2022
Ensolum Project No. 03A1987013

Prepared for:

WPX Energy Permian, LLC
5315 Buena Vista Dr.
Carlsbad, NM 88220
Attention: Jim Raley

Prepared by:

Joseph S. Hernandez
Senior Geologist

Ashley Ager, MS, PG
Program Director, Geologist

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

Ensolum, LLC (Ensolum) has prepared this Remediation Work Plan Addendum (RWPA) in response to a Remediation Work Plan (RWP) that was denied by the New Mexico Oil Conservation Division (NMOCD) on August 9, 2022 for the following reason:

"Remediation Plan Denied. Please provide documentation that the gauged well is C-02038. Extent of release has not been adequately delineated to approve installation of a liner. Please provide soil data between 4' and 11' for locations PH01 and PH03. Please resubmit a revised Remediation Plan by September 9, 2022."

This RWPA summarizes previous corrective actions performed, additional site assessment and soil sampling activities conducted to date by WPX Permian Energy, LLC (WPX) at the EP USA #005 (hereinafter referred to as the "Site") in Unit N, Section 26, Township 26 South, Range 29 East, in Eddy County, New Mexico **(Figure 1 in Appendix A).** All previous remediation activities and soil sample analytical results can be referenced in the original Closure Request (CR) and RWP, denied by the NMOCD on July 29, 2020 and August 9, 2022, respectively. Based on the current status of the Site, WPX respectfully submits this RWPA, which includes additional soil sampling activities and supplemental depth to groundwater measurement data requested in the denial and re-proposes installing a 20-mil impermeable liner in the subsurface to mitigate residual chloride impacts associated with a reportable release of produced water and crude oil at the Site.

1.1 Site Description & Release Background

The Site is located within Eddy County, New Mexico (32.0069847°N, 103.9574661°W) and is associated with oil and gas exploration and production operations on Bureau of Land Management (BLM) Federal Land **(Figure 1 in Appendix A)**.

On September 17, 2018, interior corrosion on a 1-inch nipple located on a wellhead allowed a small hole to develop and release approximately 3 barrels (bbls) of oil and 5 bbls of produced water to the well pad and adjacent pasture. No fluids were able to be recovered immediately. WPX reported the release to the NMOCD with a subsquent Corrective Action Form C-141 (Form C-141) on September 25, 2018. The release was assigned Incident Number NMAP1826970471.

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 between 51 and 100 feet below ground surface (bgs) based a recent measurement of a nearby well on the JC Williams Yard, which was confirmed to be the well measured on the Groundwater Sampling Form provided in the RWP. The well does not appear to have an identification number corresponding to the New Mexico Office of the State Engineer (NMOSE) well records. However, Ensolum obtained property access and visibly observed the water well, then measured depth to water on August 15, 2022. The well is located approximately 0.31 miles northeast of the Site, which is closer than water well C-02038 (presumed to be the well location for the original groundwater measurement) located approximately 0.46 miles northeast of the Site. Ensolum measured depth to groundwater in the JC William Yard Well as 82.9 feet bgs. The location of the JC Williams well is provided on **Figure 1 in Appendix A**. The Groundwater Measurement Form summarizing findings is provided as **Appendix B**.

The closest surface water to the Site is the Pecos River, located approximately 4,890 feet south the Site. The Site is greater than 300 feet from any occupied residence, school, hospital, institution, church, or wetland and greater than 1,000 feet to a freshwater well or spring. The Site is not within a 100-year floodplain. Based on the desktop review of the current BLM Carlsbad Field Office (CFO) karst cave potential map, this Site is located in a high potential karst area. It should be noted that a pedestrian karst survey was performed by Southwest Geophysical Consulting, LLC (SGC) on September 14, 2020 and confirmed the absence of surface karst features and the limited likelihood of shallow subsurface karst features. The Cave and Karst Resource Inventory Report is provided in **Appendix C.**

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): 100 mg/kg
- Chloride: 600 mg/kg

2.0 SOIL SAMPLING AND REMEDIAL ACTIONS

Based on the CR remediation summary, 132 yards were excavated from the pasture to a depth of 2 feet to 4 feet with confirmation soil sample results complying with the reclamation standard or applicable Table 1 Closure Criteria based on results of a karst survey. Delineation samples collected on pad also complied with the applied Table 1 Closure Criteria. The NMOCD would not accept a karst survey conducted by a BLM-approved karst specialist for evaluation of karst geology required for site characterization and the site was re-evaluated by WPX. Between May 9, 2022 and June 17, 2022, WPX conducted additional delineation soil sampling and remediation activities for Incident Number NMAP1826970471 to address the Site under the most stringent Closure Criteria, which assumes the Site is unstable due to subsurface karst. An additional 90 cubic yards of soil were removed, totaling 222 cubic yards to date, and disposed of under WPX-approved manifests.

2.1 Delineation Activities

Between May 9 and 10, 2022 delineation activities were conducted by Ensolum to further characterize the subject release by verifying the presence or absence of impacted soil as compared to the most stringent Closure Criteria. Delineation samples were collected in potholes advanced with heavy equipment (samples designated PH). 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 PH10): the sample with the highest observed field screening (ranging from 0.5 foot bgs to 1 foot bgs) and the greatest depth (ranging from 1 foot bgs to 11 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 D).** 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 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 E.**

2.2 Excavation Activities

On June 17, 2022, additional excavation activities were conducted by Ensolum to remove impacted soil associated with the subject release via heavy equipment. Excavation activites were directed by field sceening soil within the subject release area for VOCs utilizing a calibrated PID and chloride using Hach® chloride QuanTab® test strips.

Following removal of impacted soil, Ensolum collected three composite soil samples at a sampling frequency of 200 square feet from the sidewalls of the excavation 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 SW01 through SW03 were collected from the sidewalls of the excavation at depths ranging from the ground surface to approximately 4 feet bgs.

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 E**.

2.3 Continued Delineation Activities

Although soil boring logs with soil descriptions and field screening results were previously provided, delineation activities were continued by Ensolum on August 16, 2022 to provide additional laboratory analytical data associated with delineation soil sample areas PH01 and PH03 between 4 and 11 feet bgs. A total of three soil samples were collected within 5 lateral feet of the original delineation soil sample locations at 5, 7, and 9 feet bgs. The soil samples were collected, handled and analyzed as previously described. Photographic documentation during delineation activities is included in **Appendix E.**

3.0 SOIL SAMPLING RESULTS

Laboratory analytical results for the new delineation soil samples collected from PH01 and PH03 confirmed previously submitted data indicating that vertical impacts exceeding the most stringent Closure Criteria do not exceed 11 feet bgs within the subject release extent and are, in fact, shallower near PH01, ending near 7 feet bgs. As previously reported, laboratory analytical results for chloride in delineation soil samples associated with potholes PH02 and PH10 indicate more shallow vertical impacts do not extend beyond 1 to 3 feet bgs for chloride and TPH, respectively. Laboratory analytical results for delineation soil samples PH05 through PH09 indicated constituents of concern (COCs) were within the applicable Closure Criteria and will assist with defining a clean lateral excavation boundary.

Laboratory analytical results for excavation soil samples SW01 through SW03 indicated COCs were within the Closure Criteria and indicate a clean lateral southern excavation boundary.

Laboratory analytical results are summarized in the **Table 1** included in **Appendix F**. The executed chain-of-custody forms and laboratory analytical reports are provided in **Appendix G**. **Appendix H** provides correspondence email notification receipts associated with the subject release.

4.0 REMEDIATION WORK PLAN

The primary objectives of Ensolum's scope of services were to document continued delineation and remediation activities performed at the Site were completed in accordance with the applicable

NMOCD regulatory guidelines and to document those concentrations of COCs present in soil remaining on-Site, then propose remediation to address any residual elevated concentrations.

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 from PH01 and PH03 confirm that vertical impacts above the Closure Criteria do not exceed the maximum depth of 7 and 11 feet bgs within the subject release extent, respectively. Laboratory analytical results for delineation soil samples associated with delineation soil samples from PH02 and PH10 indicate more shallow vertical impacts that do not extend beyond 1 to 3 feet bgs chloride and TPH, respectively;
- Laboratory analytical results for delineation soil samples from PH05 through PH09 indicated COCs were within the applicable Closure Criteria and will assist with defining a clean lateral excavation boundary;
- Based on existing soil analytical results and mapped extent of the release area (7,333 square feet), an estimated **1,302 cubic yards** of impacted soil is anticipated to be remediated and/or removed from the Site for disposal in accordance with state and federal regulations; and
- Depth to groundwater at the Site is between 51 and 100 feet below ground surface (bgs) based a recent measurement of a nearby well on the JC Williams Yard, which was confirmed to be the well measured on the Groundwater Sampling Form provided in the RWP. The well is located approximately 0.31 miles northeast of the Site and groundwater was observed to be 82.9 feet bgs. Photographic documentation during groundwater measurement activities is included in **Appendix E.**

Based on the conclusions presented above, the following remediation is re-proposed:

- Currently, delineation and excavation soil sampling provided representative lateral and vertical delineation of the remaining impacted soil. Remaining impacts within the subject release are characterized by chloride concentrations of 628 mg/kg to 5,770 mg/kg based on delineation soil samples PH01 through PH03. Ensolum proposes excavation of the release area within the top four feet, followed by the installation of a 20-mil impermeable liner at approximately 4 feet bgs inside the proposed excavation to act as a physical barrier and mitigate further chloride impacts into the subsurface. Once complete, WPX will backfill the area with non-waste containing soil. It should be noted that TPH exceedances associated with delineation soil sample PH10 at 0.5 foot bgs will be removed during excavation activities. The proposed excavation and liner extent is shown on **Figure 4 in Appendix A**;
- Horizontal delineation in the top four feet for the release will be defined through 5-point composite sidewall samples following the removal of residual impacts;
- Impacted soil will be excavated from the top four feet of the subject release area. Excavated soil will then be transferred to: (a) a New Mexico approved landfill facility for disposal and the excavation will be backfilled with non-waste containing soil, as defined by “Procedures for Implementation of the Spill Rule” (September 6, 2019) or (b) an on-site ex-situ treatment cell for chloride extraction. WPX will submit a revised RWP detailing the option (b) treatment and sampling plan for NMOCD review, if selected;
- Access for remediation or disturbance that occurs offsite requires BLM approval with additional access approval. WPX will prepare and submit documentation for proposed work areas before initiating corrective actions;

- There are areas off pad that will likely require third-party operator oversight and additional safety measures before or during remediation activities near their respective subsurface pipelines. WPX or the third-party operator may implement additional safety precautions above encroachment guidelines, including restrictions on hand shoveling and cribbing. These restrictions may be implemented as health and safety precautions at the judgment and responsibility of a WPX or third-party operator safety representative; and

- Subsequent to the completion of remediation and receipt of soil confirmation sample results documenting that impacted soil had been removed, the excavation will be backfilled with clean and/or treated soil and restored to "as close to its original state" as possible.

4.1 Proposed Sampling

WPX is requesting a variance to the 200 square foot confirmation sampling requirement for the areas to be excavated, which would require an estimated 12 sidewall soil samples within the proposed excavation area. Due to the large linear extent of the impacted area (600 feet), Ensolum proposes increasing the confirmation sampling size to collecting a 5-point composite sidewall sample to represent each 500 square foot area for the sidewalls of the excavation, for a total of 5 sidewall soil samples. Residual chloride impacts within the subject release area are defined by delineation soil samples PH01 through PH03 and PH10, therefore no confirmation floor soil samples will be collected.

Additionally, since the only TPH detected in any delineation or excavation confirmation sample was at 0.5 feet bgs in PH10, which is delineated by a deeper sample collected at 1-foot bgs in the same location and which will be removed during excavation, WPX requests all excavation confirmation samples be analyzed for chloride only.

4.2 Proposed Schedule

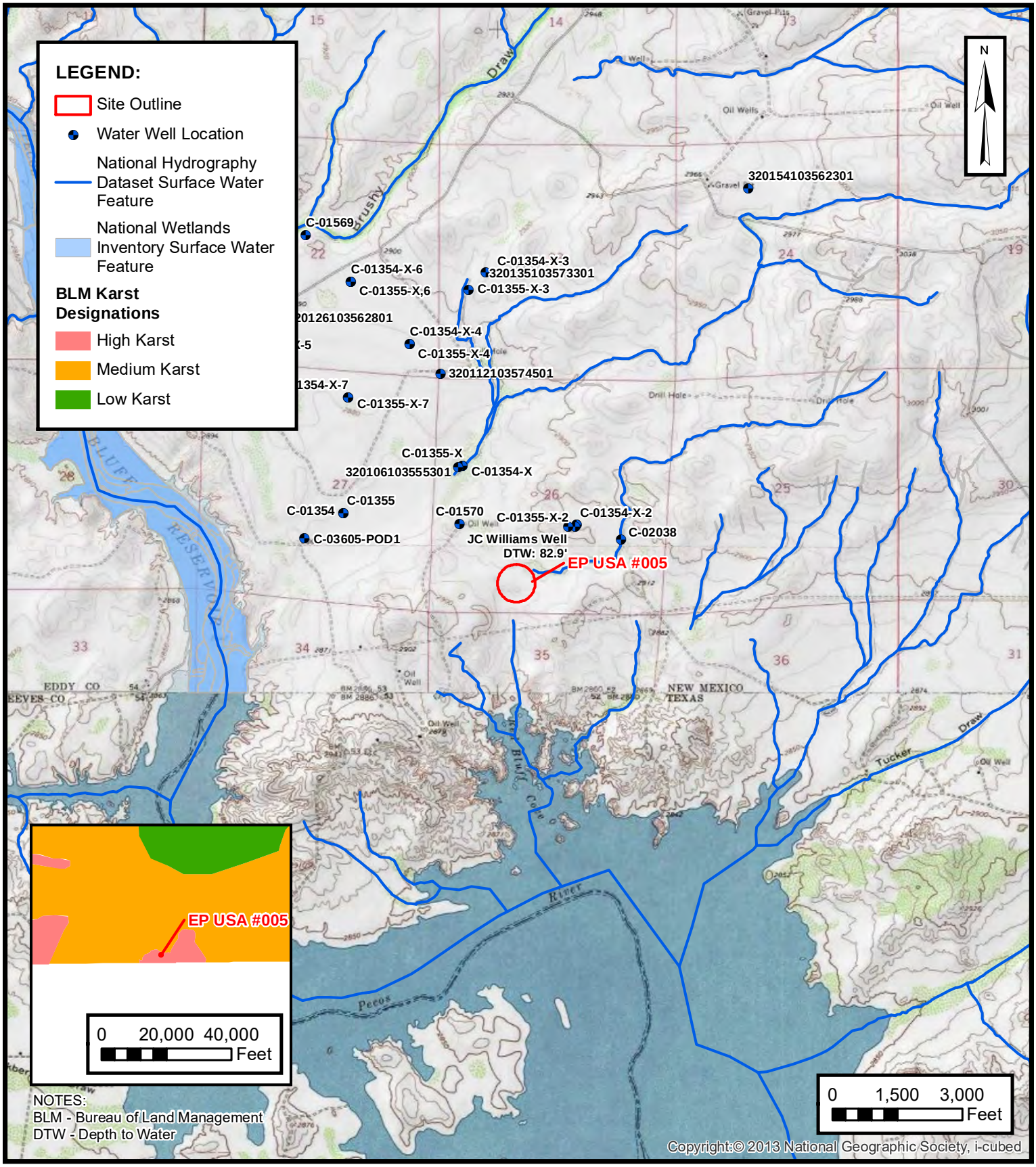
WPX believes the scope of work described above will meet requirements set forth in NMAC 19.15.29.13 and be protective of human health, the environment, and groundwater. As such, WPX respectfully requests approval of this RWP from NMOCD.

Based on the extent of corrective measures, planning and potential third-party operator oversight at the Site, WPX anticipates beginning remediation within 90 days of the approval of this RWP.

ENSOLUM

APPENDIX A

Figures

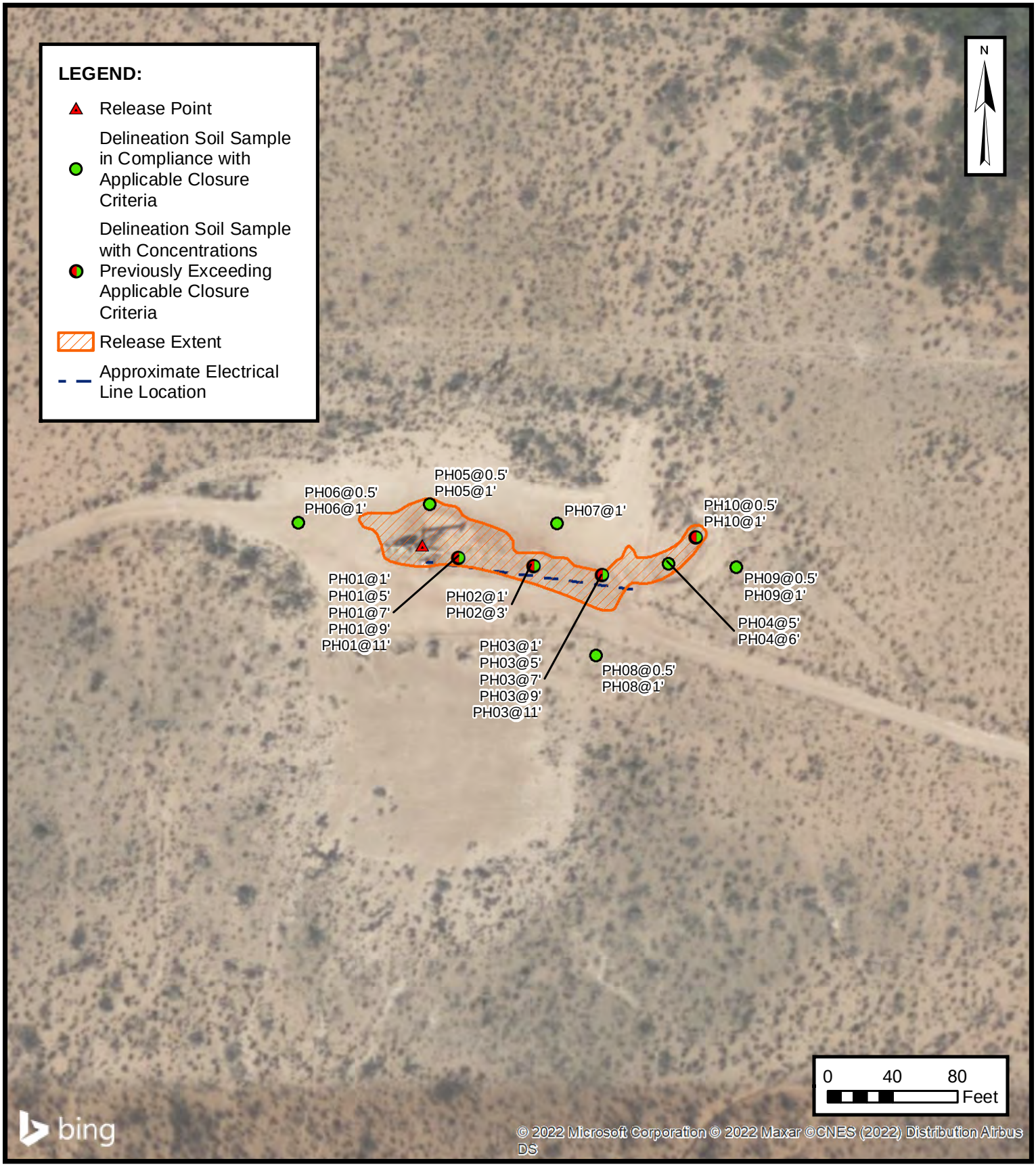


ENSOLUM
Environmental & Hydrogeologic Consultants

SITE MAP

WPX ENERGY PERMIAN, LLC
EP USA #005
Sec 26 T26S R29E
Eddy County, New Mexico

FIGURE
1

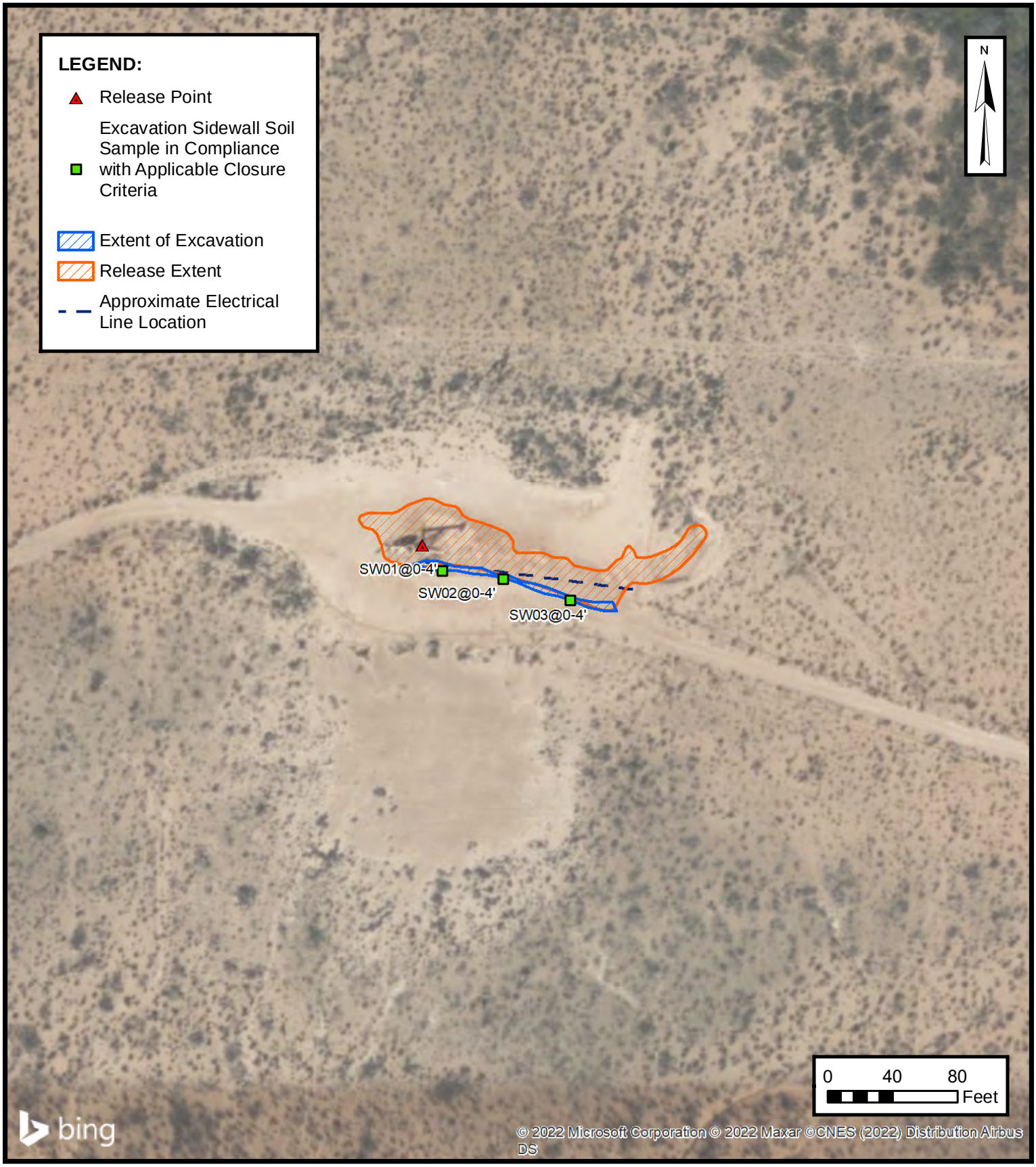


ENSOLUM
Environmental & Hydrogeologic Consultants

DELINEATION SOIL SAMPLE LOCATIONS

WPX ENERGY PERMIAN, LLC
EP USA #005
Sec 26 T26S R29E
Eddy County, New Mexico

FIGURE
2

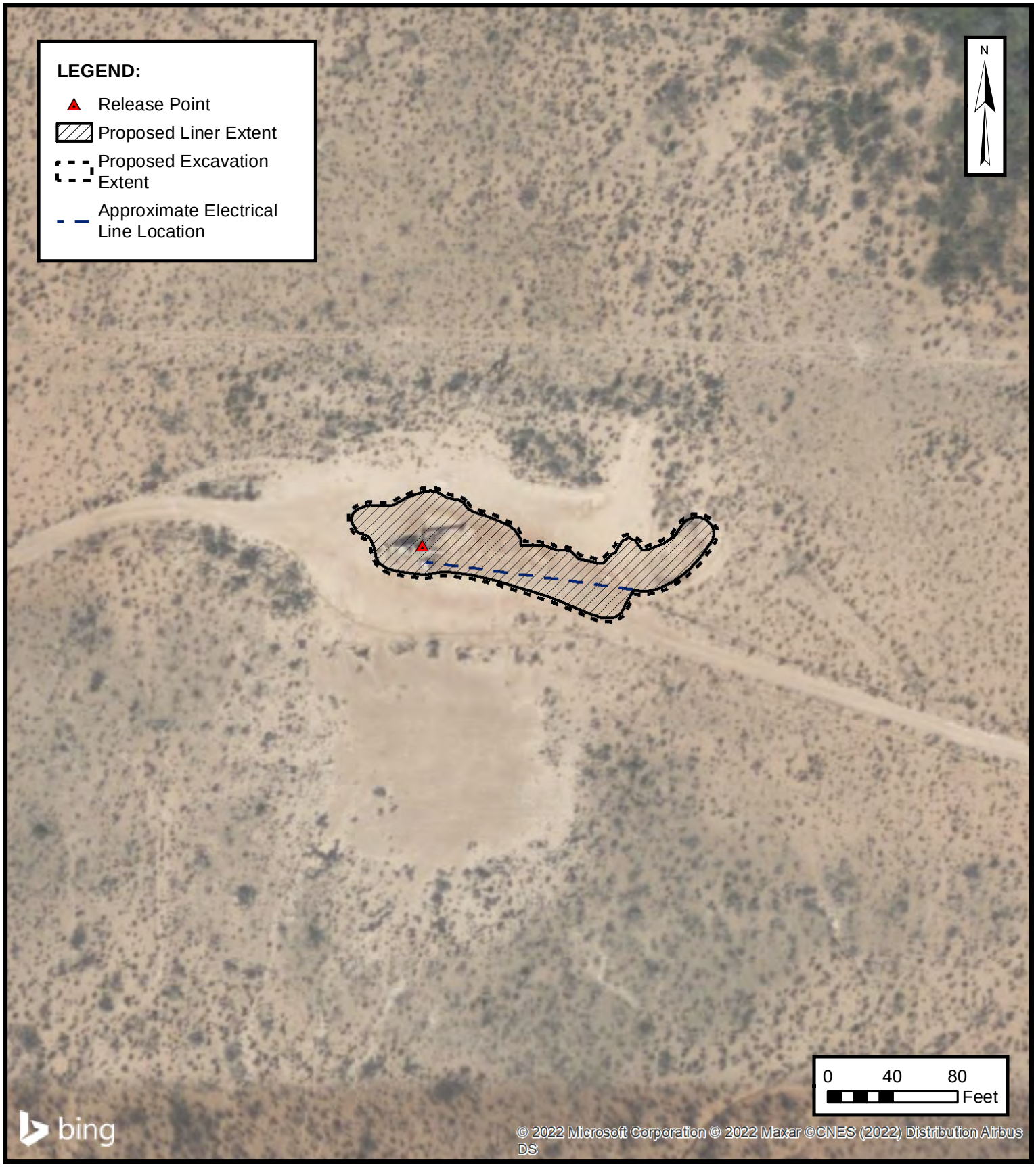


ENSOLUM
Environmental & Hydrogeologic Consultants

EXCAVATION SOIL SAMPLE LOCATIONS

WPX ENERGY PERMIAN, LLC
EP USA #005
Sec 26 T26S R29E
Eddy County, New Mexico

FIGURE
3



ENSOLUM
Environmental & Hydrogeologic Consultants

PROPOSED REMEDIATION AREA

WPX ENERGY PERMIAN, LLC.
EP USA #005
Sec 26 T26S R29E
Eddy County, New Mexico

FIGURE

4

ENSOLUM

APPENDIX B

Groundwater Measurement Form

Client: Devon Energy

Project Name: JC Williams Well GW measurement

Project Location: 32.0105289,-103.9534960

Project Manager: Joseph Hernandez

GROUNDWATER MEASUREMENT FORM

SAMPLING INFORMATION

Soil Boring / Monitor Well Number: NA

Project #: 03A1987013

Date Completed: NA

Type of Water Quality Meter: NA

Total Depth of Monitor Well: NA

Date Calibrated: NA

Screen Interval: NA

Other Notes: used decontaminated water level indicator meter to measure groundwater depth in existing well

Sample Tubing Intake Depth: NA

Geologist: Gilbert Moreno

Monitor Well Detail	Tubing Placement	GW Depth (static)	After Purge	Time (minutes)	Purge Rate (L/min)	Temp. (ºC)	pH (unitless)	DO (mg/L)	ORP (mV)	Cond. (mS/cm)	GW Depth (feet)
				NR	NR	NR	NR	NR	NR	NR	82.9

Comments:

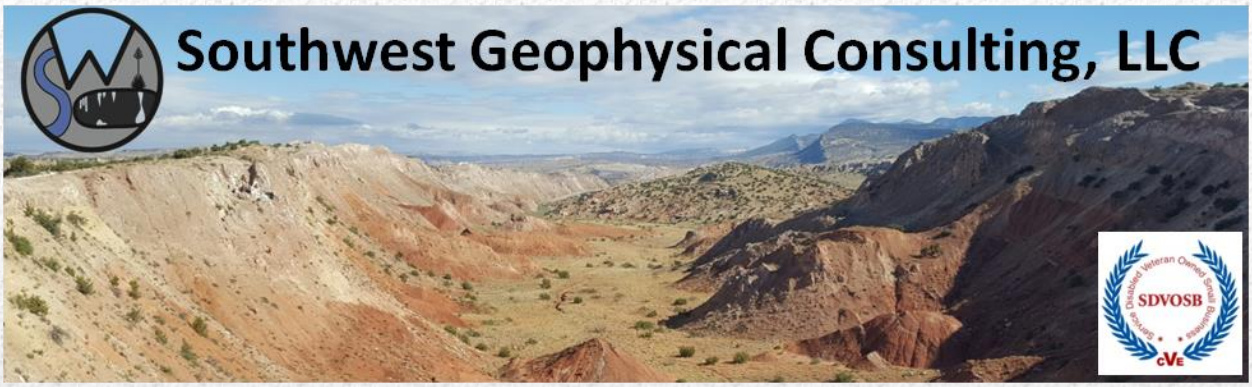
NA = Not Available
NR = Not Recorded

ENSOLUM

ENSOLUM

APPENDIX C

Cave and Karst Resource Inventory Report



Cave and Karst Resource Inventory Report
EP USA
Eddy County, New Mexico

Prepared for:

LT Environmental, Inc.
3300 North A Street Building 1, Unit 222
Midland, TX 79705

☐ **Positive – HKOZ remediation process required**

☑ **Negative – Oil Conservation Division may approve MKOZ remediation process at their discretion**

September 14, 2020

LTE-020-20200826

Published by:

Southwest Geophysical Consulting, LLC
5117 Fairfax Dr. NW
Albuquerque, NM 87114
(505) 585-2550
www.swgeophys.com

Prepared by:

David D. Decker, Ph.D.
Principal, Chief Executive Officer
dave@swgeophys.com

Prepared for:

LT Environmental, Inc.
3300 North A Street Building 1, Unit 222
Midland, TX 79705

Point of Contact:

Joseph Hernandez
(432) 894-5641
jhernandez@ltenv.com

MMXX

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

A pedestrian surface karst survey was commissioned by LT Environmental, Inc. (hereinafter referred to as "the client") on August 26, 2020 for the purpose of determining what, if any, karst-related surface features are present near the EP USA pad (hereinafter termed “EP”) and to provide guidance on the level of remediation required. This study does not include subsurface features, which would require a geophysical survey. The study area that this report covers is in a **HIGH** karst occurrence zone and located within Bureau of Land Management - Carlsbad Field Office managed lands.

As indicated in section ***1.3 Affected Environment***, the bedrock and overlying soil at the survey site are susceptible to sinkhole development and karst features may be hidden beneath the existing soil stratum. Risk associated with sinkhole formation can be minimized during remediation by careful excavation of the spill site and the control of site hydrology. The Owner/Developer must recognize that a risk of sinkhole-induced damage to infrastructure remains even after site remediation. The Owner/Developer must evaluate the risks and attendant costs of performing a geophysical survey prior to remediation, versus no geophysical survey, and must be willing to accept these risks if it is decided that a surface karst survey is sufficient. Southwest Geophysical Consulting, LLC can provide a geophysical survey. If the decision is made to conduct a geophysical survey, a cost estimate and timeline will be provided upon request.

1.1 Goals of this Study

To provide the client with the location, description, photos, and boundaries of any surface karst-related features within a 200-meter buffer surrounding the EP pad as provided by the client via email on August 26, 2020.

1.2 Summary of Findings

No surface karst features were located within the pedestrian survey area. However, unknown hidden features may still exist beneath the surface. Caution should be exercised during any remediation efforts.

1.3 Affected Environment

The EP project site is located in evaporite karst terrain, a landform that is characterized by underground drainage through solutionally enlarged conduits. Evaporite karst terrain may contain sinkholes, sinking streams, caves, and springs. Sinkholes leading to underground drainages and voids are common. These karst features, as well as occasional fissures and discontinuities in the bedrock, provide the primary sources for rapid recharge of the groundwater aquifers of the region.

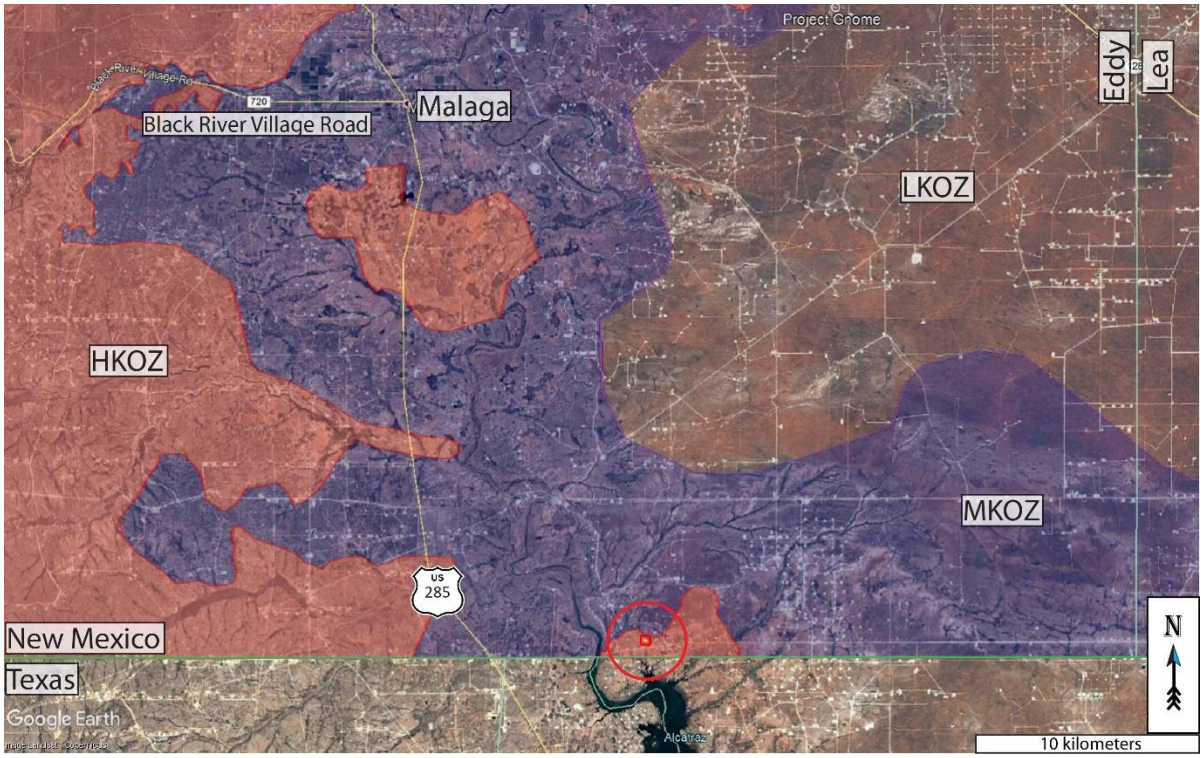


Figure 1: Karst occurrence overview. Red transparent area is a high karst occurrence zone; blue transparent area is a medium karst occurrence zone; no color is a low karst occurrence zone. Study area is the red outlined area in the lower-middle portion of the image. Background image credit: Google Earth. Image date: February 21, 2019. Datum: WGS-84.

The Bureau of Land Management (BLM) categorizes all areas within the Carlsbad Field Office (CFO) zone of responsibility as having either low, medium, or high cave potential based on geology, occurrence of known caves, density of karst features, and potential impacts to freshwater aquifers[1]. These designations are also recognized by the New Mexico State Land Office (NMSLO). This project occurs within a **HIGH** karst occurrence zone (HKOZ) (**Figure 1**).

A high karst occurrence zone is defined as areas in known soluble rock types that contain a high frequency of significant caves and karst features such as sinkholes, bedrock fractures that provide rapid recharge of karst aquifers, and springs that provide riparian habitat[2].

2.0 LOCATION AND DESCRIPTION OF STUDY AREA

2.1 Description of Site

The EP project site is located in Eddy County, New Mexico, 26.5 kilometers (16.5 miles) south-southeast of Malaga, New Mexico, and 0.7 kilometers (0.43 miles) north of the Texas-New Mexico border (**Figure 1** and **Figure 2**). The survey area is located within the southwest quarter of section 26 of NM T26S R29E. This area is within the Chihuahuan Desert Thornscrub defined by the Southwestern Regional ReGAP Vegetation map[3] and the vegetation consists mostly of areas of grass, sparse creosote, and sparse yucca with very good visibility in most locations. See section ***2.2 Local Geology*** for the geology of the area. The entirety of the project site and surrounding survey area is within a HKOZ and BLM-CFO managed lands (**Figure 1** and **Figure 2**).

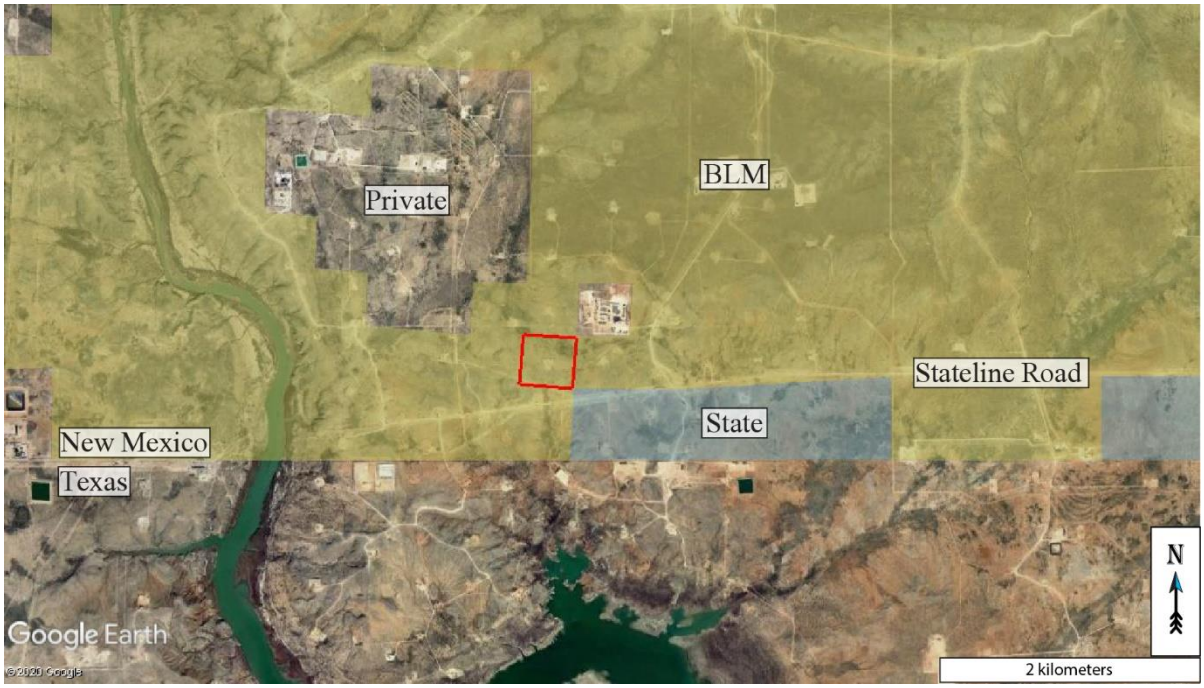


Figure 2: Land ownership overview. Yellow transparent area: BLM-CFO managed land. Blue transparent area: New Mexico State Land Office managed land. No color: private land. Background image credit: Google Earth. Image date: February 21, 2019. Datum: WGS-84.

2.2 Local Geology

The area surveyed for the EP project is located at an elevation of 879 meters (2,884 feet), ± 2 meters (7 feet), within an area underlain by the Permian Rustler and Dewey Lakes Formations (Pru and Pdl). The area is mantled by thin gypsiferous soils, and Quaternary alluvial sands and gravels (Qal and Qp)[4] between 0 and 3 meters in depth (**Figure 3**). The Rustler Formation is an evaporite facies and is composed mainly of thin siltstones and sandstones interbedded with claystones, dolomite and gypsum[5], and contains both karst-forming strata (the Forty-niner and Tamarisk Members) and two shallow aquifers (the Magenta and Culebra Dolomite Members). The Pru overlies the Permian Salado Formation (Psl), a layer of extremely soluble halite which can easily be dissolved to create caves, sinkholes, and other karst features[6]. The Pru may be subject to collapse if a void has developed beneath it in the Salado Formation. The survey area is covered by the Geologic Map of New Mexico (2003) at 1:500,000 scale[4], and the Geologic Atlas of Texas - Hobbs Sheet (1976) at 1:250,000 scale.

Figure 3: Geology overview. Pru: Permian Rustler Formation. Pdl/Pqr: Permian Dewey Lake Formation (formerly known as the Permian Quartermaster Formation). Qp: Quaternary piedmont deposits. Qal: Quaternary alluvium. Red polygon is the study area. Map credit: Geologic Map of New Mexico (2003) at 1:500,000 scale, and Google Earth. Image date: February 21, 2019. Datum: WGS-84.

2.3 Description of Survey

For this survey 10 lines were walked in a raster pattern at 50-meter (165 feet) intervals in the designated area, providing 90 to 100% coverage for features greater than 50 centimeters (20 inches) in diameter (**Table 1**, **Figure 4**).

The survey was completed by Garrett Jorgensen on September 09, 2020. The total distance walked was 3.8 kilometers (2.4 miles) and the total area covered was 0.16 square kilometers (39.0 acres).

Table 1: Survey Track Data Files

File Name	Surveyor	Date	Length (km/miles)	Area (km^2/Ac)
EPSrv_D1S1.kmz	Jorgensen	09/09/2020	3.81/2.37	0.16/39.0

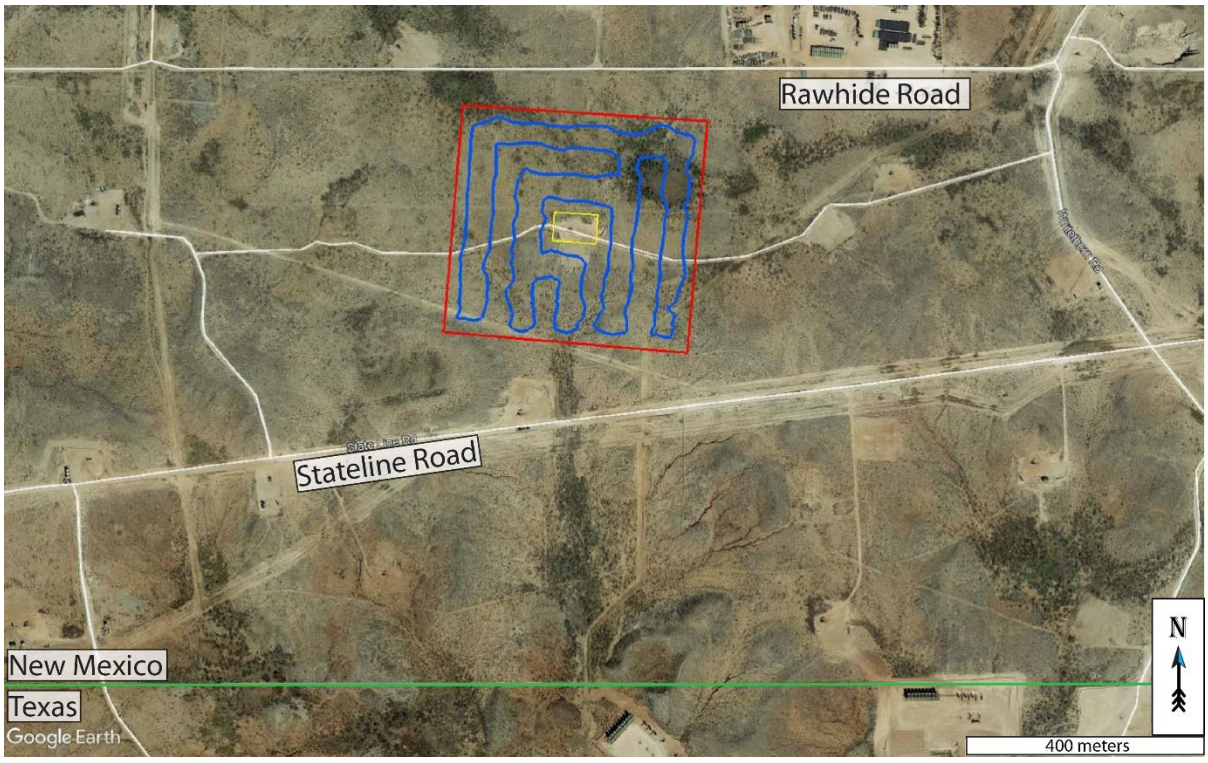


Figure 4: Survey overview. Red polygon is the study area. Yellow polygon is the EP well pad perimeter. Blue wavy lines are the actual survey lines walked. Background image credit: Google Earth. Image date: February 21, 2019. Datum: WGS-84.

2.4 Description of Karst Features

No surface karst features were located within the boundary of the pedestrian survey area for the EP project site.

3.0 RECOMMENDATIONS

No surface karst features were located during this survey. Based on these findings, allowing use of medium karst occurrence zone (versus high karst occurrence zone) spill remediation procedures may be considered by the Oil Conservation Division within the survey area. Confirmation to use a lower remediation level should be received from the Oil Conservation Division before proceeding.

Vigilance during remediation is paramount. If voids are encountered during trenching or digging contact the New Mexico State Oil Conservation Division if on State land, and the Bureau of Land Management – Carlsbad Field Office at (575) 234-5972 if on BLM land and request an on-site investigation from a karst expert. A karst consultant can generally be on site in Eddy County within five hours.

4.0 REFERENCES

1. Rybacki, K., *Karst Potential Map.* CFO Basemap, 2019.
2. Scholle, P.A., *Geologic Map of New Mexico.* 2003. (1:500,000).
3. Johnson, K.S., *Evaporite Karst in the United States.* Carbonates and Evaporites, 1997. **12(1)**: p. 2-14.
4. Martinez, J.D., K.S. Johnson, and J.T. Neal, *Sinkholes in Evaporite Rocks.* American Scientist, 1998. **86(1-2)**: p. 38-51.
5. Whitehead, W. and C. Flynn, *Plant Utilization in Southeastern New Mexico: Botany, Ethnobotany, and Archaeology.* 2017, Carlsbad, NM: Bureau of Land Management, Carlsbad Field Office.
6. Vine, J.D., Surface *Geology of Nash Draw Quadrangle Eddy County New Mexico,* 1963.

5.0 GLOSSARY OF TERMS

BLM	Bureau of Land Management
CFO	Carlsbad Field Office
cave	A natural opening at the surface, large enough for a person to enter.
GPS	Global Positioning System
NMSLO	New Mexico State Land Office
OCD	Oil Conservation Division
playa lake	A natural depression on the surface that collects rainwater. Some contain swallets and/or caves, others do not.
pseudokarst	Karst-like terrain that forms through processes other than dissolution.
swallet	A natural opening in the surface, too small for a person, that drains water to an aquifer. Some are "open," meaning a void can be seen below; some are "closed," meaning they are full of sediment.
WGS	World Geodetic System

ENSOLUM

APPENDIX D

Lithologic Soil Sampling Logs

ENSOLUM

	Sample Name:PH01	Date: 5/9/22
	Site Name: EPA USA #005	
	Incident Number: NMAP1826970471	
	Job Number: 03A1987013	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Conner Shore	Method: Backhoe
Coordinates: 32.0069847°N, 103.9574661°W	Hole Diameter: NA	Total Depth: 11'

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. Correction Factor Included (x1.4)

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
N	1036	0.1	N	PH01	1'	1'		Poorly Graded reddish brownish Sandstone silt
N	1036	0.2	N		2'	2'		SAA
N	1512	0.1	N		3'	3'		SAA
N	728	0.0	N		4'	4'		SAA
N	1994	0.5	N		5'	5'		SAA
N	1124	0.1	N		6'	6'		SAA
N	660	0.0	N		7'	7'		SAA
N	476	0.0	N		8'	8'		SAA
N	1209	0.6	N		9'	9'		SAA
N	728	0.2	N		10'	10'		Well graded reddish brown Sandstone with silt
N	324	0.3	N		11'	11'		SAA

Total Depth

ENSOLUM

	Sample Name: PH02	Date: 5/9/22
	Site Name: EPA USA #005	
	Incident Number: NMAP1826970471	
	Job Number: 03A1987013	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Conner Shore	Method: Backhoe
Coordinates: 32.0069847°N, 103.9574661°W	Hole Diameter: NA	Total Depth: 3'

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. Correction Factor of 1.4 included.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
N	1210	0.3	N	PH02	1'	1'	sp-sm	Poorly Graded red-brown sandstone with silt
N	532	0.5	N		2'	2'	sp-sm	SAA
N	<168	0.2	N		3'	3'	sp-sm	SAA

Total Depth

ENSOLUM

	Sample Name:PH03	Date: 5/9/22
	Site Name: EP USA 5	
	Incident Number: NMAP1826970471	
	Job Number: 03A1987013	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Conner Shore	Method: Backhoe
Coordinates: 32.0069847°N, 103.9574661°W	Hole Diameter: NA	Total Depth: 11'

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. Correction Factor Included (x1.4)

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
N	>3466	0.3	N	PH03	1'	1'	sw-sm	Well Graded reddish brownish Sandstone with silt and gypsum
N	>3466	0.2	N		2'	2'	sw-sm	SAA
N	>3466	0.5	N		3'	3'	sw-sm	SAA
N	3002	0.3	N		4'	4'	sw-sm	SAA
N	2134	0.4	N		5'	5'	sw-sm	SAA
N	2615	0.3	N		6'	6'	sw-sm	SAA
N	1209	0.4	N		7'	7'	sw-sm	SAA
N	1864	0.1	N		8'	8'	sw-sm	SAA
N	1405	0.2	N		9'	9'	sw-sm	SAA
N	369.6	0.1	N		10'	10'	sw-sm	SAA
N	420	0.2	N		11'	11'	sw-sm	SAA

Total Depth

ENSOLUM

	Sample Name: PH04	Date: 5/9/22
	Site Name: EP USA #005	
	Incident Number: NMAP1826970471	
	Job Number: 03A1987013	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Conner Shore	Method: Backhoe
Coordinates: 32.0069847°N, 103.9574661°W	Hole Diameter: NA	Total Depth: 6'

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. Correction Factor of 1.4 included. Taken in an already 4' excavation.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
N	<168	0.0	N	PH04	5'	5'	sw-sm	Well graded reddish brown sandstone with silt
N	280	0.7	N	PH02	6'	6'	sw-sm	SAA
						Total Depth		

ENSOLUM

	Sample Name: PH05	Date:5/10/22
	Site Name: EP USA #005	
	Incident Number: NMAP1826970471	
	Job Number: 03A1987013	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Conner Shore	Method: Backhoe
Coordinates: 32.0069847°N, 103.9574661°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	<120	0.1	N	PH05	0.5'	0.5'	sw-sm	Brown well graded sandstone with larger caliche grains
N	144	0.3	N	PH05	1'	1'	sw-sm	SAA
						Total Depth		

ENSOLUM	Sample Name: PH06	Date:5/10/22
	Site Name: EP USA #005	
	Incident Number: NMAP1826970471	
	Job Number: 03A1987013	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Conner Shore	Method: Backhoe
Coordinates: 32.0069847°N, 103.9574661°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	<120	0.3	N	PH06	0.5'	0.5'	sw-sm	Brown well graded sandstone with larger caliche grains
N	264	0.2	N	PH06	1'	1'	sw-sm	SAA
						Total Depth		

ENSOLUM	Sample Name: PH07	Date:5/10/22
	Site Name: EP USA #005	
	Incident Number: NMAP1826970471	
	Job Number: 03A1987013	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Conner Shore	Method: Backhoe
Coordinates: 32.0069847°N, 103.9574661°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	<120	0.1	N	PH07	0.5'	0.5'	sw-sm	Brown well graded sandstone with larger caliche grains
N	<120	0.1	N	PH07	1'	1'	sw-sm	SAA
						Total Depth		

ENSOLUM

	Sample Name: PH08	Date:5/10/22
	Site Name: EP USA #005	
	Incident Number: NMAP1826970471	
	Job Number: 03A1987013	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Conner Shore	Method: Backhoe
Coordinates: 32.0069847°N, 103.9574661°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	<120	0.1	N	PH08	0.5'	0.5'	sw-sm	Brown well graded sandstone with larger caliche grains
N	<120	0.1	N	PH08	1'	1'	sw-sm	SAA
						Total Depth		

ENSOLUM

	Sample Name: PH09	Date:5/9/22
	Site Name: EP USA #005	
	Incident Number: NMAP1826970471	
	Job Number: 03A1987013	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Conner Shore	Method: Backhoe
Coordinates: 32.0069847°N, 103.9574661°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	<120	0.2	N	PH09	0.5'	0.5'	sw-sm	Brown well graded sandstone with larger caliche grains
N	<120	0.4	N		1'	1'	sw-sm	SAA
						Total Depth		

ENSOLUM

	Sample Name: PH10	Date:5/10/22
	Site Name: EP USA #005	
	Incident Number: NMAP1826970471	
	Job Number: 03A1987013	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Conner Shore	Method: Backhoe
Coordinates: 32.0069847°N, 103.9574661°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	<120	0.9	N	PH10	0.5'	0.5'	sw-sm	Brown well graded sandstone with larger caliche grains
N	<120	0.4	N		1'	1'	sw-sm	SAA
						Total Depth		

ENSOLUM

APPENDIX E

Photographic Log

ENSOLUM

Photographic Log
WPX Energy Permian, LLC
EP USA #005
Incident Number NMAP1826970471

Photograph 1 Date: 05/09/2022
Description: View of the Site during delineation activities.

Photograph 2 Date: 05/10/2022
Description: View of the Site during delineation activities.

Photograph 3 Date: 06/17/2022
Description: View of the Site during excavation activities.

Photograph 4 Date: 06/17/2022
Description: View of the Site following excavation activities.

ENSOLUM

Photographic Log
WPX Energy Permian, LLC
EP USA #005
Incident Number NMAP1826970471

Photograph 5 Date: 08/15/2022
Description: View of the JC Williams Well.

Photograph 6 Date: 08/15/2022
Description: View of the JC Williams Well.

ENSOLUM

APPENDIX F

Tables

ENSOLUM

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
WPX Energy Permian, LLC - EP USA #005
Eddy County, New Mexico

Ensolum Project No. 03A1987013

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			**10**	**50**	NE	NE	NE	NE	**100**	**600**
Delineation Soil Sample Analytical Results										
PH01	05/09/2022	1	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	**5,770**
PH01	8/16/2022	5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	**628**
PH01	8/16/2022	7	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	505
PH01	8/16/2022	9	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	549
PH01	05/09/2022	11	<0.00198	<0.00397	<50.0	<50.0	<50.0	<50.0	<50.0	529
PH02	05/09/2022	1	<0.00200	<0.00400	<49.9	<49.9	<49.9	<49.9	<49.9	**1,810**
PH02	05/09/2022	3	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	313
PH03	05/09/2022	1	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	**1,320**
PH03	8/16/2022	5	<0.00200	<0.00416	<49.9	<49.9	<49.9	<49.9	<49.9	**852**
PH03	8/16/2022	7	<0.00200	0.00400	<49.9	<49.9	<49.9	<49.9	<49.9	**1,510**
PH03	8/16/2022	9	<0.00200	0.00400	<50.0	<50.0	<50.0	<50.0	<50.0	**866**
PH03	05/09/2022	11	<0.00202	<0.00404	<50.0	<50.0	<50.0	<50.0	<50.0	569
PH04	05/09/2022	5	<0.00202	<0.00403	<50.0	<50.0	<50.0	<50.0	<50.0	22.1
PH04	05/09/2022	6	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	20.0
PH05	05/10/2022	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	19.3
PH05	05/10/2022	1	<0.00202	<0.00403	<50.0	<50.0	<50.0	<50.0	<50.0	214
PH06	05/10/2022	0.5	<0.00200	<0.00400	<49.8	<49.8	<49.8	<49.8	<49.8	50.1
PH06	05/10/2022	1	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	592
PH07	05/10/2022	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	107
PH07	05/10/2022	1	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	46.7

ENSOLUM

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
WPX Energy Permian, LLC - EP USA #005
Eddy County, New Mexico

Ensolum Project No. 03A1987013

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			**10**	**50**	NE	NE	NE	NE	**100**	**600**
PH08	05/10/2022	0.5	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	19.2
PH08	05/10/2022	1	<0.00202	<0.00404	<50.0	<50.0	<50.0	<50.0	<50.0	23.6
PH09	05/09/2022	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	74.7
PH09	05/09/2022	1	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	227
PH10	05/10/2022	0.5	<0.00200	<0.00399	<49.9	53.9	67.3	67.3	**121**	131
PH10	05/10/2022	1	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	136

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

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

ENSOLUM

APPENDIX G

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: 890-2293-1
Laboratory Sample Delivery Group: 03A1987013
Client Project/Site: EP USA 5
Revision: 1

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

Attn: Joseph Hernandez

Authorized for release by:
5/24/2022 3:55:53 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: EP USA 5

Laboratory Job ID: 890-2293-1
SDG: 03A1987013

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Job ID: 890-2293-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2293-1

REVISION

The report being provided is a revision of the original report sent on 5/17/2022. The report (revision 1) is being revised due to Per client email, requesting chloride re run on PH03B.

Report revision history

Receipt
The samples were received on 5/10/2022 8:39 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 5.8°C

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-25601 and analytical batch 880-25595 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

GC Semi VOA
Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-25316 and analytical batch 880-25321 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Client Sample ID: PH01A
Date Collected: 05/09/22 09:00
Date Received: 05/10/22 08:39
Sample Depth: 1

Lab Sample ID: 890-2293-1
Matrix: Solid

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		05/16/22 09:24	05/16/22 21:49	1
Toluene	<0.00199	U	0.00199		mg/Kg		05/16/22 09:24	05/16/22 21:49	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		05/16/22 09:24	05/16/22 21:49	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		05/16/22 09:24	05/16/22 21:49	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		05/16/22 09:24	05/16/22 21:49	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		05/16/22 09:24	05/16/22 21:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*05/16/22 09:24*	*05/16/22 21:49*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*05/16/22 09:24*	*05/16/22 21:49*	*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			05/16/22 17:06	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			05/12/22 09:42	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		05/11/22 09:33	05/11/22 19:00	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/11/22 09:33	05/11/22 19:00	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/11/22 09:33	05/11/22 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*102*		*70 - 130*	*05/11/22 09:33*	*05/11/22 19:00*	*1*
o-Terphenyl	*111*		*70 - 130*	*05/11/22 09:33*	*05/11/22 19:00*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5770**		99.2		mg/Kg			05/13/22 18:54	20

Client Sample ID: PH01B
Date Collected: 05/09/22 13:20
Date Received: 05/10/22 08:39
Sample Depth: 11

Lab Sample ID: 890-2293-2
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		05/16/22 09:24	05/16/22 22:10	1
Toluene	<0.00198	U	0.00198		mg/Kg		05/16/22 09:24	05/16/22 22:10	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		05/16/22 09:24	05/16/22 22:10	1
m-Xylene & p-Xylene	<0.00397	U	0.00397		mg/Kg		05/16/22 09:24	05/16/22 22:10	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		05/16/22 09:24	05/16/22 22:10	1
Xylenes, Total	<0.00397	U	0.00397		mg/Kg		05/16/22 09:24	05/16/22 22:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*	*05/16/22 09:24*	*05/16/22 22:10*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Client Sample ID: PH01B
Date Collected: 05/09/22 13:20
Date Received: 05/10/22 08:39
Sample Depth: 11

Lab Sample ID: 890-2293-2
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*	*05/16/22 09:24*	*05/16/22 22:10*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00397	U	0.00397		mg/Kg			05/16/22 17:06	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			05/12/22 09:42	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		05/11/22 09:33	05/11/22 19:21	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/11/22 09:33	05/11/22 19:21	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/11/22 09:33	05/11/22 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*115*		*70 - 130*	*05/11/22 09:33*	*05/11/22 19:21*	*1*
o-Terphenyl	*121*		*70 - 130*	*05/11/22 09:33*	*05/11/22 19:21*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**529**		50.1		mg/Kg			05/13/22 19:03	10

Client Sample ID: PH02A
Date Collected: 05/09/22 10:20
Date Received: 05/10/22 08:39
Sample Depth: 1

Lab Sample ID: 890-2293-3
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		05/16/22 09:24	05/16/22 22:30	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:24	05/16/22 22:30	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:24	05/16/22 22:30	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/16/22 09:24	05/16/22 22:30	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:24	05/16/22 22:30	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/16/22 09:24	05/16/22 22:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*05/16/22 09:24*	*05/16/22 22:30*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*	*05/16/22 09:24*	*05/16/22 22:30*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			05/16/22 17:06	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			05/12/22 09:42	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Client Sample ID: PH02A
Date Collected: 05/09/22 10:20
Date Received: 05/10/22 08:39
Sample Depth: 1

Lab Sample ID: 890-2293-3
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	<49.9	U	49.9		mg/Kg		05/11/22 09:33	05/11/22 19:43	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		05/11/22 09:33	05/11/22 19:43	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/11/22 09:33	05/11/22 19:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*98*		*70 - 130*	*05/11/22 09:33*	*05/11/22 19:43*	*1*
o-Terphenyl	*102*		*70 - 130*	*05/11/22 09:33*	*05/11/22 19:43*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1810**		24.9		mg/Kg			05/13/22 19:31	5

Client Sample ID: PH02B
Date Collected: 05/09/22 10:25
Date Received: 05/10/22 08:39
Sample Depth: 3

Lab Sample ID: 890-2293-4
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		05/16/22 09:24	05/16/22 22:51	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:24	05/16/22 22:51	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:24	05/16/22 22:51	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		05/16/22 09:24	05/16/22 22:51	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:24	05/16/22 22:51	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		05/16/22 09:24	05/16/22 22:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*123*		*70 - 130*	*05/16/22 09:24*	*05/16/22 22:51*	*1*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*	*05/16/22 09:24*	*05/16/22 22:51*	*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			05/16/22 17:06	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			05/12/22 09:42	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		05/11/22 09:33	05/11/22 20:05	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/11/22 09:33	05/11/22 20:05	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/11/22 09:33	05/11/22 20:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*115*		*70 - 130*	*05/11/22 09:33*	*05/11/22 20:05*	*1*
o-Terphenyl	*115*		*70 - 130*	*05/11/22 09:33*	*05/11/22 20:05*	*1*

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Client Sample ID: PH02B
Date Collected: 05/09/22 10:25
Date Received: 05/10/22 08:39
Sample Depth: 3

Lab Sample ID: 890-2293-4
Matrix: Solid

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	313		4.95		mg/Kg			05/13/22 19:40	1

Client Sample ID: PH03A
Date Collected: 05/09/22 10:35
Date Received: 05/10/22 08:39
Sample Depth: 1

Lab Sample ID: 890-2293-5
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		05/16/22 09:24	05/16/22 23:12	1
Toluene	<0.00201	U	0.00201		mg/Kg		05/16/22 09:24	05/16/22 23:12	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		05/16/22 09:24	05/16/22 23:12	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		05/16/22 09:24	05/16/22 23:12	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		05/16/22 09:24	05/16/22 23:12	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		05/16/22 09:24	05/16/22 23:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*	*05/16/22 09:24*	*05/16/22 23:12*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*05/16/22 09:24*	*05/16/22 23:12*	*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			05/16/22 17:06	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			05/12/22 09:42	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		05/12/22 10:01	05/12/22 15:42	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		05/12/22 10:01	05/12/22 15:42	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/12/22 10:01	05/12/22 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*91*		*70 - 130*	*05/12/22 10:01*	*05/12/22 15:42*	*1*
o-Terphenyl	*96*		*70 - 130*	*05/12/22 10:01*	*05/12/22 15:42*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1320		5.03		mg/Kg			05/13/22 20:08	1

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Client Sample ID: PH03B
Date Collected: 05/09/22 10:55
Date Received: 05/10/22 08:39
Sample Depth: 11

Lab Sample ID: 890-2293-6
Matrix: Solid

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		05/16/22 09:24	05/16/22 23:33	1
Toluene	<0.00202	U	0.00202		mg/Kg		05/16/22 09:24	05/16/22 23:33	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		05/16/22 09:24	05/16/22 23:33	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		05/16/22 09:24	05/16/22 23:33	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		05/16/22 09:24	05/16/22 23:33	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		05/16/22 09:24	05/16/22 23:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*05/16/22 09:24*	*05/16/22 23:33*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*05/16/22 09:24*	*05/16/22 23:33*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404		mg/Kg			05/16/22 17:06	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			05/12/22 09:42	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		05/12/22 10:01	05/12/22 16:03	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 16:03	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 16:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*95*		*70 - 130*	*05/12/22 10:01*	*05/12/22 16:03*	*1*
o-Terphenyl	*101*		*70 - 130*	*05/12/22 10:01*	*05/12/22 16:03*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**569**		25.1		mg/Kg			05/18/22 02:38	5

Client Sample ID: PH04A
Date Collected: 05/09/22 11:55
Date Received: 05/10/22 08:39
Sample Depth: 5

Lab Sample ID: 890-2293-7
Matrix: Solid

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		05/16/22 09:24	05/16/22 23:53	1
Toluene	<0.00202	U	0.00202		mg/Kg		05/16/22 09:24	05/16/22 23:53	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		05/16/22 09:24	05/16/22 23:53	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		05/16/22 09:24	05/16/22 23:53	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		05/16/22 09:24	05/16/22 23:53	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		05/16/22 09:24	05/16/22 23:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*05/16/22 09:24*	*05/16/22 23:53*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Client Sample ID: PH04A
Date Collected: 05/09/22 11:55
Date Received: 05/10/22 08:39
Sample Depth: 5

Lab Sample ID: 890-2293-7
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*05/16/22 09:24*	*05/16/22 23:53*	*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			05/16/22 17:06	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			05/12/22 09:42	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		05/12/22 10:01	05/12/22 16:47	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 16:47	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 16:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*105*		*70 - 130*	*05/12/22 10:01*	*05/12/22 16:47*	*1*
o-Terphenyl	*109*		*70 - 130*	*05/12/22 10:01*	*05/12/22 16:47*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**22.1**		5.03		mg/Kg			05/16/22 13:50	1

Client Sample ID: PH04B
Date Collected: 05/09/22 13:50
Date Received: 05/10/22 08:39
Sample Depth: 6

Lab Sample ID: 890-2293-8
Matrix: Solid

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		05/16/22 09:29	05/16/22 15:17	1
Toluene	<0.00199	U	0.00199		mg/Kg		05/16/22 09:29	05/16/22 15:17	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		05/16/22 09:29	05/16/22 15:17	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		05/16/22 09:29	05/16/22 15:17	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		05/16/22 09:29	05/16/22 15:17	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		05/16/22 09:29	05/16/22 15:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*05/16/22 09:29*	*05/16/22 15:17*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*	*05/16/22 09:29*	*05/16/22 15:17*	*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			05/16/22 17:06	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			05/12/22 09:42	1

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Client Sample ID: PH04B

Date Collected: 05/09/22 13:50
Date Received: 05/10/22 08:39
Sample Depth: 6

Lab Sample ID: 890-2293-8

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		05/12/22 10:01	05/12/22 17:09	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		05/12/22 10:01	05/12/22 17:09	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/12/22 10:01	05/12/22 17:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*101*		*70 - 130*	*05/12/22 10:01*	*05/12/22 17:09*	*1*
o-Terphenyl	*102*		*70 - 130*	*05/12/22 10:01*	*05/12/22 17:09*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**20.0**		4.99		mg/Kg			05/16/22 13:59	1

Surrogate Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-14535-A-1-E MS	Matrix Spike	108	101
880-14535-A-1-F MSD	Matrix Spike Duplicate	106	102
890-2293-1	PH01A	101	105
890-2293-2	PH01B	122	96
890-2293-3	PH02A	104	94
890-2293-4	PH02B	123	92
890-2293-5	PH03A	122	98
890-2293-6	PH03B	105	103
890-2293-7	PH04A	104	103
890-2293-8	PH04B	101	88
890-2293-8 MS	PH04B	103	94
890-2293-8 MSD	PH04B	108	104
LCS 880-25601/1-A	Lab Control Sample	94	101
LCS 880-25602/1-A	Lab Control Sample	112	93
LCSD 880-25601/2-A	Lab Control Sample Dup	103	101
LCSD 880-25602/2-A	Lab Control Sample Dup	100	90
MB 880-25601/5-A	Method Blank	99	98
MB 880-25602/5-A	Method Blank	79	91

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-14703-A-1-C MS	Matrix Spike	75	71
880-14703-A-1-D MSD	Matrix Spike Duplicate	74	71
890-2291-A-1-C MS	Matrix Spike	92	80
890-2291-A-1-D MSD	Matrix Spike Duplicate	82	72
890-2293-1	PH01A	102	111
890-2293-2	PH01B	115	121
890-2293-3	PH02A	98	102
890-2293-4	PH02B	115	115
890-2293-5	PH03A	91	96
890-2293-6	PH03B	95	101
890-2293-7	PH04A	105	109
890-2293-8	PH04B	101	102
LCS 880-25316/2-A	Lab Control Sample	118	113
LCS 880-25396/2-A	Lab Control Sample	104	103
LCSD 880-25316/3-A	Lab Control Sample Dup	120	116
LCSD 880-25396/3-A	Lab Control Sample Dup	107	106
MB 880-25316/1-A	Method Blank	97	109
MB 880-25396/1-A	Method Blank	99	107

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-25601/5-A
Matrix: Solid
Analysis Batch: 25595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25601

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:24	05/16/22 15:54	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:24	05/16/22 15:54	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:24	05/16/22 15:54	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/16/22 09:24	05/16/22 15:54	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:24	05/16/22 15:54	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/16/22 09:24	05/16/22 15:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*	*05/16/22 09:24*	*05/16/22 15:54*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*05/16/22 09:24*	*05/16/22 15:54*	*1*

Lab Sample ID: LCS 880-25601/1-A
Matrix: Solid
Analysis Batch: 25595

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25601

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09745		mg/Kg		97	70 - 130
Toluene	0.100	0.09612		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.08365		mg/Kg		84	70 - 130
m-Xylene & p-Xylene	0.200	0.1726		mg/Kg		86	70 - 130
o-Xylene	0.100	0.08729		mg/Kg		87	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-25601/2-A
Matrix: Solid
Analysis Batch: 25595

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25601

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1059		mg/Kg		106	70 - 130	8	35
Toluene	0.100	0.1041		mg/Kg		104	70 - 130	8	35
Ethylbenzene	0.100	0.09131		mg/Kg		91	70 - 130	9	35
m-Xylene & p-Xylene	0.200	0.1918		mg/Kg		96	70 - 130	11	35
o-Xylene	0.100	0.09679		mg/Kg		97	70 - 130	10	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: 880-14535-A-1-E MS
Matrix: Solid
Analysis Batch: 25595

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25601

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.100	0.08773		mg/Kg		87	70 - 130
Toluene	<0.00199	U	0.100	0.08825		mg/Kg		88	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

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

Lab Sample ID: 880-14535-A-1-E MS
Matrix: Solid
Analysis Batch: 25595

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25601

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U	0.100	0.07500		mg/Kg		75	70 - 130
m-Xylene & p-Xylene	<0.00398	U F1	0.201	0.1553		mg/Kg		77	70 - 130
o-Xylene	<0.00199	U	0.100	0.07812		mg/Kg		78	70 - 130

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

Lab Sample ID: 880-14535-A-1-F MSD
Matrix: Solid
Analysis Batch: 25595

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 25601

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.100	0.07517		mg/Kg		75	70 - 130	15	35
Toluene	<0.00199	U	0.100	0.07965		mg/Kg		79	70 - 130	10	35
Ethylbenzene	<0.00199	U	0.100	0.07106		mg/Kg		71	70 - 130	5	35
m-Xylene & p-Xylene	<0.00398	U F1	0.200	0.1390	F1	mg/Kg		69	70 - 130	11	35
o-Xylene	<0.00199	U	0.100	0.07011		mg/Kg		70	70 - 130	11	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: MB 880-25602/5-A
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25602

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:29	05/16/22 14:48	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:29	05/16/22 14:48	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:29	05/16/22 14:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/16/22 09:29	05/16/22 14:48	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:29	05/16/22 14:48	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/16/22 09:29	05/16/22 14:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*79*		*70 - 130*	*05/16/22 09:29*	*05/16/22 14:48*	*1*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*	*05/16/22 09:29*	*05/16/22 14:48*	*1*

Lab Sample ID: LCS 880-25602/1-A
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25602

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1120		mg/Kg		112	70 - 130
Toluene	0.100	0.1170		mg/Kg		117	70 - 130
Ethylbenzene	0.100	0.1145		mg/Kg		115	70 - 130
m-Xylene & p-Xylene	0.200	0.2273		mg/Kg		114	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

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

Lab Sample ID: LCS 880-25602/1-A
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25602

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
o-Xylene			0.100	0.1129		mg/Kg		113	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: LCSD 880-25602/2-A
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25602

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1007		mg/Kg		101	70 - 130	11	35
Toluene			0.100	0.1075		mg/Kg		108	70 - 130	8	35
Ethylbenzene			0.100	0.1068		mg/Kg		107	70 - 130	7	35
m-Xylene & p-Xylene			0.200	0.2165		mg/Kg		108	70 - 130	5	35
o-Xylene			0.100	0.1056		mg/Kg		106	70 - 130	7	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*

Lab Sample ID: 890-2293-8 MS
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: PH04B
Prep Type: Total/NA
Prep Batch: 25602

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00199	U	0.101	0.1032		mg/Kg		102	70 - 130		
Toluene	<0.00199	U	0.101	0.1059		mg/Kg		105	70 - 130		
Ethylbenzene	<0.00199	U	0.101	0.1057		mg/Kg		105	70 - 130		
m-Xylene & p-Xylene	<0.00398	U	0.202	0.2157		mg/Kg		107	70 - 130		
o-Xylene	<0.00199	U	0.101	0.1050		mg/Kg		104	70 - 130		

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

Lab Sample ID: 890-2293-8 MSD
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: PH04B
Prep Type: Total/NA
Prep Batch: 25602

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.101	0.1120		mg/Kg		111	70 - 130	8	35
Toluene	<0.00199	U	0.101	0.1046		mg/Kg		104	70 - 130	1	35
Ethylbenzene	<0.00199	U	0.101	0.1040		mg/Kg		103	70 - 130	2	35
m-Xylene & p-Xylene	<0.00398	U	0.201	0.2099		mg/Kg		104	70 - 130	3	35
o-Xylene	<0.00199	U	0.101	0.1020		mg/Kg		101	70 - 130	3	35

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

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

Lab Sample ID: 890-2293-8 MSD
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: PH04B
Prep Type: Total/NA
Prep Batch: 25602

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

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

Lab Sample ID: MB 880-25316/1-A
Matrix: Solid
Analysis Batch: 25321

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25316

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		05/11/22 09:33	05/11/22 10:55	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/11/22 09:33	05/11/22 10:55	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/11/22 09:33	05/11/22 10:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130	05/11/22 09:33	05/11/22 10:55	1
o-Terphenyl	109		70 - 130	05/11/22 09:33	05/11/22 10:55	1

Lab Sample ID: LCS 880-25316/2-A
Matrix: Solid
Analysis Batch: 25321

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25316

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	916.7		mg/Kg		92	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1109		mg/Kg		111	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	118		70 - 130
o-Terphenyl	113		70 - 130

Lab Sample ID: LCSD 880-25316/3-A
Matrix: Solid
Analysis Batch: 25321

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25316

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	954.5		mg/Kg		95	70 - 130	4	20
Diesel Range Organics (Over C10-C28)			1000	1119		mg/Kg		112	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	120		70 - 130
o-Terphenyl	116		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

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

Lab Sample ID: 890-2291-A-1-C MS
Matrix: Solid
Analysis Batch: 25321

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25316

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	1000	1064		mg/Kg		104	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U F1	1000	804.5		mg/Kg		76	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*92*		*70 - 130*
o-Terphenyl	*80*		*70 - 130*

Lab Sample ID: 890-2291-A-1-D MSD
Matrix: Solid
Analysis Batch: 25321

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 25316

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	998	1056		mg/Kg		103	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	<50.0	U F1	998	724.0	F1	mg/Kg		68	70 - 130	11	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*82*		*70 - 130*
o-Terphenyl	*72*		*70 - 130*

Lab Sample ID: MB 880-25396/1-A
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25396

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		05/12/22 10:01	05/12/22 11:00	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 11:00	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 11:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*05/12/22 10:01*	*05/12/22 11:00*	*1*
o-Terphenyl	*107*		*70 - 130*	*05/12/22 10:01*	*05/12/22 11:00*	*1*

Lab Sample ID: LCS 880-25396/2-A
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25396

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1140		mg/Kg		114	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1052		mg/Kg		105	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

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

Lab Sample ID: LCS 880-25396/2-A
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25396

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	104		70 - 130
o-Terphenyl	103		70 - 130

Lab Sample ID: LCSD 880-25396/3-A
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25396

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1194		mg/Kg		119	70 - 130	5	20
Diesel Range Organics (Over C10-C28)			1000	1136		mg/Kg		114	70 - 130	8	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	107		70 - 130
o-Terphenyl	106		70 - 130

Lab Sample ID: 880-14703-A-1-C MS
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25396

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	1000	935.7		mg/Kg		94	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U	1000	779.4		mg/Kg		78	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	75		70 - 130
o-Terphenyl	71		70 - 130

Lab Sample ID: 880-14703-A-1-D MSD
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 25396

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	998	902.2		mg/Kg		90	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	761.7		mg/Kg		76	70 - 130	2	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	74		70 - 130
o-Terphenyl	71		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-25336/1-A
Matrix: Solid
Analysis Batch: 25504

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			05/13/22 15:09	1

Lab Sample ID: LCS 880-25336/2-A
Matrix: Solid
Analysis Batch: 25504

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	244.0		mg/Kg		98	90 - 110

Lab Sample ID: LCSD 880-25336/3-A
Matrix: Solid
Analysis Batch: 25504

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	251.4		mg/Kg		101	90 - 110	3	20

Lab Sample ID: 890-2293-2 MS
Matrix: Solid
Analysis Batch: 25504

Client Sample ID: PH01B
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	529		2510	3068		mg/Kg		101	90 - 110

Lab Sample ID: 890-2293-2 MSD
Matrix: Solid
Analysis Batch: 25504

Client Sample ID: PH01B
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	529		2510	3062		mg/Kg		101	90 - 110	0	20

Lab Sample ID: MB 880-25729/1-A
Matrix: Solid
Analysis Batch: 25767

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			05/17/22 22:07	1

Lab Sample ID: LCS 880-25729/2-A
Matrix: Solid
Analysis Batch: 25767

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	242.0		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-25729/3-A
Matrix: Solid
Analysis Batch: 25767

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	242.9		mg/Kg		97	90 - 110	0	20

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 880-14878-A-1-C MS
Matrix: Solid
Analysis Batch: 25767

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	1950		2480	4423		mg/Kg		100	90 - 110		

Lab Sample ID: 880-14878-A-1-D MSD
Matrix: Solid
Analysis Batch: 25767

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	1950		2480	4427		mg/Kg		100	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

GC VOA

Analysis Batch: 25594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-8	PH04B	Total/NA	Solid	8021B	25602
MB 880-25602/5-A	Method Blank	Total/NA	Solid	8021B	25602
LCS 880-25602/1-A	Lab Control Sample	Total/NA	Solid	8021B	25602
LCSD 880-25602/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	25602
890-2293-8 MS	PH04B	Total/NA	Solid	8021B	25602
890-2293-8 MSD	PH04B	Total/NA	Solid	8021B	25602

Analysis Batch: 25595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-1	PH01A	Total/NA	Solid	8021B	25601
890-2293-2	PH01B	Total/NA	Solid	8021B	25601
890-2293-3	PH02A	Total/NA	Solid	8021B	25601
890-2293-4	PH02B	Total/NA	Solid	8021B	25601
890-2293-5	PH03A	Total/NA	Solid	8021B	25601
890-2293-6	PH03B	Total/NA	Solid	8021B	25601
890-2293-7	PH04A	Total/NA	Solid	8021B	25601
MB 880-25601/5-A	Method Blank	Total/NA	Solid	8021B	25601
LCS 880-25601/1-A	Lab Control Sample	Total/NA	Solid	8021B	25601
LCSD 880-25601/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	25601
880-14535-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	25601
880-14535-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	25601

Prep Batch: 25601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-1	PH01A	Total/NA	Solid	5035	
890-2293-2	PH01B	Total/NA	Solid	5035	
890-2293-3	PH02A	Total/NA	Solid	5035	
890-2293-4	PH02B	Total/NA	Solid	5035	
890-2293-5	PH03A	Total/NA	Solid	5035	
890-2293-6	PH03B	Total/NA	Solid	5035	
890-2293-7	PH04A	Total/NA	Solid	5035	
MB 880-25601/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-25601/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-25601/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-14535-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-14535-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 25602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-8	PH04B	Total/NA	Solid	5035	
MB 880-25602/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-25602/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-25602/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2293-8 MS	PH04B	Total/NA	Solid	5035	
890-2293-8 MSD	PH04B	Total/NA	Solid	5035	

Analysis Batch: 25664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-1	PH01A	Total/NA	Solid	Total BTEX	
890-2293-2	PH01B	Total/NA	Solid	Total BTEX	
890-2293-3	PH02A	Total/NA	Solid	Total BTEX	

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

GC VOA (Continued)

Analysis Batch: 25664 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-4	PH02B	Total/NA	Solid	Total BTEX	
890-2293-5	PH03A	Total/NA	Solid	Total BTEX	
890-2293-6	PH03B	Total/NA	Solid	Total BTEX	
890-2293-7	PH04A	Total/NA	Solid	Total BTEX	
890-2293-8	PH04B	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 25316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-1	PH01A	Total/NA	Solid	8015NM Prep	
890-2293-2	PH01B	Total/NA	Solid	8015NM Prep	
890-2293-3	PH02A	Total/NA	Solid	8015NM Prep	
890-2293-4	PH02B	Total/NA	Solid	8015NM Prep	
MB 880-25316/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-25316/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-25316/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2291-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2291-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 25321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-1	PH01A	Total/NA	Solid	8015B NM	25316
890-2293-2	PH01B	Total/NA	Solid	8015B NM	25316
890-2293-3	PH02A	Total/NA	Solid	8015B NM	25316
890-2293-4	PH02B	Total/NA	Solid	8015B NM	25316
MB 880-25316/1-A	Method Blank	Total/NA	Solid	8015B NM	25316
LCS 880-25316/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	25316
LCSD 880-25316/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	25316
890-2291-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	25316
890-2291-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	25316

Analysis Batch: 25380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-5	PH03A	Total/NA	Solid	8015B NM	25396
890-2293-6	PH03B	Total/NA	Solid	8015B NM	25396
890-2293-7	PH04A	Total/NA	Solid	8015B NM	25396
890-2293-8	PH04B	Total/NA	Solid	8015B NM	25396
MB 880-25396/1-A	Method Blank	Total/NA	Solid	8015B NM	25396
LCS 880-25396/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	25396
LCSD 880-25396/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	25396
880-14703-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	25396
880-14703-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	25396

Analysis Batch: 25393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-1	PH01A	Total/NA	Solid	8015 NM	
890-2293-2	PH01B	Total/NA	Solid	8015 NM	
890-2293-3	PH02A	Total/NA	Solid	8015 NM	
890-2293-4	PH02B	Total/NA	Solid	8015 NM	
890-2293-5	PH03A	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

GC Semi VOA (Continued)

Analysis Batch: 25393 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-6	PH03B	Total/NA	Solid	8015 NM	
890-2293-7	PH04A	Total/NA	Solid	8015 NM	
890-2293-8	PH04B	Total/NA	Solid	8015 NM	

Prep Batch: 25396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-5	PH03A	Total/NA	Solid	8015NM Prep	
890-2293-6	PH03B	Total/NA	Solid	8015NM Prep	
890-2293-7	PH04A	Total/NA	Solid	8015NM Prep	
890-2293-8	PH04B	Total/NA	Solid	8015NM Prep	
MB 880-25396/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-25396/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-25396/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-14703-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-14703-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

HPLC/IC

Leach Batch: 25336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-1	PH01A	Soluble	Solid	DI Leach	
890-2293-2	PH01B	Soluble	Solid	DI Leach	
890-2293-3	PH02A	Soluble	Solid	DI Leach	
890-2293-4	PH02B	Soluble	Solid	DI Leach	
890-2293-5	PH03A	Soluble	Solid	DI Leach	
890-2293-7	PH04A	Soluble	Solid	DI Leach	
890-2293-8	PH04B	Soluble	Solid	DI Leach	
MB 880-25336/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-25336/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-25336/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2293-2 MS	PH01B	Soluble	Solid	DI Leach	
890-2293-2 MSD	PH01B	Soluble	Solid	DI Leach	

Analysis Batch: 25504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-1	PH01A	Soluble	Solid	300.0	25336
890-2293-2	PH01B	Soluble	Solid	300.0	25336
890-2293-3	PH02A	Soluble	Solid	300.0	25336
890-2293-4	PH02B	Soluble	Solid	300.0	25336
890-2293-5	PH03A	Soluble	Solid	300.0	25336
890-2293-7	PH04A	Soluble	Solid	300.0	25336
890-2293-8	PH04B	Soluble	Solid	300.0	25336
MB 880-25336/1-A	Method Blank	Soluble	Solid	300.0	25336
LCS 880-25336/2-A	Lab Control Sample	Soluble	Solid	300.0	25336
LCSD 880-25336/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	25336
890-2293-2 MS	PH01B	Soluble	Solid	300.0	25336
890-2293-2 MSD	PH01B	Soluble	Solid	300.0	25336

Leach Batch: 25729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-6	PH03B	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

HPLC/IC (Continued)

Leach Batch: 25729 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-25729/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-25729/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-25729/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-14878-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-14878-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 25767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2293-6	PH03B	Soluble	Solid	300.0	25729
MB 880-25729/1-A	Method Blank	Soluble	Solid	300.0	25729
LCS 880-25729/2-A	Lab Control Sample	Soluble	Solid	300.0	25729
LCSD 880-25729/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	25729
880-14878-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	25729
880-14878-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	25729

Lab Chronicle

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Client Sample ID: PH01A
Date Collected: 05/09/22 09:00
Date Received: 05/10/22 08:39

Lab Sample ID: 890-2293-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	25601	05/16/22 09:24	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25595	05/16/22 21:49	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25664	05/16/22 17:06	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25393	05/12/22 09:42	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	25316	05/11/22 09:33	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25321	05/11/22 19:00	SM	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	25336	05/11/22 10:16	SC	XEN MID
Soluble	Analysis	300.0		20			25504	05/13/22 18:54	CH	XEN MID

Client Sample ID: PH01B
Date Collected: 05/09/22 13:20
Date Received: 05/10/22 08:39

Lab Sample ID: 890-2293-2
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			5.04 g	5 mL	25601	05/16/22 09:24	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25595	05/16/22 22:10	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25664	05/16/22 17:06	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25393	05/12/22 09:42	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25316	05/11/22 09:33	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25321	05/11/22 19:21	SM	XEN MID
Soluble	Leach	DI Leach			4.99 g	50 mL	25336	05/11/22 10:16	SC	XEN MID
Soluble	Analysis	300.0		10			25504	05/13/22 19:03	CH	XEN MID

Client Sample ID: PH02A
Date Collected: 05/09/22 10:20
Date Received: 05/10/22 08:39

Lab Sample ID: 890-2293-3
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			5.00 g	5 mL	25601	05/16/22 09:24	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25595	05/16/22 22:30	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25664	05/16/22 17:06	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25393	05/12/22 09:42	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25316	05/11/22 09:33	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25321	05/11/22 19:43	SM	XEN MID
Soluble	Leach	DI Leach			5.03 g	50 mL	25336	05/11/22 10:16	SC	XEN MID
Soluble	Analysis	300.0		5			25504	05/13/22 19:31	CH	XEN MID

Client Sample ID: PH02B
Date Collected: 05/09/22 10:25
Date Received: 05/10/22 08:39

Lab Sample ID: 890-2293-4
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	25601	05/16/22 09:24	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25595	05/16/22 22:51	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25664	05/16/22 17:06	SM	XEN MID

Lab Chronicle

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Client Sample ID: PH02B
Date Collected: 05/09/22 10:25
Date Received: 05/10/22 08:39

Lab Sample ID: 890-2293-4
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			25393	05/12/22 09:42	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25316	05/11/22 09:33	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25321	05/11/22 20:05	SM	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	25336	05/11/22 10:16	SC	XEN MID
Soluble	Analysis	300.0		1			25504	05/13/22 19:40	CH	XEN MID

Client Sample ID: PH03A
Date Collected: 05/09/22 10:35
Date Received: 05/10/22 08:39

Lab Sample ID: 890-2293-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	25601	05/16/22 09:24	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25595	05/16/22 23:12	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25664	05/16/22 17:06	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25393	05/12/22 09:42	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 15:42	SM	XEN MID
Soluble	Leach	DI Leach			4.97 g	50 mL	25336	05/11/22 10:16	SC	XEN MID
Soluble	Analysis	300.0		1			25504	05/13/22 20:08	CH	XEN MID

Client Sample ID: PH03B
Date Collected: 05/09/22 10:55
Date Received: 05/10/22 08:39

Lab Sample ID: 890-2293-6
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			4.95 g	5 mL	25601	05/16/22 09:24	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25595	05/16/22 23:33	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25664	05/16/22 17:06	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25393	05/12/22 09:42	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 16:03	SM	XEN MID
Soluble	Leach	DI Leach			4.99 g	50 mL	25729	05/17/22 16:00	CH	XEN MID
Soluble	Analysis	300.0		5			25767	05/18/22 02:38	CH	XEN MID

Client Sample ID: PH04A
Date Collected: 05/09/22 11:55
Date Received: 05/10/22 08:39

Lab Sample ID: 890-2293-7
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			4.96 g	5 mL	25601	05/16/22 09:24	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25595	05/16/22 23:53	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25664	05/16/22 17:06	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25393	05/12/22 09:42	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 16:47	SM	XEN MID

Lab Chronicle

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Client Sample ID: PH04A
Date Collected: 05/09/22 11:55
Date Received: 05/10/22 08:39

Lab Sample ID: 890-2293-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	25336	05/11/22 10:16	SC	XEN MID
Soluble	Analysis	300.0		1			25504	05/16/22 13:50	CH	XEN MID

Client Sample ID: PH04B
Date Collected: 05/09/22 13:50
Date Received: 05/10/22 08:39

Lab Sample ID: 890-2293-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	25602	05/16/22 09:29	MR	XEN MID
Total/NA	Analysis	8021B		1			25594	05/16/22 15:17	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25664	05/16/22 17:06	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25393	05/12/22 09:42	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 17:09	SM	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	25336	05/11/22 10:16	SC	XEN MID
Soluble	Analysis	300.0		1			25504	05/16/22 13:59	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: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

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

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

Method Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

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: EP USA 5

Job ID: 890-2293-1
SDG: 03A1987013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2293-1	PH01A	Solid	05/09/22 09:00	05/10/22 08:39	1
890-2293-2	PH01B	Solid	05/09/22 13:20	05/10/22 08:39	11
890-2293-3	PH02A	Solid	05/09/22 10:20	05/10/22 08:39	1
890-2293-4	PH02B	Solid	05/09/22 10:25	05/10/22 08:39	3
890-2293-5	PH03A	Solid	05/09/22 10:35	05/10/22 08:39	1
890-2293-6	PH03B	Solid	05/09/22 10:55	05/10/22 08:39	11
890-2293-7	PH04A	Solid	05/09/22 11:55	05/10/22 08:39	5
890-2293-8	PH04B	Solid	05/09/22 13:50	05/10/22 08:39	6

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:	WPX, Devon
Address:	3122 Natl. Parks Hwy.	Address:	5315 Buena Vista Dr
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	281-702-2329	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:	EPUSAS	Turn Around	☑ Routine ☐ Rush
Project Number:	03A1987013	Due Date:	
Project Location:		TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Conner Shore		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	1-Amour
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	6.0
Total Containers:		Corrected Temperature:	5.8

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides (epa: 300)	TPH (DRO)	BTEX (8021)
PH01A	S	5/9/22	9:00	1'	G	1		X	X	X
PH01K	S	5/9/22	11:20	11'	G	1		X	X	X
PH02A	S	5/9/22	10:25	1'	G	1		X	X	X
PH02C	S	5/9/22	10:35	3'	G	1		X	X	X
PH03A	S	5/9/22	10:55	1'	G	1		X	X	X
PH03K	S	5/9/22	11:55	11'	G	1		X	X	X
PH04E	S	5/9/22	13:45	5'	G	1		X	X	X
PH04F	S	5/9/22	13:50	6'	G	1		X	X	X

890-2293 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

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		5/10/22 8:39	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2293-1
SDG Number: 03A1987013

Login Number: 2293
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2293-1
SDG Number: 03A1987013

Login Number: 2293
List Number: 2
Creator: Teel, Brianna

List Source: Eurofins Midland
List Creation: 05/11/22 11:29 AM

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

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-2300-1
Laboratory Sample Delivery Group: 03A1987013
Client Project/Site: EP USA 5
Revision: 1

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

Attn: Joseph Hernandez

Authorized for release by:
5/25/2022 4:26:17 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: EP USA 5

Laboratory Job ID: 890-2300-1
SDG: 03A1987013

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
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: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Job ID: 890-2300-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2300-1

REVISION

The report being provided is a revision of the original report sent on 5/17/2022. The report (revision 1) is being revised due to Per client email, requesting TPH re run on PH10A and PH10B.

Report revision history

Receipt
The samples were received on 5/11/2022 11:24 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 5.6°C

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-25635 and analytical batch 880-25594 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-25635 and analytical batch 880-25594 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

GC Semi VOA
Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: PH10B (890-2300-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-25450 and analytical batch 880-25617 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: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Client Sample ID: PH09A
Date Collected: 05/09/22 14:15
Date Received: 05/11/22 11:24
Sample Depth: 0.5

Lab Sample ID: 890-2300-1
Matrix: Solid

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		05/16/22 13:18	05/17/22 12:12	1
Toluene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:18	05/17/22 12:12	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:18	05/17/22 12:12	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		05/16/22 13:18	05/17/22 12:12	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:18	05/17/22 12:12	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		05/16/22 13:18	05/17/22 12:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*	*05/16/22 13:18*	*05/17/22 12:12*	*1*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*	*05/16/22 13:18*	*05/17/22 12:12*	*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			05/17/22 14:01	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			05/16/22 11:36	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		05/12/22 13:37	05/14/22 05:42	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/12/22 13:37	05/14/22 05:42	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 13:37	05/14/22 05:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*92*		*70 - 130*	*05/12/22 13:37*	*05/14/22 05:42*	*1*
o-Terphenyl	*86*		*70 - 130*	*05/12/22 13:37*	*05/14/22 05:42*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**74.7**		4.96		mg/Kg			05/16/22 23:58	1

Client Sample ID: PH09B
Date Collected: 05/09/22 14:20
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2300-2
Matrix: Solid

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		05/16/22 13:18	05/17/22 12:38	1
Toluene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:18	05/17/22 12:38	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:18	05/17/22 12:38	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		05/16/22 13:18	05/17/22 12:38	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:18	05/17/22 12:38	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		05/16/22 13:18	05/17/22 12:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*05/16/22 13:18*	*05/17/22 12:38*	*1*

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Client Sample ID: PH09B

Date Collected: 05/09/22 14:20
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2300-2
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*	*05/16/22 13:18*	*05/17/22 12:38*	*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			05/17/22 14:01	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			05/16/22 11:36	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		05/12/22 13:37	05/14/22 06:04	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		05/12/22 13:37	05/14/22 06:04	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/12/22 13:37	05/14/22 06:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*94*		*70 - 130*	*05/12/22 13:37*	*05/14/22 06:04*	*1*
o-Terphenyl	*88*		*70 - 130*	*05/12/22 13:37*	*05/14/22 06:04*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**227**		5.04		mg/Kg			05/17/22 00:07	1

Client Sample ID: PH10A

Date Collected: 05/10/22 14:00
Date Received: 05/11/22 11:24
Sample Depth: 0.5

Lab Sample ID: 890-2300-3
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		05/16/22 13:18	05/17/22 13:04	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:18	05/17/22 13:04	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:18	05/17/22 13:04	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		05/16/22 13:18	05/17/22 13:04	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:18	05/17/22 13:04	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		05/16/22 13:18	05/17/22 13:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*	*05/16/22 13:18*	*05/17/22 13:04*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*05/16/22 13:18*	*05/17/22 13:04*	*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			05/17/22 14:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**121**		49.9		mg/Kg			05/16/22 11:36	1

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Client Sample ID: PH10A
Date Collected: 05/10/22 14:00
Date Received: 05/11/22 11:24
Sample Depth: 0.5

Lab Sample ID: 890-2300-3
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	<49.9	U	49.9		mg/Kg		05/18/22 09:02	05/18/22 20:16	1
Diesel Range Organics (Over C10-C28)	**53.9**		49.9		mg/Kg		05/18/22 09:02	05/18/22 20:16	1
Oil Range Organics (Over C28-C36)	**67.3**		49.9		mg/Kg		05/18/22 09:02	05/18/22 20:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*104*		*70 - 130*	*05/18/22 09:02*	*05/18/22 20:16*	*1*
o-Terphenyl	*113*		*70 - 130*	*05/18/22 09:02*	*05/18/22 20:16*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**131**		5.05		mg/Kg			05/17/22 00:17	1

Client Sample ID: PH10B
Date Collected: 05/10/22 14:05
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2300-4
Matrix: Solid

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		05/16/22 13:18	05/17/22 13:30	1
Toluene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:18	05/17/22 13:30	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:18	05/17/22 13:30	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		05/16/22 13:18	05/17/22 13:30	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:18	05/17/22 13:30	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		05/16/22 13:18	05/17/22 13:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*	*05/16/22 13:18*	*05/17/22 13:30*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*05/16/22 13:18*	*05/17/22 13:30*	*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			05/17/22 14:01	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			05/16/22 11:36	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		05/24/22 16:02	05/25/22 01:53	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		05/24/22 16:02	05/25/22 01:53	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/24/22 16:02	05/25/22 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*134*	*S1+*	*70 - 130*	*05/24/22 16:02*	*05/25/22 01:53*	*1*
o-Terphenyl	*126*		*70 - 130*	*05/24/22 16:02*	*05/25/22 01:53*	*1*

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Client Sample ID: PH10B
Date Collected: 05/10/22 14:05
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2300-4
Matrix: Solid

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	136		4.98		mg/Kg			05/17/22 00:26	1

Surrogate Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

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)
890-2298-A-1-H MS	Matrix Spike	102	91
890-2298-A-1-I MSD	Matrix Spike Duplicate	105	97
890-2300-1	PH09A	98	81
890-2300-2	PH09B	93	89
890-2300-3	PH10A	97	93
890-2300-4	PH10B	109	95
LCS 880-25635/1-A	Lab Control Sample	102	91
LCSD 880-25635/2-A	Lab Control Sample Dup	102	99
MB 880-25602/5-A	Method Blank	79	91
MB 880-25635/5-A	Method Blank	81	90

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-14856-A-1-F MS	Matrix Spike	110	103
880-14856-A-1-G MSD	Matrix Spike Duplicate	97	94
890-2298-A-1-B MS	Matrix Spike	109	95
890-2298-A-1-C MSD	Matrix Spike Duplicate	93	78
890-2300-1	PH09A	92	86
890-2300-2	PH09B	94	88
890-2300-3	PH10A	104	113
890-2300-4	PH10B	134 S1+	126
890-2330-A-1-E MS	Matrix Spike	119	102
890-2330-A-1-F MSD	Matrix Spike Duplicate	119	102
LCS 880-25433/2-A	Lab Control Sample	124	106
LCS 880-25793/2-A	Lab Control Sample	102	109
LCS 880-26197/2-A	Lab Control Sample	117	106
LCSD 880-25433/3-A	Lab Control Sample Dup	114	101
LCSD 880-25793/3-A	Lab Control Sample Dup	104	104
LCSD 880-26197/3-A	Lab Control Sample Dup	122	110
MB 880-25433/1-A	Method Blank	105	113
MB 880-25793/1-A	Method Blank	125	146 S1+
MB 880-26197/1-A	Method Blank	126	124

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-25602/5-A
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25602

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:29	05/16/22 14:48	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:29	05/16/22 14:48	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:29	05/16/22 14:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/16/22 09:29	05/16/22 14:48	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/16/22 09:29	05/16/22 14:48	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/16/22 09:29	05/16/22 14:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*79*		*70 - 130*	*05/16/22 09:29*	*05/16/22 14:48*	*1*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*	*05/16/22 09:29*	*05/16/22 14:48*	*1*

Lab Sample ID: MB 880-25635/5-A
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25635

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:18	05/17/22 04:14	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:18	05/17/22 04:14	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:18	05/17/22 04:14	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/16/22 13:18	05/17/22 04:14	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:18	05/17/22 04:14	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/16/22 13:18	05/17/22 04:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*70 - 130*	*05/16/22 13:18*	*05/17/22 04:14*	*1*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*	*05/16/22 13:18*	*05/17/22 04:14*	*1*

Lab Sample ID: LCS 880-25635/1-A
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25635

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09113		mg/Kg		91	70 - 130
Toluene	0.100	0.09419		mg/Kg		94	70 - 130
Ethylbenzene	0.100	0.09152		mg/Kg		92	70 - 130
m-Xylene & p-Xylene	0.200	0.1841		mg/Kg		92	70 - 130
o-Xylene	0.100	0.09210		mg/Kg		92	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*

Lab Sample ID: LCSD 880-25635/2-A
Matrix: Solid
Analysis Batch: 25594

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25635

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09243		mg/Kg		92	70 - 130	1	35

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

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

Lab Sample ID: LCSD 880-25635/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 25594 — **Prep Batch: 25635**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.09593		mg/Kg		96	70 - 130	2	35
Ethylbenzene			0.100	0.09455		mg/Kg		95	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.1917		mg/Kg		96	70 - 130	4	35
o-Xylene			0.100	0.09558		mg/Kg		96	70 - 130	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: 890-2298-A-1-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 25594 — **Prep Batch: 25635**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U F1	0.100	0.03705	F1	mg/Kg		37	70 - 130
Toluene	<0.00202	U F1	0.100	0.04088	F1	mg/Kg		41	70 - 130
Ethylbenzene	<0.00202	U F1	0.100	0.04240	F1	mg/Kg		42	70 - 130
m-Xylene & p-Xylene	<0.00403	U F1	0.200	0.08535	F1	mg/Kg		43	70 - 130
o-Xylene	<0.00202	U F1	0.100	0.04443	F1	mg/Kg		44	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*

Lab Sample ID: 890-2298-A-1-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 25594 — **Prep Batch: 25635**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U F1	0.0996	0.04559	F1	mg/Kg		46	70 - 130	21	35
Toluene	<0.00202	U F1	0.0996	0.04983	F1	mg/Kg		50	70 - 130	20	35
Ethylbenzene	<0.00202	U F1	0.0996	0.05013	F1	mg/Kg		50	70 - 130	17	35
m-Xylene & p-Xylene	<0.00403	U F1	0.199	0.1019	F1	mg/Kg		51	70 - 130	18	35
o-Xylene	<0.00202	U F1	0.0996	0.05180	F1	mg/Kg		52	70 - 130	15	35

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

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

Lab Sample ID: MB 880-25433/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 25490 — **Prep Batch: 25433**

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		05/12/22 13:37	05/13/22 21:51	1

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

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

Lab Sample ID: MB 880-25433/1-A
Matrix: Solid
Analysis Batch: 25490

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25433

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		05/12/22 13:37	05/13/22 21:51	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 13:37	05/13/22 21:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*105*		*70 - 130*	*05/12/22 13:37*	*05/13/22 21:51*	*1*
o-Terphenyl	*113*		*70 - 130*	*05/12/22 13:37*	*05/13/22 21:51*	*1*

Lab Sample ID: LCS 880-25433/2-A
Matrix: Solid
Analysis Batch: 25490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25433

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	983.1		mg/Kg		98	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1215		mg/Kg		121	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*124*		*70 - 130*
o-Terphenyl	*106*		*70 - 130*

Lab Sample ID: LCSD 880-25433/3-A
Matrix: Solid
Analysis Batch: 25490

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25433

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	877.0		mg/Kg		88	70 - 130	11	20
Diesel Range Organics (Over C10-C28)			1000	1062		mg/Kg		106	70 - 130	13	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*114*		*70 - 130*
o-Terphenyl	*101*		*70 - 130*

Lab Sample ID: 890-2298-A-1-B MS
Matrix: Solid
Analysis Batch: 25490

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25433

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	1000	1070		mg/Kg		105	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U	1000	1102		mg/Kg		108	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*109*		*70 - 130*
o-Terphenyl	*95*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

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

Lab Sample ID: 890-2298-A-1-C MSD
Matrix: Solid
Analysis Batch: 25490

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 25433

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	998	914.6		mg/Kg		90	70 - 130	16	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	897.8		mg/Kg		88	70 - 130	20	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*93*		*70 - 130*
o-Terphenyl	*78*		*70 - 130*

Lab Sample ID: MB 880-25793/1-A
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25793

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		05/18/22 09:02	05/18/22 11:29	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/18/22 09:02	05/18/22 11:29	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/18/22 09:02	05/18/22 11:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*125*		*70 - 130*	*05/18/22 09:02*	*05/18/22 11:29*	*1*
o-Terphenyl	*146*	*S1+*	*70 - 130*	*05/18/22 09:02*	*05/18/22 11:29*	*1*

Lab Sample ID: LCS 880-25793/2-A
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25793

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1132		mg/Kg		113	70 - 130
Diesel Range Organics (Over C10-C28)	1000	861.2		mg/Kg		86	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*102*		*70 - 130*
o-Terphenyl	*109*		*70 - 130*

Lab Sample ID: LCSD 880-25793/3-A
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25793

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1105		mg/Kg		111	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	1000	823.0		mg/Kg		82	70 - 130	5	20

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

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

Lab Sample ID: LCSD 880-25793/3-A
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25793

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

Lab Sample ID: 880-14856-A-1-F MS
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25793

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	98.5	F1	1000	1616	F1	mg/Kg		152	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	1000	1204		mg/Kg		120	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	110		70 - 130
o-Terphenyl	103		70 - 130

Lab Sample ID: 880-14856-A-1-G MSD
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 25793

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	98.5	F1	999	1379		mg/Kg		128	70 - 130	16	20
Diesel Range Organics (Over C10-C28)	<50.0	U	999	1072		mg/Kg		107	70 - 130	12	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	97		70 - 130
o-Terphenyl	94		70 - 130

Lab Sample ID: MB 880-26197/1-A
Matrix: Solid
Analysis Batch: 26134

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 26197

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		05/24/22 16:02	05/24/22 19:57	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/24/22 16:02	05/24/22 19:57	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/24/22 16:02	05/24/22 19:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	126		70 - 130	05/24/22 16:02	05/24/22 19:57	1
o-Terphenyl	124		70 - 130	05/24/22 16:02	05/24/22 19:57	1

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

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

Lab Sample ID: LCS 880-26197/2-A
Matrix: Solid
Analysis Batch: 26134

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 26197

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	875.1		mg/Kg		88	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	814.5		mg/Kg		81	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*117*		*70 - 130*
o-Terphenyl	*106*		*70 - 130*

Lab Sample ID: LCSD 880-26197/3-A
Matrix: Solid
Analysis Batch: 26134

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 26197

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	965.6		mg/Kg		97	70 - 130	10	20
Diesel Range Organics (Over C10-C28)			1000	910.2		mg/Kg		91	70 - 130	11	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*122*		*70 - 130*
o-Terphenyl	*110*		*70 - 130*

Lab Sample ID: 890-2330-A-1-E MS
Matrix: Solid
Analysis Batch: 26134

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 26197

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	1000	1124		mg/Kg		110	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U	1000	1178		mg/Kg		116	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*119*		*70 - 130*
o-Terphenyl	*102*		*70 - 130*

Lab Sample ID: 890-2330-A-1-F MSD
Matrix: Solid
Analysis Batch: 26134

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 26197

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	1158		mg/Kg		113	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U	999	1188		mg/Kg		117	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*119*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

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

Lab Sample ID: 890-2330-A-1-F MSD
Matrix: Solid
Analysis Batch: 26134

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 26197

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	102		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-25450/1-A
Matrix: Solid
Analysis Batch: 25617

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			05/16/22 20:08	1

Lab Sample ID: LCS 880-25450/2-A
Matrix: Solid
Analysis Batch: 25617

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	242.1		mg/Kg		97	90 - 110		

Lab Sample ID: LCSD 880-25450/3-A
Matrix: Solid
Analysis Batch: 25617

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	244.5		mg/Kg		98	90 - 110	1	20

Lab Sample ID: 890-2299-A-9-B MS
Matrix: Solid
Analysis Batch: 25617

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	17.5	F1	248	238.1	F1	mg/Kg		89	90 - 110		

Lab Sample ID: 890-2299-A-9-B MSD
Matrix: Solid
Analysis Batch: 25617

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	17.5	F1	248	253.3		mg/Kg		95	90 - 110	6	20

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

GC VOA

Analysis Batch: 25594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-1	PH09A	Total/NA	Solid	8021B	25635
890-2300-2	PH09B	Total/NA	Solid	8021B	25635
890-2300-3	PH10A	Total/NA	Solid	8021B	25635
890-2300-4	PH10B	Total/NA	Solid	8021B	25635
MB 880-25602/5-A	Method Blank	Total/NA	Solid	8021B	25602
MB 880-25635/5-A	Method Blank	Total/NA	Solid	8021B	25635
LCS 880-25635/1-A	Lab Control Sample	Total/NA	Solid	8021B	25635
LCSD 880-25635/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	25635
890-2298-A-1-H MS	Matrix Spike	Total/NA	Solid	8021B	25635
890-2298-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	25635

Prep Batch: 25602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-25602/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 25635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-1	PH09A	Total/NA	Solid	5035	
890-2300-2	PH09B	Total/NA	Solid	5035	
890-2300-3	PH10A	Total/NA	Solid	5035	
890-2300-4	PH10B	Total/NA	Solid	5035	
MB 880-25635/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-25635/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-25635/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2298-A-1-H MS	Matrix Spike	Total/NA	Solid	5035	
890-2298-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 25748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-1	PH09A	Total/NA	Solid	Total BTEX	
890-2300-2	PH09B	Total/NA	Solid	Total BTEX	
890-2300-3	PH10A	Total/NA	Solid	Total BTEX	
890-2300-4	PH10B	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 25433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-1	PH09A	Total/NA	Solid	8015NM Prep	
890-2300-2	PH09B	Total/NA	Solid	8015NM Prep	
MB 880-25433/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-25433/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-25433/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2298-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2298-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 25490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-1	PH09A	Total/NA	Solid	8015B NM	25433
890-2300-2	PH09B	Total/NA	Solid	8015B NM	25433
MB 880-25433/1-A	Method Blank	Total/NA	Solid	8015B NM	25433

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

GC Semi VOA (Continued)

Analysis Batch: 25490 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-25433/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	25433
LCSD 880-25433/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	25433
890-2298-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	25433
890-2298-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	25433

Analysis Batch: 25625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-1	PH09A	Total/NA	Solid	8015 NM	
890-2300-2	PH09B	Total/NA	Solid	8015 NM	
890-2300-3	PH10A	Total/NA	Solid	8015 NM	
890-2300-4	PH10B	Total/NA	Solid	8015 NM	

Analysis Batch: 25772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-3	PH10A	Total/NA	Solid	8015B NM	25793
MB 880-25793/1-A	Method Blank	Total/NA	Solid	8015B NM	25793
LCS 880-25793/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	25793
LCSD 880-25793/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	25793
880-14856-A-1-F MS	Matrix Spike	Total/NA	Solid	8015B NM	25793
880-14856-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	25793

Prep Batch: 25793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-3	PH10A	Total/NA	Solid	8015NM Prep	
MB 880-25793/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-25793/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-25793/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-14856-A-1-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-14856-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 26134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-4	PH10B	Total/NA	Solid	8015B NM	26197
MB 880-26197/1-A	Method Blank	Total/NA	Solid	8015B NM	26197
LCS 880-26197/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	26197
LCSD 880-26197/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	26197
890-2330-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	26197
890-2330-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	26197

Prep Batch: 26197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-4	PH10B	Total/NA	Solid	8015NM Prep	
MB 880-26197/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-26197/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-26197/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2330-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2330-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

HPLC/IC

Leach Batch: 25450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-1	PH09A	Soluble	Solid	DI Leach	
890-2300-2	PH09B	Soluble	Solid	DI Leach	
890-2300-3	PH10A	Soluble	Solid	DI Leach	
890-2300-4	PH10B	Soluble	Solid	DI Leach	
MB 880-25450/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-25450/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-25450/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2299-A-9-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2299-A-9-B MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 25617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2300-1	PH09A	Soluble	Solid	300.0	25450
890-2300-2	PH09B	Soluble	Solid	300.0	25450
890-2300-3	PH10A	Soluble	Solid	300.0	25450
890-2300-4	PH10B	Soluble	Solid	300.0	25450
MB 880-25450/1-A	Method Blank	Soluble	Solid	300.0	25450
LCS 880-25450/2-A	Lab Control Sample	Soluble	Solid	300.0	25450
LCSD 880-25450/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	25450
890-2299-A-9-B MS	Matrix Spike	Soluble	Solid	300.0	25450
890-2299-A-9-B MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	25450

Lab Chronicle

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Client Sample ID: PH09A
Date Collected: 05/09/22 14:15
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2300-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	25635	05/16/22 13:18	MR	XEN MID
Total/NA	Analysis	8021B		1			25594	05/17/22 12:12	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25748	05/17/22 14:01	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25625	05/16/22 11:36	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25433	05/12/22 13:37	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25490	05/14/22 05:42	SM	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	25450	05/12/22 15:26	CH	XEN MID
Soluble	Analysis	300.0		1			25617	05/16/22 23:58	CH	XEN MID

Client Sample ID: PH09B
Date Collected: 05/09/22 14:20
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2300-2
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			5.02 g	5 mL	25635	05/16/22 13:18	MR	XEN MID
Total/NA	Analysis	8021B		1			25594	05/17/22 12:38	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25748	05/17/22 14:01	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25625	05/16/22 11:36	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25433	05/12/22 13:37	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25490	05/14/22 06:04	SM	XEN MID
Soluble	Leach	DI Leach			4.96 g	50 mL	25450	05/12/22 15:26	CH	XEN MID
Soluble	Analysis	300.0		1			25617	05/17/22 00:07	CH	XEN MID

Client Sample ID: PH10A
Date Collected: 05/10/22 14:00
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2300-3
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	25635	05/16/22 13:18	MR	XEN MID
Total/NA	Analysis	8021B		1			25594	05/17/22 13:04	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25748	05/17/22 14:01	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25625	05/16/22 11:36	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25793	05/18/22 09:02	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25772	05/18/22 20:16	SM	XEN MID
Soluble	Leach	DI Leach			4.95 g	50 mL	25450	05/12/22 15:26	CH	XEN MID
Soluble	Analysis	300.0		1			25617	05/17/22 00:17	CH	XEN MID

Client Sample ID: PH10B
Date Collected: 05/10/22 14:05
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2300-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	25635	05/16/22 13:18	MR	XEN MID
Total/NA	Analysis	8021B		1			25594	05/17/22 13:30	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25748	05/17/22 14:01	SM	XEN MID

Lab Chronicle

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Client Sample ID: PH10B
Date Collected: 05/10/22 14:05
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2300-4
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			25625	05/16/22 11:36	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	26197	05/24/22 16:02	DM	XEN MID
Total/NA	Analysis	8015B NM		1			26134	05/25/22 01:53	SM	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	25450	05/12/22 15:26	CH	XEN MID
Soluble	Analysis	300.0		1			25617	05/17/22 00:26	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: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

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

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

Method Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

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: EP USA 5

Job ID: 890-2300-1
SDG: 03A1987013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2300-1	PH09A	Solid	05/09/22 14:15	05/11/22 11:24	0.5
890-2300-2	PH09B	Solid	05/09/22 14:20	05/11/22 11:24	1
890-2300-3	PH10A	Solid	05/10/22 14:00	05/11/22 11:24	0.5
890-2300-4	PH10B	Solid	05/10/22 14:05	05/11/22 11:24	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 LLC	Company Name:	Devon Energy
Address:	3122 National 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:	EP USA 5	Turn Around	☑ Routine ☐ Rush
Project Number:	03A1987013	Due Date:	
Project Location:		TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Conner Shore		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TPM-007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	5.8
Total Containers:		Corrected Temperature:	5.6

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)	Sample Comments
PH09A	S	5/9/2022	1415	0.5'	G	1		x	x	x	NMAP1826970471
PH09B	S	5/9/2022	1420	1'	G	1		x	x	x	CC:1061232001
PH10A	S	5/10/2022	1400	0.5'	G	1		x	x	x	
PH10B	S	5/10/2022	1405	1'	G	1		x	x	x	

Preservative Codes

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

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	Anna Byers	5/11/22 1100	2 Anna Byers		5.11.22 1124
3			4		
5			6		

Revised Date: 08/25/2020 Rev: 2020.2

890-2300 Chain of Custody

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2300-1
SDG Number: 03A1987013

Login Number: 2300
List Number: 1
Creator: Olivas, Nathaniel

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: 890-2300-1
SDG Number: 03A1987013

Login Number: 2300
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 05/12/22 10:47 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	

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-2301-1
Laboratory Sample Delivery Group: 03A1987013
Client Project/Site: EP USA 5
Revision: 1

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

Attn: Joseph Hernandez

Authorized for release by:
5/24/2022 12:37:39 PM

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

Client: Ensolum
Project/Site: EP USA 5

Laboratory Job ID: 890-2301-1
SDG: 03A1987013

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Job ID: 890-2301-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2301-1

REVISION

The report being provided is a revision of the original report sent on 5/17/2022. The report (revision 1) is being revised due to Per client email, requesting re run on PH06B for chloride and PH08B for TPH.

Report revision history

Receipt
The samples were received on 5/11/2022 11:24 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 5.6°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
Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: PH07A (890-2301-5). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-25450 and analytical batch 880-25617 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-25896, 880-25896 and 880-25896 and analytical batch 880-25899 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method 300_ORGFM_28D: Batch preparation batch 880-25896 and 880-25896 and analytical batch 880-25899 is reported without a matrix spike/matrix spike duplicate (MS/MSD). The batch MS/MSD was originally performed on another client's sample, and this test was canceled at client request. This MS/MSD result does not have immediate bearing on any samples except for the actual sample spiked. The associated laboratory control sample (LCS) met acceptance criteria and provides long-term precision and accuracy for this batch.

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: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Client Sample ID: PH05A
Date Collected: 05/10/22 09:25
Date Received: 05/11/22 11:24
Sample Depth: 0.5

Lab Sample ID: 890-2301-1
Matrix: Solid

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		05/16/22 13:30	05/17/22 12:38	1
Toluene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:30	05/17/22 12:38	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:30	05/17/22 12:38	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		05/16/22 13:30	05/17/22 12:38	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:30	05/17/22 12:38	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		05/16/22 13:30	05/17/22 12:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*05/16/22 13:30*	*05/17/22 12:38*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*05/16/22 13:30*	*05/17/22 12:38*	*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			05/17/22 17:05	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			05/13/22 09:14	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		05/12/22 10:01	05/12/22 17:30	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 17:30	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 17:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*86*		*70 - 130*	*05/12/22 10:01*	*05/12/22 17:30*	*1*
o-Terphenyl	*87*		*70 - 130*	*05/12/22 10:01*	*05/12/22 17:30*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**19.3**		5.00		mg/Kg			05/17/22 00:35	1

Client Sample ID: PH05B
Date Collected: 05/10/22 09:30
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2301-2
Matrix: Solid

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		05/16/22 13:30	05/17/22 12:59	1
Toluene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:30	05/17/22 12:59	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:30	05/17/22 12:59	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		05/16/22 13:30	05/17/22 12:59	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:30	05/17/22 12:59	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		05/16/22 13:30	05/17/22 12:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*	*05/16/22 13:30*	*05/17/22 12:59*	*1*

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Client Sample ID: PH05B
Date Collected: 05/10/22 09:30
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2301-2
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*05/16/22 13:30*	*05/17/22 12:59*	*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			05/17/22 17:05	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			05/13/22 09:14	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		05/12/22 10:01	05/12/22 17:52	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 17:52	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 17:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*87*		*70 - 130*	*05/12/22 10:01*	*05/12/22 17:52*	*1*
o-Terphenyl	*87*		*70 - 130*	*05/12/22 10:01*	*05/12/22 17:52*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**214**		4.96		mg/Kg			05/17/22 00:44	1

Client Sample ID: PH06A
Date Collected: 05/10/22 13:10
Date Received: 05/11/22 11:24
Sample Depth: 0.5

Lab Sample ID: 890-2301-3
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		05/16/22 13:30	05/17/22 13:19	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:30	05/17/22 13:19	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:30	05/17/22 13:19	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/16/22 13:30	05/17/22 13:19	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:30	05/17/22 13:19	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/16/22 13:30	05/17/22 13:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*05/16/22 13:30*	*05/17/22 13:19*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*05/16/22 13:30*	*05/17/22 13:19*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			05/17/22 17:05	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			05/13/22 09:14	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Client Sample ID: PH06A
Date Collected: 05/10/22 13:10
Date Received: 05/11/22 11:24
Sample Depth: 0.5

Lab Sample ID: 890-2301-3
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		05/12/22 10:01	05/12/22 18:14	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		05/12/22 10:01	05/12/22 18:14	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		05/12/22 10:01	05/12/22 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*89*		*70 - 130*	*05/12/22 10:01*	*05/12/22 18:14*	*1*
o-Terphenyl	*88*		*70 - 130*	*05/12/22 10:01*	*05/12/22 18:14*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**50.1**		4.99		mg/Kg			05/17/22 01:58	1

Client Sample ID: PH06B
Date Collected: 05/10/22 13:15
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2301-4
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		05/16/22 13:30	05/17/22 13:40	1
Toluene	<0.00201	U	0.00201		mg/Kg		05/16/22 13:30	05/17/22 13:40	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		05/16/22 13:30	05/17/22 13:40	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		05/16/22 13:30	05/17/22 13:40	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		05/16/22 13:30	05/17/22 13:40	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		05/16/22 13:30	05/17/22 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*	*05/16/22 13:30*	*05/17/22 13:40*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*05/16/22 13:30*	*05/17/22 13:40*	*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			05/17/22 17:05	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			05/13/22 09:14	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		05/12/22 10:01	05/12/22 18:36	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 18:36	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 18:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*105*		*70 - 130*	*05/12/22 10:01*	*05/12/22 18:36*	*1*
o-Terphenyl	*105*		*70 - 130*	*05/12/22 10:01*	*05/12/22 18:36*	*1*

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Client Sample ID: PH06B
Date Collected: 05/10/22 13:15
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2301-4
Matrix: Solid

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	592	F1	5.00		mg/Kg			05/19/22 16:08	1

Client Sample ID: PH07A
Date Collected: 05/10/22 09:40
Date Received: 05/11/22 11:24
Sample Depth: 0.5

Lab Sample ID: 890-2301-5
Matrix: Solid

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		05/16/22 13:30	05/17/22 14:00	1
Toluene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:30	05/17/22 14:00	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:30	05/17/22 14:00	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		05/16/22 13:30	05/17/22 14:00	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		05/16/22 13:30	05/17/22 14:00	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		05/16/22 13:30	05/17/22 14:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*	*05/16/22 13:30*	*05/17/22 14:00*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*05/16/22 13:30*	*05/17/22 14:00*	*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			05/17/22 17:05	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			05/13/22 09:14	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		05/12/22 10:01	05/12/22 18:57	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 18:57	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*67*	*S1-*	*70 - 130*	*05/12/22 10:01*	*05/12/22 18:57*	*1*
o-Terphenyl	*66*	*S1-*	*70 - 130*	*05/12/22 10:01*	*05/12/22 18:57*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	107		4.95		mg/Kg			05/17/22 02:35	1

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Client Sample ID: PH07B
Date Collected: 05/10/22 09:45
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2301-6
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		05/16/22 13:30	05/17/22 14:20	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:30	05/17/22 14:20	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:30	05/17/22 14:20	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		05/16/22 13:30	05/17/22 14:20	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:30	05/17/22 14:20	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		05/16/22 13:30	05/17/22 14:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*	*05/16/22 13:30*	*05/17/22 14:20*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*05/16/22 13:30*	*05/17/22 14:20*	*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			05/17/22 17:05	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			05/13/22 09:14	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		05/12/22 10:01	05/12/22 19:19	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		05/12/22 10:01	05/12/22 19:19	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/12/22 10:01	05/12/22 19:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*95*		*70 - 130*	*05/12/22 10:01*	*05/12/22 19:19*	*1*
o-Terphenyl	*93*		*70 - 130*	*05/12/22 10:01*	*05/12/22 19:19*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**46.7**		5.05		mg/Kg			05/17/22 02:44	1

Client Sample ID: PH08A
Date Collected: 05/10/22 10:50
Date Received: 05/11/22 11:24
Sample Depth: 0.5

Lab Sample ID: 890-2301-7
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		05/16/22 13:30	05/17/22 14:41	1
Toluene	<0.00201	U	0.00201		mg/Kg		05/16/22 13:30	05/17/22 14:41	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		05/16/22 13:30	05/17/22 14:41	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		05/16/22 13:30	05/17/22 14:41	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		05/16/22 13:30	05/17/22 14:41	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		05/16/22 13:30	05/17/22 14:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*	*05/16/22 13:30*	*05/17/22 14:41*	*1*

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Client Sample ID: PH08A
Date Collected: 05/10/22 10:50
Date Received: 05/11/22 11:24
Sample Depth: 0.5

Lab Sample ID: 890-2301-7
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*05/16/22 13:30*	*05/17/22 14:41*	*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			05/17/22 17:05	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			05/13/22 09:14	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		05/12/22 10:01	05/12/22 19:41	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 19:41	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 19:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*79*		*70 - 130*	*05/12/22 10:01*	*05/12/22 19:41*	*1*
o-Terphenyl	*79*		*70 - 130*	*05/12/22 10:01*	*05/12/22 19:41*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**19.2**		4.98		mg/Kg			05/17/22 02:54	1

Client Sample ID: PH08B
Date Collected: 05/10/22 10:55
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2301-8
Matrix: Solid

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		05/16/22 13:30	05/17/22 15:01	1
Toluene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:30	05/17/22 15:01	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:30	05/17/22 15:01	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		05/16/22 13:30	05/17/22 15:01	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:30	05/17/22 15:01	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		05/16/22 13:30	05/17/22 15:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*	*05/16/22 13:30*	*05/17/22 15:01*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*05/16/22 13:30*	*05/17/22 15:01*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404		mg/Kg			05/17/22 17:05	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			05/13/22 09:14	1

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Client Sample ID: PH08B
Date Collected: 05/10/22 10:55
Date Received: 05/11/22 11:24
Sample Depth: 1

Lab Sample ID: 890-2301-8
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	<50.0	U	50.0		mg/Kg		05/18/22 09:02	05/18/22 19:55	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/18/22 09:02	05/18/22 19:55	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/18/22 09:02	05/18/22 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*107*		*70 - 130*	*05/18/22 09:02*	*05/18/22 19:55*	*1*
o-Terphenyl	*122*		*70 - 130*	*05/18/22 09:02*	*05/18/22 19:55*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**23.6**		4.95		mg/Kg			05/17/22 03:21	1

Surrogate Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-2301-1	PH05A	101	100
890-2301-1 MS	PH05A	104	104
890-2301-1 MSD	PH05A	103	102
890-2301-2	PH05B	102	100
890-2301-3	PH06A	105	100
890-2301-4	PH06B	106	99
890-2301-5	PH07A	106	100
890-2301-6	PH07B	106	99
890-2301-7	PH08A	110	102
890-2301-8	PH08B	108	102
LCS 880-25636/1-A	Lab Control Sample	98	96
LCSD 880-25636/2-A	Lab Control Sample Dup	102	102
MB 880-25636/5-A	Method Blank	97	98

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-14703-A-1-C MS	Matrix Spike	75	71
880-14703-A-1-D MSD	Matrix Spike Duplicate	74	71
880-14856-A-1-F MS	Matrix Spike	110	103
880-14856-A-1-G MSD	Matrix Spike Duplicate	97	94
890-2301-1	PH05A	86	87
890-2301-2	PH05B	87	87
890-2301-3	PH06A	89	88
890-2301-4	PH06B	105	105
890-2301-5	PH07A	67 S1-	66 S1-
890-2301-6	PH07B	95	93
890-2301-7	PH08A	79	79
890-2301-8	PH08B	107	122
LCS 880-25396/2-A	Lab Control Sample	104	103
LCS 880-25793/2-A	Lab Control Sample	102	109
LCSD 880-25396/3-A	Lab Control Sample Dup	107	106
LCSD 880-25793/3-A	Lab Control Sample Dup	104	104
MB 880-25396/1-A	Method Blank	99	107
MB 880-25793/1-A	Method Blank	125	146 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-25636/5-A
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25636

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:30	05/17/22 11:48	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:30	05/17/22 11:48	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:30	05/17/22 11:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/16/22 13:30	05/17/22 11:48	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/16/22 13:30	05/17/22 11:48	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/16/22 13:30	05/17/22 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*	*05/16/22 13:30*	*05/17/22 11:48*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*05/16/22 13:30*	*05/17/22 11:48*	*1*

Lab Sample ID: LCS 880-25636/1-A
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25636

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09524		mg/Kg		95	70 - 130		
Toluene			0.100	0.09684		mg/Kg		97	70 - 130		
Ethylbenzene			0.100	0.1120		mg/Kg		112	70 - 130		
m-Xylene & p-Xylene			0.200	0.2019		mg/Kg		101	70 - 130		
o-Xylene			0.100	0.09544		mg/Kg		95	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*

Lab Sample ID: LCSD 880-25636/2-A
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25636

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1015		mg/Kg		101	70 - 130	6	35
Toluene			0.100	0.09620		mg/Kg		96	70 - 130	1	35
Ethylbenzene			0.100	0.1102		mg/Kg		110	70 - 130	2	35
m-Xylene & p-Xylene			0.200	0.1975		mg/Kg		99	70 - 130	2	35
o-Xylene			0.100	0.09391		mg/Kg		94	70 - 130	2	35

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

Lab Sample ID: 890-2301-1 MS
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: PH05A
Prep Type: Total/NA
Prep Batch: 25636

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00199	U	0.0996	0.09146		mg/Kg		92	70 - 130		
Toluene	<0.00199	U	0.0996	0.08637		mg/Kg		86	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

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

Lab Sample ID: 890-2301-1 MS
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: PH05A
Prep Type: Total/NA
Prep Batch: 25636

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U	0.0996	0.09756		mg/Kg		98	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1748		mg/Kg		88	70 - 130
o-Xylene	<0.00199	U	0.0996	0.08344		mg/Kg		83	70 - 130

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

Lab Sample ID: 890-2301-1 MSD
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: PH05A
Prep Type: Total/NA
Prep Batch: 25636

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.0998	0.08543		mg/Kg		86	70 - 130	7	35
Toluene	<0.00199	U	0.0998	0.08179		mg/Kg		81	70 - 130	5	35
Ethylbenzene	<0.00199	U	0.0998	0.09262		mg/Kg		93	70 - 130	5	35
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1656		mg/Kg		83	70 - 130	5	35
o-Xylene	<0.00199	U	0.0998	0.07884		mg/Kg		79	70 - 130	6	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

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

Lab Sample ID: MB 880-25396/1-A
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25396

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		05/12/22 10:01	05/12/22 11:00	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 11:00	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/12/22 10:01	05/12/22 11:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*05/12/22 10:01*	*05/12/22 11:00*	*1*
o-Terphenyl	*107*		*70 - 130*	*05/12/22 10:01*	*05/12/22 11:00*	*1*

Lab Sample ID: LCS 880-25396/2-A
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25396

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1140		mg/Kg		114	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1052		mg/Kg		105	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

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

Lab Sample ID: LCS 880-25396/2-A
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25396

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	104		70 - 130
o-Terphenyl	103		70 - 130

Lab Sample ID: LCSD 880-25396/3-A
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25396

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1194		mg/Kg		119	70 - 130	5	20
Diesel Range Organics (Over C10-C28)			1000	1136		mg/Kg		114	70 - 130	8	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	107		70 - 130
o-Terphenyl	106		70 - 130

Lab Sample ID: 880-14703-A-1-C MS
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25396

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	1000	935.7		mg/Kg		94	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U	1000	779.4		mg/Kg		78	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	75		70 - 130
o-Terphenyl	71		70 - 130

Lab Sample ID: 880-14703-A-1-D MSD
Matrix: Solid
Analysis Batch: 25380

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 25396

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	998	902.2		mg/Kg		90	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	761.7		mg/Kg		76	70 - 130	2	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	74		70 - 130
o-Terphenyl	71		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

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

Lab Sample ID: MB 880-25793/1-A
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25793

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		05/18/22 09:02	05/18/22 11:29	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/18/22 09:02	05/18/22 11:29	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/18/22 09:02	05/18/22 11:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*125*		*70 - 130*	*05/18/22 09:02*	*05/18/22 11:29*	*1*
o-Terphenyl	*146*	*S1+*	*70 - 130*	*05/18/22 09:02*	*05/18/22 11:29*	*1*

Lab Sample ID: LCS 880-25793/2-A
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25793

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1132		mg/Kg		113	70 - 130
Diesel Range Organics (Over C10-C28)	1000	861.2		mg/Kg		86	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*102*		*70 - 130*
o-Terphenyl	*109*		*70 - 130*

Lab Sample ID: LCSD 880-25793/3-A
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25793

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1105		mg/Kg		111	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	1000	823.0		mg/Kg		82	70 - 130	5	20

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

Lab Sample ID: 880-14856-A-1-F MS
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25793

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	98.5	F1	1000	1616	F1	mg/Kg		152	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	1000	1204		mg/Kg		120	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

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

Lab Sample ID: 880-14856-A-1-F MS
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25793

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	110		70 - 130
o-Terphenyl	103		70 - 130

Lab Sample ID: 880-14856-A-1-G MSD
Matrix: Solid
Analysis Batch: 25772

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 25793

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	98.5	F1	999	1379		mg/Kg		128	70 - 130	16	20
Diesel Range Organics (Over C10-C28)	<50.0	U	999	1072		mg/Kg		107	70 - 130	12	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	97		70 - 130
o-Terphenyl	94		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-25450/1-A
Matrix: Solid
Analysis Batch: 25617

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			05/16/22 20:08	1

Lab Sample ID: LCS 880-25450/2-A
Matrix: Solid
Analysis Batch: 25617

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	242.1		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-25450/3-A
Matrix: Solid
Analysis Batch: 25617

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	244.5		mg/Kg		98	90 - 110	1	20

Lab Sample ID: 890-2299-A-9-B MS
Matrix: Solid
Analysis Batch: 25617

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	17.5	F1	248	238.1	F1	mg/Kg		89	90 - 110

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-2299-A-9-B MSD
Matrix: Solid
Analysis Batch: 25617

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	17.5	F1	248	253.3		mg/Kg		95	90 - 110	6	20

Lab Sample ID: MB 880-25453/1-A
Matrix: Solid
Analysis Batch: 25654

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			05/17/22 01:31	1

Lab Sample ID: LCS 880-25453/2-A
Matrix: Solid
Analysis Batch: 25654

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	243.4		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-25453/3-A
Matrix: Solid
Analysis Batch: 25654

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	244.3		mg/Kg		98	90 - 110	0	20

Lab Sample ID: 890-2301-3 MS
Matrix: Solid
Analysis Batch: 25654

Client Sample ID: PH06A
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.1		250	299.1		mg/Kg		100	90 - 110

Lab Sample ID: 890-2301-3 MSD
Matrix: Solid
Analysis Batch: 25654

Client Sample ID: PH06A
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.1		250	297.4		mg/Kg		99	90 - 110	1	20

Lab Sample ID: MB 880-25896/1-A
Matrix: Solid
Analysis Batch: 25899

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			05/19/22 15:40	1

Lab Sample ID: LCS 880-25896/2-A
Matrix: Solid
Analysis Batch: 25899

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	239.2		mg/Kg		96	90 - 110

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCSD 880-25896/3-A
Matrix: Solid
Analysis Batch: 25899

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	241.0		mg/Kg		96	90 - 110	1	20

Lab Sample ID: 890-2301-4 MS
Matrix: Solid
Analysis Batch: 25899

Client Sample ID: PH06B
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	592	F1	250	849.2		mg/Kg		103	90 - 110		

Lab Sample ID: 890-2301-4 MSD
Matrix: Solid
Analysis Batch: 25899

Client Sample ID: PH06B
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	592	F1	250	807.0	F1	mg/Kg		86	90 - 110	5	20

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

GC VOA

Prep Batch: 25636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-1	PH05A	Total/NA	Solid	5035	
890-2301-2	PH05B	Total/NA	Solid	5035	
890-2301-3	PH06A	Total/NA	Solid	5035	
890-2301-4	PH06B	Total/NA	Solid	5035	
890-2301-5	PH07A	Total/NA	Solid	5035	
890-2301-6	PH07B	Total/NA	Solid	5035	
890-2301-7	PH08A	Total/NA	Solid	5035	
890-2301-8	PH08B	Total/NA	Solid	5035	
MB 880-25636/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-25636/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-25636/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2301-1 MS	PH05A	Total/NA	Solid	5035	
890-2301-1 MSD	PH05A	Total/NA	Solid	5035	

Analysis Batch: 25672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-1	PH05A	Total/NA	Solid	8021B	25636
890-2301-2	PH05B	Total/NA	Solid	8021B	25636
890-2301-3	PH06A	Total/NA	Solid	8021B	25636
890-2301-4	PH06B	Total/NA	Solid	8021B	25636
890-2301-5	PH07A	Total/NA	Solid	8021B	25636
890-2301-6	PH07B	Total/NA	Solid	8021B	25636
890-2301-7	PH08A	Total/NA	Solid	8021B	25636
890-2301-8	PH08B	Total/NA	Solid	8021B	25636
MB 880-25636/5-A	Method Blank	Total/NA	Solid	8021B	25636
LCS 880-25636/1-A	Lab Control Sample	Total/NA	Solid	8021B	25636
LCSD 880-25636/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	25636
890-2301-1 MS	PH05A	Total/NA	Solid	8021B	25636
890-2301-1 MSD	PH05A	Total/NA	Solid	8021B	25636

Analysis Batch: 25762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-1	PH05A	Total/NA	Solid	Total BTEX	
890-2301-2	PH05B	Total/NA	Solid	Total BTEX	
890-2301-3	PH06A	Total/NA	Solid	Total BTEX	
890-2301-4	PH06B	Total/NA	Solid	Total BTEX	
890-2301-5	PH07A	Total/NA	Solid	Total BTEX	
890-2301-6	PH07B	Total/NA	Solid	Total BTEX	
890-2301-7	PH08A	Total/NA	Solid	Total BTEX	
890-2301-8	PH08B	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 25380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-1	PH05A	Total/NA	Solid	8015B NM	25396
890-2301-2	PH05B	Total/NA	Solid	8015B NM	25396
890-2301-3	PH06A	Total/NA	Solid	8015B NM	25396
890-2301-4	PH06B	Total/NA	Solid	8015B NM	25396
890-2301-5	PH07A	Total/NA	Solid	8015B NM	25396
890-2301-6	PH07B	Total/NA	Solid	8015B NM	25396

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

GC Semi VOA (Continued)

Analysis Batch: 25380 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-7	PH08A	Total/NA	Solid	8015B NM	25396
MB 880-25396/1-A	Method Blank	Total/NA	Solid	8015B NM	25396
LCS 880-25396/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	25396
LCSD 880-25396/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	25396
880-14703-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	25396
880-14703-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	25396

Prep Batch: 25396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-1	PH05A	Total/NA	Solid	8015NM Prep	
890-2301-2	PH05B	Total/NA	Solid	8015NM Prep	
890-2301-3	PH06A	Total/NA	Solid	8015NM Prep	
890-2301-4	PH06B	Total/NA	Solid	8015NM Prep	
890-2301-5	PH07A	Total/NA	Solid	8015NM Prep	
890-2301-6	PH07B	Total/NA	Solid	8015NM Prep	
890-2301-7	PH08A	Total/NA	Solid	8015NM Prep	
MB 880-25396/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-25396/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-25396/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-14703-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-14703-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 25503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-1	PH05A	Total/NA	Solid	8015 NM	
890-2301-2	PH05B	Total/NA	Solid	8015 NM	
890-2301-3	PH06A	Total/NA	Solid	8015 NM	
890-2301-4	PH06B	Total/NA	Solid	8015 NM	
890-2301-5	PH07A	Total/NA	Solid	8015 NM	
890-2301-6	PH07B	Total/NA	Solid	8015 NM	
890-2301-7	PH08A	Total/NA	Solid	8015 NM	
890-2301-8	PH08B	Total/NA	Solid	8015 NM	

Analysis Batch: 25772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-8	PH08B	Total/NA	Solid	8015B NM	25793
MB 880-25793/1-A	Method Blank	Total/NA	Solid	8015B NM	25793
LCS 880-25793/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	25793
LCSD 880-25793/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	25793
880-14856-A-1-F MS	Matrix Spike	Total/NA	Solid	8015B NM	25793
880-14856-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	25793

Prep Batch: 25793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-8	PH08B	Total/NA	Solid	8015NM Prep	
MB 880-25793/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-25793/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-25793/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-14856-A-1-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-14856-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

HPLC/IC

Leach Batch: 25450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-1	PH05A	Soluble	Solid	DI Leach	
890-2301-2	PH05B	Soluble	Solid	DI Leach	
MB 880-25450/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-25450/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-25450/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2299-A-9-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2299-A-9-B MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Leach Batch: 25453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-3	PH06A	Soluble	Solid	DI Leach	
890-2301-5	PH07A	Soluble	Solid	DI Leach	
890-2301-6	PH07B	Soluble	Solid	DI Leach	
890-2301-7	PH08A	Soluble	Solid	DI Leach	
890-2301-8	PH08B	Soluble	Solid	DI Leach	
MB 880-25453/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-25453/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-25453/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2301-3 MS	PH06A	Soluble	Solid	DI Leach	
890-2301-3 MSD	PH06A	Soluble	Solid	DI Leach	

Analysis Batch: 25617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-1	PH05A	Soluble	Solid	300.0	25450
890-2301-2	PH05B	Soluble	Solid	300.0	25450
MB 880-25450/1-A	Method Blank	Soluble	Solid	300.0	25450
LCS 880-25450/2-A	Lab Control Sample	Soluble	Solid	300.0	25450
LCSD 880-25450/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	25450
890-2299-A-9-B MS	Matrix Spike	Soluble	Solid	300.0	25450
890-2299-A-9-B MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	25450

Analysis Batch: 25654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-3	PH06A	Soluble	Solid	300.0	25453
890-2301-5	PH07A	Soluble	Solid	300.0	25453
890-2301-6	PH07B	Soluble	Solid	300.0	25453
890-2301-7	PH08A	Soluble	Solid	300.0	25453
890-2301-8	PH08B	Soluble	Solid	300.0	25453
MB 880-25453/1-A	Method Blank	Soluble	Solid	300.0	25453
LCS 880-25453/2-A	Lab Control Sample	Soluble	Solid	300.0	25453
LCSD 880-25453/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	25453
890-2301-3 MS	PH06A	Soluble	Solid	300.0	25453
890-2301-3 MSD	PH06A	Soluble	Solid	300.0	25453

Leach Batch: 25896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-4	PH06B	Soluble	Solid	DI Leach	
MB 880-25896/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-25896/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-25896/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2301-4 MS	PH06B	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

HPLC/IC (Continued)

Leach Batch: 25896 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-4 MSD	PH06B	Soluble	Solid	DI Leach	

Analysis Batch: 25899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2301-4	PH06B	Soluble	Solid	300.0	25896
MB 880-25896/1-A	Method Blank	Soluble	Solid	300.0	25896
LCS 880-25896/2-A	Lab Control Sample	Soluble	Solid	300.0	25896
LCSD 880-25896/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	25896
890-2301-4 MS	PH06B	Soluble	Solid	300.0	25896
890-2301-4 MSD	PH06B	Soluble	Solid	300.0	25896

Lab Chronicle

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Client Sample ID: PH05A
Date Collected: 05/10/22 09:25
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2301-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	25636	05/16/22 13:30	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/17/22 12:38	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25762	05/17/22 17:05	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25503	05/13/22 09:14	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 17:30	SM	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	25450	05/12/22 15:26	CH	XEN MID
Soluble	Analysis	300.0		1			25617	05/17/22 00:35	CH	XEN MID

Client Sample ID: PH05B
Date Collected: 05/10/22 09:30
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2301-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	25636	05/16/22 13:30	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/17/22 12:59	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25762	05/17/22 17:05	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25503	05/13/22 09:14	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 17:52	SM	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	25450	05/12/22 15:26	CH	XEN MID
Soluble	Analysis	300.0		1			25617	05/17/22 00:44	CH	XEN MID

Client Sample ID: PH06A
Date Collected: 05/10/22 13:10
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2301-3
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			5.00 g	5 mL	25636	05/16/22 13:30	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/17/22 13:19	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25762	05/17/22 17:05	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25503	05/13/22 09:14	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 18:14	SM	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	25453	05/12/22 15:31	CH	XEN MID
Soluble	Analysis	300.0		1			25654	05/17/22 01:58	CH	XEN MID

Client Sample ID: PH06B
Date Collected: 05/10/22 13:15
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2301-4
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	25636	05/16/22 13:30	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/17/22 13:40	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25762	05/17/22 17:05	SM	XEN MID

Lab Chronicle

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Client Sample ID: PH06B
Date Collected: 05/10/22 13:15
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2301-4
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			25503	05/13/22 09:14	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 18:36	SM	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	25896	05/19/22 12:19	CH	XEN MID
Soluble	Analysis	300.0		1			25899	05/19/22 16:08	CH	XEN MID

Client Sample ID: PH07A
Date Collected: 05/10/22 09:40
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2301-5
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			5.02 g	5 mL	25636	05/16/22 13:30	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/17/22 14:00	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25762	05/17/22 17:05	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25503	05/13/22 09:14	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 18:57	SM	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	25453	05/12/22 15:31	CH	XEN MID
Soluble	Analysis	300.0		1			25654	05/17/22 02:35	CH	XEN MID

Client Sample ID: PH07B
Date Collected: 05/10/22 09:45
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2301-6
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	25636	05/16/22 13:30	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/17/22 14:20	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25762	05/17/22 17:05	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25503	05/13/22 09:14	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 19:19	SM	XEN MID
Soluble	Leach	DI Leach			4.95 g	50 mL	25453	05/12/22 15:31	CH	XEN MID
Soluble	Analysis	300.0		1			25654	05/17/22 02:44	CH	XEN MID

Client Sample ID: PH08A
Date Collected: 05/10/22 10:50
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2301-7
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	25636	05/16/22 13:30	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/17/22 14:41	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25762	05/17/22 17:05	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25503	05/13/22 09:14	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25396	05/12/22 10:01	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25380	05/12/22 19:41	SM	XEN MID

Lab Chronicle

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Client Sample ID: PH08A
Date Collected: 05/10/22 10:50
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2301-7
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	25453	05/12/22 15:31	CH	XEN MID
Soluble	Analysis	300.0		1			25654	05/17/22 02:54	CH	XEN MID

Client Sample ID: PH08B
Date Collected: 05/10/22 10:55
Date Received: 05/11/22 11:24

Lab Sample ID: 890-2301-8
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			4.95 g	5 mL	25636	05/16/22 13:30	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/17/22 15:01	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25762	05/17/22 17:05	SM	XEN MID
Total/NA	Analysis	8015 NM		1			25503	05/13/22 09:14	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25793	05/18/22 09:02	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25772	05/18/22 19:55	SM	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	25453	05/12/22 15:30	CH	XEN MID
Soluble	Analysis	300.0		1			25654	05/17/22 03:21	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: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

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

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

Method Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

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: EP USA 5

Job ID: 890-2301-1
SDG: 03A1987013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2301-1	PH05A	Solid	05/10/22 09:25	05/11/22 11:24	0.5
890-2301-2	PH05B	Solid	05/10/22 09:30	05/11/22 11:24	1
890-2301-3	PH06A	Solid	05/10/22 13:10	05/11/22 11:24	0.5
890-2301-4	PH06B	Solid	05/10/22 13:15	05/11/22 11:24	1
890-2301-5	PH07A	Solid	05/10/22 09:40	05/11/22 11:24	0.5
890-2301-6	PH07B	Solid	05/10/22 09:45	05/11/22 11:24	1
890-2301-7	PH08A	Solid	05/10/22 10:50	05/11/22 11:24	0.5
890-2301-8	PH08B	Solid	05/10/22 10:55	05/11/22 11:24	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 LLC	Company Name:	Devon Energy
Address:	3122 National 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:	EP USA 5	Turn Around	☑ Routine ☐ Rush
Project Number:	03A1987013	Due Date:	
Project Location:		TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Conner Shore		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	NUM-008
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	5.8
Total Containers:		Corrected Temperature:	5.6

ANALYSIS REQUEST

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

890-2301 Chain of Custody

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)	Sample Comments
PH05A	S	5/10/2022	925	0.5'	G	1	x	x	x	NMAP1826970471
PH05B	S	5/10/2022	930	1'	G	1	x	x	x	
PH06A	S	5/10/2022	1310	0.5'	G	1	x	x	x	CC:1061232001
PH06B	S	5/10/2022	1315	1'	G	1	x	x	x	
PH07A	S	5/10/2022	940	0.5'	G	1	x	x	x	
PH07B	S	5/10/2022	945	1'	G	1	x	x	x	
PH08A	S	5/10/2022	1050	0.5'	G	1	x	x	x	
PH08B	S	5/10/2022	1055	1'	G	1	x	x	x	

Parameters

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Anna Byers	5/11/22 1125	2 Clue Cof	5.11.22 1124	
3			4		
5			6		

Revised Date 08/25/2020 Rev 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2301-1
SDG Number: 03A1987013

Login Number: 2301
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2301-1
SDG Number: 03A1987013

Login Number: 2301
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 05/12/22 10:47 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	

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-2760-1
Laboratory Sample Delivery Group: 03A1987013
Client Project/Site: EP USA 5

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

Attn: Joseph Hernandez

JKramer

Authorized for release by:
8/19/2022 5:58:17 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: EP USA 5

Laboratory Job ID: 890-2760-1
SDG: 03A1987013

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Qualifiers

GC VOA

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

GC Semi VOA

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

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: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Job ID: 890-2760-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2760-1

Receipt
The samples were received on 8/16/2022 12:24 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.0°C

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-32434 and analytical batch 880-32438 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

GC Semi VOA
Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-32394 and analytical batch 880-32384 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: PH01 (890-2760-4), (890-2760-A-4-E MS) and (890-2760-A-4-F MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: The matrix spike (MS) recoveries for preparation batch 880-32395 and analytical batch 880-32386 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-32301 and analytical batch 880-32431 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: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Client Sample ID: PH03

Lab Sample ID: 890-2760-1
Matrix: Solid
Date Collected: 08/16/22 09:30
Date Received: 08/16/22 12:24
Sample Depth: 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		08/18/22 14:24	08/18/22 17:30	1
Toluene	**0.00416**		0.00200		mg/Kg		08/18/22 14:24	08/18/22 17:30	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 17:30	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/18/22 14:24	08/18/22 17:30	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 17:30	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/18/22 14:24	08/18/22 17:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*08/18/22 14:24*	*08/18/22 17:30*	*1*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*	*08/18/22 14:24*	*08/18/22 17:30*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.00416**		0.00400		mg/Kg			08/19/22 11:07	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			08/18/22 16:47	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		08/18/22 09:11	08/18/22 11:45	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9		mg/Kg		08/18/22 09:11	08/18/22 11:45	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/18/22 09:11	08/18/22 11:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*08/18/22 09:11*	*08/18/22 11:45*	*1*
o-Terphenyl	*96*		*70 - 130*	*08/18/22 09:11*	*08/18/22 11:45*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**852**	**F1**	4.96		mg/Kg			08/18/22 13:41	1

Client Sample ID: PH03

Lab Sample ID: 890-2760-2
Matrix: Solid
Date Collected: 08/16/22 09:35
Date Received: 08/16/22 12:24
Sample Depth: 7'

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		08/18/22 14:24	08/18/22 17:51	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 17:51	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 17:51	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/18/22 14:24	08/18/22 17:51	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 17:51	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/18/22 14:24	08/18/22 17:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*	*08/18/22 14:24*	*08/18/22 17:51*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Client Sample ID: PH03
Date Collected: 08/16/22 09:35
Date Received: 08/16/22 12:24
Sample Depth: 7'

Lab Sample ID: 890-2760-2
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*	*08/18/22 14:24*	*08/18/22 17:51*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			08/19/22 11:07	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			08/18/22 16:47	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		08/18/22 09:11	08/18/22 12:51	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9		mg/Kg		08/18/22 09:11	08/18/22 12:51	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/18/22 09:11	08/18/22 12:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*105*		*70 - 130*	*08/18/22 09:11*	*08/18/22 12:51*	*1*
o-Terphenyl	*91*		*70 - 130*	*08/18/22 09:11*	*08/18/22 12:51*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1510**		25.0		mg/Kg			08/18/22 14:04	5

Client Sample ID: PH03
Date Collected: 08/16/22 09:40
Date Received: 08/16/22 12:24
Sample Depth: 9'

Lab Sample ID: 890-2760-3
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		08/18/22 14:24	08/18/22 18:12	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 18:12	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 18:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/18/22 14:24	08/18/22 18:12	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 18:12	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/18/22 14:24	08/18/22 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*	*08/18/22 14:24*	*08/18/22 18:12*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*08/18/22 14:24*	*08/18/22 18:12*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			08/19/22 11:07	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			08/18/22 16:47	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Client Sample ID: PH03

Lab Sample ID: 890-2760-3
Matrix: Solid
Date Collected: 08/16/22 09:40
Date Received: 08/16/22 12:24
Sample Depth: 9'

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		08/18/22 09:11	08/18/22 13:13	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0		mg/Kg		08/18/22 09:11	08/18/22 13:13	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/18/22 09:11	08/18/22 13:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*106*		*70 - 130*	*08/18/22 09:11*	*08/18/22 13:13*	*1*
o-Terphenyl	*94*		*70 - 130*	*08/18/22 09:11*	*08/18/22 13:13*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**866**		4.98		mg/Kg			08/18/22 14:12	1

Client Sample ID: PH01

Lab Sample ID: 890-2760-4
Matrix: Solid
Date Collected: 08/16/22 09:45
Date Received: 08/16/22 12:24
Sample Depth: 5'

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		08/17/22 19:25	08/18/22 19:45	1
Toluene	<0.00199	U	0.00199		mg/Kg		08/17/22 19:25	08/18/22 19:45	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		08/17/22 19:25	08/18/22 19:45	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		08/17/22 19:25	08/18/22 19:45	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		08/17/22 19:25	08/18/22 19:45	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		08/17/22 19:25	08/18/22 19:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*150*	*S1+*	*70 - 130*	*08/17/22 19:25*	*08/18/22 19:45*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*	*08/17/22 19:25*	*08/18/22 19:45*	*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			08/19/22 11:07	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			08/18/22 16:47	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		08/18/22 09:14	08/18/22 11:45	1
Diesel Range Organics (Over C10-C28)	<49.9	U F1	49.9		mg/Kg		08/18/22 09:14	08/18/22 11:45	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/18/22 09:14	08/18/22 11:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*66*	*S1-*	*70 - 130*	*08/18/22 09:14*	*08/18/22 11:45*	*1*
o-Terphenyl	*66*	*S1-*	*70 - 130*	*08/18/22 09:14*	*08/18/22 11:45*	*1*

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Client Sample ID: PH01
Date Collected: 08/16/22 09:45
Date Received: 08/16/22 12:24
Sample Depth: 5'

Lab Sample ID: 890-2760-4
Matrix: Solid

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	628		50.4		mg/Kg			08/18/22 14:20	10

Client Sample ID: PH01
Date Collected: 08/16/22 09:50
Date Received: 08/16/22 12:24
Sample Depth: 7'

Lab Sample ID: 890-2760-5
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		08/17/22 19:25	08/18/22 20:11	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/17/22 19:25	08/18/22 20:11	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/17/22 19:25	08/18/22 20:11	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		08/17/22 19:25	08/18/22 20:11	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/17/22 19:25	08/18/22 20:11	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		08/17/22 19:25	08/18/22 20:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*155*	*S1+*	*70 - 130*	*08/17/22 19:25*	*08/18/22 20:11*	*1*
1,4-Difluorobenzene (Surr)	*84*		*70 - 130*	*08/17/22 19:25*	*08/18/22 20:11*	*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			08/19/22 11:07	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			08/18/22 16:47	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		08/18/22 09:14	08/18/22 12:51	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		08/18/22 09:14	08/18/22 12:51	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/18/22 09:14	08/18/22 12:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*71*		*70 - 130*	*08/18/22 09:14*	*08/18/22 12:51*	*1*
o-Terphenyl	*72*		*70 - 130*	*08/18/22 09:14*	*08/18/22 12:51*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	505		49.7		mg/Kg			08/18/22 14:28	10

Client Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Client Sample ID: PH01

Date Collected: 08/16/22 09:55
Date Received: 08/16/22 12:24
Sample Depth: 9'

Lab Sample ID: 890-2760-6

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		08/17/22 19:25	08/18/22 20:37	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/17/22 19:25	08/18/22 20:37	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/17/22 19:25	08/18/22 20:37	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		08/17/22 19:25	08/18/22 20:37	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/17/22 19:25	08/18/22 20:37	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		08/17/22 19:25	08/18/22 20:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*158*	*S1+*	*70 - 130*	*08/17/22 19:25*	*08/18/22 20:37*	*1*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*	*08/17/22 19:25*	*08/18/22 20:37*	*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			08/19/22 11:07	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			08/18/22 16:47	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		08/18/22 09:14	08/18/22 13:13	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/18/22 09:14	08/18/22 13:13	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/18/22 09:14	08/18/22 13:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*85*		*70 - 130*	*08/18/22 09:14*	*08/18/22 13:13*	*1*
o-Terphenyl	*86*		*70 - 130*	*08/18/22 09:14*	*08/18/22 13:13*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**549**		49.5		mg/Kg			08/18/22 14:51	10

Surrogate Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-18031-A-21-H MS	Matrix Spike	97	95
880-18031-A-21-I MSD	Matrix Spike Duplicate	106	94
880-18071-A-1-E MS	Matrix Spike	123	95
880-18071-A-1-F MSD	Matrix Spike Duplicate	134 S1+	106
890-2760-1	PH03	104	96
890-2760-2	PH03	109	88
890-2760-3	PH03	109	99
890-2760-4	PH01	150 S1+	94
890-2760-5	PH01	155 S1+	84
890-2760-6	PH01	158 S1+	91
LCS 880-32381/1-A	Lab Control Sample	129	102
LCS 880-32434/1-A	Lab Control Sample	100	101
LCSD 880-32381/2-A	Lab Control Sample Dup	129	93
LCSD 880-32434/2-A	Lab Control Sample Dup	98	97
MB 880-32366/5-A	Method Blank	92	76
MB 880-32381/5-A	Method Blank	100	74
MB 880-32434/5-A	Method Blank	97	90

Surrogate Legend

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

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-2760-1	PH03	108	96
890-2760-1 MS	PH03	100	91
890-2760-1 MSD	PH03	103	78
890-2760-2	PH03	105	91
890-2760-3	PH03	106	94
890-2760-4	PH01	66 S1-	66 S1-
890-2760-4 MS	PH01	69 S1-	61 S1-
890-2760-4 MSD	PH01	78	69 S1-
890-2760-5	PH01	71	72
890-2760-6	PH01	85	86
LCS 880-32394/2-A	Lab Control Sample	93	84
LCS 880-32395/2-A	Lab Control Sample	93	91
LCSD 880-32394/3-A	Lab Control Sample Dup	104	106
LCSD 880-32395/3-A	Lab Control Sample Dup	95	92
MB 880-32394/1-A	Method Blank	98	90
MB 880-32395/1-A	Method Blank	75	77

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-32366/5-A
Matrix: Solid
Analysis Batch: 32367

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 32366

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/17/22 14:25	08/17/22 17:59	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/17/22 14:25	08/17/22 17:59	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/17/22 14:25	08/17/22 17:59	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/17/22 14:25	08/17/22 17:59	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/17/22 14:25	08/17/22 17:59	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/17/22 14:25	08/17/22 17:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*	*08/17/22 14:25*	*08/17/22 17:59*	*1*
1,4-Difluorobenzene (Surr)	*76*		*70 - 130*	*08/17/22 14:25*	*08/17/22 17:59*	*1*

Lab Sample ID: MB 880-32381/5-A
Matrix: Solid
Analysis Batch: 32367

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 32381

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000400	U	0.000400		mg/Kg		08/17/22 16:59	08/18/22 11:54	1
Toluene	<0.000400	U	0.000400		mg/Kg		08/17/22 16:59	08/18/22 11:54	1
Ethylbenzene	<0.000400	U	0.000400		mg/Kg		08/17/22 16:59	08/18/22 11:54	1
m-Xylene & p-Xylene	<0.000800	U	0.000800		mg/Kg		08/17/22 16:59	08/18/22 11:54	1
o-Xylene	<0.000400	U	0.000400		mg/Kg		08/17/22 16:59	08/18/22 11:54	1
Xylenes, Total	<0.000800	U	0.000800		mg/Kg		08/17/22 16:59	08/18/22 11:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*	*08/17/22 16:59*	*08/18/22 11:54*	*1*
1,4-Difluorobenzene (Surr)	*74*		*70 - 130*	*08/17/22 16:59*	*08/18/22 11:54*	*1*

Lab Sample ID: LCS 880-32381/1-A
Matrix: Solid
Analysis Batch: 32367

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 32381

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1007		mg/Kg		100	70 - 130
Toluene	0.100	0.08765		mg/Kg		87	70 - 130
Ethylbenzene	0.100	0.08882		mg/Kg		89	70 - 130
m-Xylene & p-Xylene	0.200	0.1785		mg/Kg		89	70 - 130
o-Xylene	0.100	0.09164		mg/Kg		91	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*129*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: LCSD 880-32381/2-A
Matrix: Solid
Analysis Batch: 32367

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 32381

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.0998	0.09785		mg/Kg		98	70 - 130	3	35

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

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

Lab Sample ID: LCSD 880-32381/2-A
Matrix: Solid
Analysis Batch: 32367

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 32381

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.0998	0.09126		mg/Kg		91	70 - 130	4	35
Ethylbenzene			0.0998	0.09415		mg/Kg		94	70 - 130	6	35
m-Xylene & p-Xylene			0.200	0.1875		mg/Kg		94	70 - 130	5	35
o-Xylene			0.0998	0.09375		mg/Kg		94	70 - 130	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*129*		*70 - 130*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: 880-18071-A-1-E MS
Matrix: Solid
Analysis Batch: 32367

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 32381

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U F1	0.100	0.05275	F1	mg/Kg		53	70 - 130
Toluene	<0.00200	U F1	0.100	0.03643	F1	mg/Kg		36	70 - 130
Ethylbenzene	<0.00200	U F1	0.100	0.04400	F1	mg/Kg		44	70 - 130
m-Xylene & p-Xylene	<0.00400	U F1	0.200	0.07989	F1	mg/Kg		40	70 - 130
o-Xylene	<0.00200	U F1	0.100	0.04820	F1	mg/Kg		47	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*123*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 880-18071-A-1-F MSD
Matrix: Solid
Analysis Batch: 32367

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 32381

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U F1	0.100	0.03874	F1	mg/Kg		39	70 - 130	31	35
Toluene	<0.00200	U F1	0.100	0.02822	F1	mg/Kg		28	70 - 130	25	35
Ethylbenzene	<0.00200	U F1	0.100	0.03554	F1	mg/Kg		35	70 - 130	21	35
m-Xylene & p-Xylene	<0.00400	U F1	0.200	0.06456	F1	mg/Kg		32	70 - 130	21	35
o-Xylene	<0.00200	U F1	0.100	0.04084	F1	mg/Kg		40	70 - 130	17	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*134*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*

Lab Sample ID: MB 880-32434/5-A
Matrix: Solid
Analysis Batch: 32438

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 32434

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 16:48	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 16:48	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/18/22 14:24	08/18/22 16:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/18/22 14:24	08/18/22 16:48	1

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

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

Lab Sample ID: MB 880-32434/5-A
Matrix: Solid
Analysis Batch: 32438

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 32434

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	0.003405		0.00200		mg/Kg		08/18/22 14:24	08/18/22 16:48	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/18/22 14:24	08/18/22 16:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*	*08/18/22 14:24*	*08/18/22 16:48*	*1*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*	*08/18/22 14:24*	*08/18/22 16:48*	*1*

Lab Sample ID: LCS 880-32434/1-A
Matrix: Solid
Analysis Batch: 32438

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 32434

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1126		mg/Kg		112	70 - 130
Toluene	0.100	0.1142		mg/Kg		114	70 - 130
Ethylbenzene	0.100	0.1005		mg/Kg		100	70 - 130
m-Xylene & p-Xylene	0.200	0.2059		mg/Kg		103	70 - 130
o-Xylene	0.100	0.1168		mg/Kg		117	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-32434/2-A
Matrix: Solid
Analysis Batch: 32438

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 32434

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1095		mg/Kg		110	70 - 130	3	35
Toluene	0.100	0.1133		mg/Kg		113	70 - 130	1	35
Ethylbenzene	0.100	0.09994		mg/Kg		100	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.2016		mg/Kg		101	70 - 130	2	35
o-Xylene	0.100	0.1122		mg/Kg		112	70 - 130	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*

Lab Sample ID: 880-18031-A-21-H MS
Matrix: Solid
Analysis Batch: 32438

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 32434

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.100	0.08698		mg/Kg		87	70 - 130
Toluene	<0.00200	U	0.100	0.08317		mg/Kg		83	70 - 130
Ethylbenzene	<0.00200	U F1	0.100	0.06524	F1	mg/Kg		65	70 - 130
m-Xylene & p-Xylene	<0.00400	U F1	0.200	0.1311	F1	mg/Kg		65	70 - 130
o-Xylene	<0.00200	U F1	0.100	0.06822	F1	mg/Kg		68	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

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

Lab Sample ID: 880-18031-A-21-H MS
Matrix: Solid
Analysis Batch: 32438

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 32434

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: 880-18031-A-21-I MSD
Matrix: Solid
Analysis Batch: 32438

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 32434

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.100	0.08576		mg/Kg		86	70 - 130	1	35
Toluene	<0.00200	U	0.100	0.07816		mg/Kg		78	70 - 130	6	35
Ethylbenzene	<0.00200	U F1	0.100	0.06167	F1	mg/Kg		62	70 - 130	6	35
m-Xylene & p-Xylene	<0.00400	U F1	0.200	0.1208	F1	mg/Kg		60	70 - 130	8	35
o-Xylene	<0.00200	U F1	0.100	0.06130	F1	mg/Kg		61	70 - 130	11	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

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

Lab Sample ID: MB 880-32394/1-A
Matrix: Solid
Analysis Batch: 32384

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 32394

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		08/18/22 09:11	08/18/22 10:40	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/18/22 09:11	08/18/22 10:40	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/18/22 09:11	08/18/22 10:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	98		70 - 130	08/18/22 09:11	08/18/22 10:40	1
o-Terphenyl	90		70 - 130	08/18/22 09:11	08/18/22 10:40	1

Lab Sample ID: LCS 880-32394/2-A
Matrix: Solid
Analysis Batch: 32384

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 32394

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1108		mg/Kg		111	70 - 130
Diesel Range Organics (Over C10-C28)	1000	813.9		mg/Kg		81	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	93		70 - 130
o-Terphenyl	84		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

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

Lab Sample ID: LCSD 880-32394/3-A
Matrix: Solid
Analysis Batch: 32384

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 32394

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1015		mg/Kg		101	70 - 130	9	20
Diesel Range Organics (Over C10-C28)			1000	1025	*1	mg/Kg		102	70 - 130	23	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*104*		*70 - 130*
o-Terphenyl	*106*		*70 - 130*

Lab Sample ID: 890-2760-1 MS
Matrix: Solid
Analysis Batch: 32384

Client Sample ID: PH03
Prep Type: Total/NA
Prep Batch: 32394

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	1270		mg/Kg		125	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U *1	999	1207		mg/Kg		121	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*100*		*70 - 130*
o-Terphenyl	*91*		*70 - 130*

Lab Sample ID: 890-2760-1 MSD
Matrix: Solid
Analysis Batch: 32384

Client Sample ID: PH03
Prep Type: Total/NA
Prep Batch: 32394

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	998	1117		mg/Kg		109	70 - 130	13	20
Diesel Range Organics (Over C10-C28)	<49.9	U *1	998	1069		mg/Kg		107	70 - 130	12	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*103*		*70 - 130*
o-Terphenyl	*78*		*70 - 130*

Lab Sample ID: MB 880-32395/1-A
Matrix: Solid
Analysis Batch: 32386

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 32395

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		08/18/22 09:14	08/18/22 10:40	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/18/22 09:14	08/18/22 10:40	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/18/22 09:14	08/18/22 10:40	1

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

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

Lab Sample ID: MB 880-32395/1-A
Matrix: Solid
Analysis Batch: 32386

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 32395

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	75		70 - 130	08/18/22 09:14	08/18/22 10:40	1
o-Terphenyl	77		70 - 130	08/18/22 09:14	08/18/22 10:40	1

Lab Sample ID: LCS 880-32395/2-A
Matrix: Solid
Analysis Batch: 32386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 32395

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	962.0		mg/Kg		96	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	835.3		mg/Kg		84	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	93		70 - 130
o-Terphenyl	91		70 - 130

Lab Sample ID: LCSD 880-32395/3-A
Matrix: Solid
Analysis Batch: 32386

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 32395

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	875.0		mg/Kg		88	70 - 130	9	20
Diesel Range Organics (Over C10-C28)			1000	851.5		mg/Kg		85	70 - 130	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	92		70 - 130

Lab Sample ID: 890-2760-4 MS
Matrix: Solid
Analysis Batch: 32386

Client Sample ID: PH01
Prep Type: Total/NA
Prep Batch: 32395

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	885.1		mg/Kg		86	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U F1	999	659.6	F1	mg/Kg		61	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	69	S1-	70 - 130
o-Terphenyl	61	S1-	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

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

Lab Sample ID: 890-2760-4 MSD
Matrix: Solid
Analysis Batch: 32386

Client Sample ID: PH01
Prep Type: Total/NA
Prep Batch: 32395

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	998	916.0		mg/Kg		89	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<49.9	U F1	998	745.1		mg/Kg		70	70 - 130	12	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*78*		*70 - 130*
o-Terphenyl	*69*	*S1-*	*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-32301/1-A
Matrix: Solid
Analysis Batch: 32431

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			08/18/22 13:17	1

Lab Sample ID: LCS 880-32301/2-A
Matrix: Solid
Analysis Batch: 32431

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	236.4		mg/Kg		95	90 - 110

Lab Sample ID: LCSD 880-32301/3-A
Matrix: Solid
Analysis Batch: 32431

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	236.6		mg/Kg		95	90 - 110	0	20

Lab Sample ID: 890-2760-1 MS
Matrix: Solid
Analysis Batch: 32431

Client Sample ID: PH03
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	852	F1	248	1055	F1	mg/Kg		82	90 - 110

Lab Sample ID: 890-2760-1 MSD
Matrix: Solid
Analysis Batch: 32431

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	852	F1	248	1056	F1	mg/Kg		82	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

GC VOA

Prep Batch: 32366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-32366/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 32367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-4	PH01	Total/NA	Solid	8021B	32382
890-2760-5	PH01	Total/NA	Solid	8021B	32382
890-2760-6	PH01	Total/NA	Solid	8021B	32382
MB 880-32366/5-A	Method Blank	Total/NA	Solid	8021B	32366
MB 880-32381/5-A	Method Blank	Total/NA	Solid	8021B	32381
LCS 880-32381/1-A	Lab Control Sample	Total/NA	Solid	8021B	32381
LCSD 880-32381/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	32381
880-18071-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	32381
880-18071-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	32381

Prep Batch: 32381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-32381/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-32381/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-32381/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-18071-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-18071-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 32382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-4	PH01	Total/NA	Solid	5035	
890-2760-5	PH01	Total/NA	Solid	5035	
890-2760-6	PH01	Total/NA	Solid	5035	

Prep Batch: 32434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-1	PH03	Total/NA	Solid	5035	
890-2760-2	PH03	Total/NA	Solid	5035	
890-2760-3	PH03	Total/NA	Solid	5035	
MB 880-32434/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-32434/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-32434/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-18031-A-21-H MS	Matrix Spike	Total/NA	Solid	5035	
880-18031-A-21-I MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 32438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-1	PH03	Total/NA	Solid	8021B	32434
890-2760-2	PH03	Total/NA	Solid	8021B	32434
890-2760-3	PH03	Total/NA	Solid	8021B	32434
MB 880-32434/5-A	Method Blank	Total/NA	Solid	8021B	32434
LCS 880-32434/1-A	Lab Control Sample	Total/NA	Solid	8021B	32434
LCSD 880-32434/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	32434
880-18031-A-21-H MS	Matrix Spike	Total/NA	Solid	8021B	32434
880-18031-A-21-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	32434

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

GC VOA

Analysis Batch: 32503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-1	PH03	Total/NA	Solid	Total BTEX	
890-2760-2	PH03	Total/NA	Solid	Total BTEX	
890-2760-3	PH03	Total/NA	Solid	Total BTEX	
890-2760-4	PH01	Total/NA	Solid	Total BTEX	
890-2760-5	PH01	Total/NA	Solid	Total BTEX	
890-2760-6	PH01	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 32384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-1	PH03	Total/NA	Solid	8015B NM	32394
890-2760-2	PH03	Total/NA	Solid	8015B NM	32394
890-2760-3	PH03	Total/NA	Solid	8015B NM	32394
MB 880-32394/1-A	Method Blank	Total/NA	Solid	8015B NM	32394
LCS 880-32394/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	32394
LCSD 880-32394/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	32394
890-2760-1 MS	PH03	Total/NA	Solid	8015B NM	32394
890-2760-1 MSD	PH03	Total/NA	Solid	8015B NM	32394

Analysis Batch: 32386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-4	PH01	Total/NA	Solid	8015B NM	32395
890-2760-5	PH01	Total/NA	Solid	8015B NM	32395
890-2760-6	PH01	Total/NA	Solid	8015B NM	32395
MB 880-32395/1-A	Method Blank	Total/NA	Solid	8015B NM	32395
LCS 880-32395/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	32395
LCSD 880-32395/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	32395
890-2760-4 MS	PH01	Total/NA	Solid	8015B NM	32395
890-2760-4 MSD	PH01	Total/NA	Solid	8015B NM	32395

Prep Batch: 32394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-1	PH03	Total/NA	Solid	8015NM Prep	
890-2760-2	PH03	Total/NA	Solid	8015NM Prep	
890-2760-3	PH03	Total/NA	Solid	8015NM Prep	
MB 880-32394/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-32394/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-32394/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2760-1 MS	PH03	Total/NA	Solid	8015NM Prep	
890-2760-1 MSD	PH03	Total/NA	Solid	8015NM Prep	

Prep Batch: 32395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-4	PH01	Total/NA	Solid	8015NM Prep	
890-2760-5	PH01	Total/NA	Solid	8015NM Prep	
890-2760-6	PH01	Total/NA	Solid	8015NM Prep	
MB 880-32395/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-32395/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-32395/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2760-4 MS	PH01	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

GC Semi VOA (Continued)

Prep Batch: 32395 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-4 MSD	PH01	Total/NA	Solid	8015NM Prep	

Analysis Batch: 32449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-1	PH03	Total/NA	Solid	8015 NM	
890-2760-2	PH03	Total/NA	Solid	8015 NM	
890-2760-3	PH03	Total/NA	Solid	8015 NM	
890-2760-4	PH01	Total/NA	Solid	8015 NM	
890-2760-5	PH01	Total/NA	Solid	8015 NM	
890-2760-6	PH01	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 32301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-1	PH03	Soluble	Solid	DI Leach	
890-2760-2	PH03	Soluble	Solid	DI Leach	
890-2760-3	PH03	Soluble	Solid	DI Leach	
890-2760-4	PH01	Soluble	Solid	DI Leach	
890-2760-5	PH01	Soluble	Solid	DI Leach	
890-2760-6	PH01	Soluble	Solid	DI Leach	
MB 880-32301/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-32301/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-32301/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2760-1 MS	PH03	Soluble	Solid	DI Leach	
890-2760-1 MSD	PH03	Soluble	Solid	DI Leach	

Analysis Batch: 32431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2760-1	PH03	Soluble	Solid	300.0	32301
890-2760-2	PH03	Soluble	Solid	300.0	32301
890-2760-3	PH03	Soluble	Solid	300.0	32301
890-2760-4	PH01	Soluble	Solid	300.0	32301
890-2760-5	PH01	Soluble	Solid	300.0	32301
890-2760-6	PH01	Soluble	Solid	300.0	32301
MB 880-32301/1-A	Method Blank	Soluble	Solid	300.0	32301
LCS 880-32301/2-A	Lab Control Sample	Soluble	Solid	300.0	32301
LCSD 880-32301/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	32301
890-2760-1 MS	PH03	Soluble	Solid	300.0	32301
890-2760-1 MSD	PH03	Soluble	Solid	300.0	32301

Lab Chronicle

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Client Sample ID: PH03
Date Collected: 08/16/22 09:30
Date Received: 08/16/22 12:24

Lab Sample ID: 890-2760-1
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			5.00 g	5.00 g	32434	08/18/22 14:24	AJ	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	32438	08/18/22 17:30	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			32503	08/19/22 11:07	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32449	08/18/22 16:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	32394	08/18/22 09:11	DM	EET MID
Total/NA	Analysis	8015B NM		1			32384	08/18/22 11:45	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	32301	08/17/22 08:34	CH	EET MID
Soluble	Analysis	300.0		1			32431	08/18/22 13:41	CH	EET MID

Client Sample ID: PH03
Date Collected: 08/16/22 09:35
Date Received: 08/16/22 12:24

Lab Sample ID: 890-2760-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	4.99 g	32434	08/18/22 14:24	AJ	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	32438	08/18/22 17:51	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			32503	08/19/22 11:07	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32449	08/18/22 16:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	32394	08/18/22 09:11	DM	EET MID
Total/NA	Analysis	8015B NM		1			32384	08/18/22 12:51	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	32301	08/17/22 08:34	CH	EET MID
Soluble	Analysis	300.0		5			32431	08/18/22 14:04	CH	EET MID

Client Sample ID: PH03
Date Collected: 08/16/22 09:40
Date Received: 08/16/22 12:24

Lab Sample ID: 890-2760-3
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	4.98 g	32434	08/18/22 14:24	AJ	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	32438	08/18/22 18:12	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			32503	08/19/22 11:07	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32449	08/18/22 16:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	32394	08/18/22 09:11	DM	EET MID
Total/NA	Analysis	8015B NM		1			32384	08/18/22 13:13	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	32301	08/17/22 08:34	CH	EET MID
Soluble	Analysis	300.0		1			32431	08/18/22 14:12	CH	EET MID

Client Sample ID: PH01
Date Collected: 08/16/22 09:45
Date Received: 08/16/22 12:24

Lab Sample ID: 890-2760-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	32382	08/17/22 19:25	MR	EET MID
Total/NA	Analysis	8021B		1			32367	08/18/22 19:45	MR	EET MID
Total/NA	Analysis	Total BTEX		1			32503	08/19/22 11:07	AJ	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Client Sample ID: PH01
Date Collected: 08/16/22 09:45
Date Received: 08/16/22 12:24

Lab Sample ID: 890-2760-4
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			32449	08/18/22 16:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	32395	08/18/22 09:14	DM	EET MID
Total/NA	Analysis	8015B NM		1			32386	08/18/22 11:45	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	32301	08/17/22 08:34	CH	EET MID
Soluble	Analysis	300.0		10			32431	08/18/22 14:20	CH	EET MID

Client Sample ID: PH01
Date Collected: 08/16/22 09:50
Date Received: 08/16/22 12:24

Lab Sample ID: 890-2760-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	32382	08/17/22 19:25	MR	EET MID
Total/NA	Analysis	8021B		1			32367	08/18/22 20:11	MR	EET MID
Total/NA	Analysis	Total BTEX		1			32503	08/19/22 11:07	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32449	08/18/22 16:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	32395	08/18/22 09:14	DM	EET MID
Total/NA	Analysis	8015B NM		1			32386	08/18/22 12:51	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	32301	08/17/22 08:34	CH	EET MID
Soluble	Analysis	300.0		10			32431	08/18/22 14:28	CH	EET MID

Client Sample ID: PH01
Date Collected: 08/16/22 09:55
Date Received: 08/16/22 12:24

Lab Sample ID: 890-2760-6
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	32382	08/17/22 19:25	MR	EET MID
Total/NA	Analysis	8021B		1			32367	08/18/22 20:37	MR	EET MID
Total/NA	Analysis	Total BTEX		1			32503	08/19/22 11:07	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32449	08/18/22 16:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	32395	08/18/22 09:14	DM	EET MID
Total/NA	Analysis	8015B NM		1			32386	08/18/22 13:13	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	32301	08/17/22 08:34	CH	EET MID
Soluble	Analysis	300.0		10			32431	08/18/22 14:51	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

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: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: EP USA 5

Job ID: 890-2760-1
SDG: 03A1987013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2760-1	PH03	Solid	08/16/22 09:30	08/16/22 12:24	5'
890-2760-2	PH03	Solid	08/16/22 09:35	08/16/22 12:24	7'
890-2760-3	PH03	Solid	08/16/22 09:40	08/16/22 12:24	9'
890-2760-4	PH01	Solid	08/16/22 09:45	08/16/22 12:24	5'
890-2760-5	PH01	Solid	08/16/22 09:50	08/16/22 12:24	7'
890-2760-6	PH01	Solid	08/16/22 09:55	08/16/22 12:24	9'

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 _____

Project Manager:	Joseph Hernandez	Bill to: (if different)	Jim Raley
Company Name:	Ensolum	Company Name:	WPX
Address:	3122 National 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, jim.raley@dvn.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:	EP USA 5	Turn Around	
Project Number:	03A1987013	☐ Routine ☑ Rush	
Project Location:	Rural Eddy, NM	Due Date:	24 HR
Sampler's Name:	Gilbert Moreno	TAT starts the day received by the lab, if received by 4:30pm	
CC #:	1061232001		

SAMPLE RECEIPT				
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No	
Samples Received Intact:	(Yes) No	Thermometer ID:	TM-007	
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.2	
Total Containers:		Corrected Temperature:	3.0	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
PH03	S	8.16.22	9:30	5'	Grab/	1		X	X	X
PH03	S	8.16.22	9:35	7'	Grab/	1		X	X	X
PH03	S	8.16.22	9:40	9'	Grab/	1		X	X	X
PH01	S	8.16.22	9:45	5'	Grab/	1		X	X	X
PH01	S	8.16.22	9:50	7'	Grab/	1		X	X	X
PH01	S	8.16.22	9:55	9'	Grab/	1		X	X	X

ANALYSIS REQUEST

890-2760 Chain of Custody

Preservative Codes

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

Sample Comments

Incident ID
NMAP1826970471

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 $86.00 will be applied to each project and a charge of $5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Smith	8/11/22 1224			
3			4		
5			6		

Revised Date: 08/25/2020 Rev: 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2760-1
SDG Number: 03A1987013

Login Number: 2760
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: 890-2760-1
SDG Number: 03A1987013

Login Number: 2760
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 08/17/22 11:50 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 H

Email Correspondence

Joseph Hernandez

From: Anna Byers
Sent: Thursday, June 9, 2022 12:09 PM
To: ocd.enviro@state.nm.us; Morgan, Crisha A; 'CFO_Spill, BLM_NM'
Cc: jim.raley@dvn.com; Devon-Team
Subject: WPX Site Activity Update for Week of June 13, 2022

Good afternoon,

WPX anticipates conducting final confirmation soil sampling activities at the following site between June 13 through June 17, 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: EP USA #005
API: 30-015-25020
Incident Number: NMAP1826970471

Thank you,

Anna Byers
Project Geologist
575-200-6754
Ensolum, LLC

From: Joseph Hernandez
To: ocd.enviro@state.nm.us; "CFO_Spill, BLM_NM"
Cc: Raley, Jim; Devon-Team
Subject: WPX Site Sampling Activity Update (8/16-8/19/22)
Date: Monday, August 15, 2022 8:51:00 AM
Attachments: image001.png
image002.png
image003.png
image004.png

Good morning,

WPX anticipates conducting confirmation soil sampling activities at the following sites between August 16 through August 19, 2022:

Site: Tucker Draw 9-4-4
API: 30-015-44487
Incident Number: nAB1812338789

Site: EP USA #005
API: 30-015-25020
Incident Number: NMAP1826970471

Joseph S. 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 141960

CONDITIONS

Operator:	OGRID:
WPX Energy Permian, LLC Devon Energy - Regulatory Oklahoma City, OK 73102	246289
	Action Number: 141960
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Remediation Plan Approved with Conditions. OCD only approves implementing Option A (excavated soil will be transferred to a New Mexico approved landfill facility for disposal). Option B (an onsite ex-situ treatment cell for chloride extraction) cannot be approved at this time without further discussions with OCD.	9/19/2022