

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	NAPP2322141858
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

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

### Location of Release Source

Latitude 32.38232 Longitude -103.88167  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name James Ranch Unit 21 DI 9 Riser	Site Type Flowline riser
Date Release Discovered 07/26/2023	API# (if applicable)

Unit Letter	Section	Township	Range	County
A	21	22S	30E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 9.46	Volume Recovered (bbls) 0.00
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release Internal corrosion on an isolation valve cause fluids to release to ground. No fluids were recovered. A third-party contractor has been retained for remediation purposes.

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

### Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:  NA	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Garrett Green</u>	Title: <u>SSHE Coordinator</u>
Signature: <u></u>	Date: <u>8/9/2023</u>
email: <u>garrett.green@exxonmobil.com</u>	Telephone: <u>575-200-0729</u>
<b><u>OCD Only</u></b>	
Received by: <u>Shelly Wells</u>	Date: <u>8/9/2023</u>



<b>Location:</b>	<b>JRU 21 DI 9</b>	
<b>Spill Date:</b>	<b>7/26/2023</b>	
<b>Area 1</b>		
Approximate Area =	1062.00	sq. ft.
Average Saturation (or depth) of spill =	3.00	inches
Average Porosity Factor =	0.20	
<b>VOLUME OF LEAK</b>		
Total Crude Oil =	0.00	bbls
Total Produced Water =	9.46	bbls
<b>TOTAL VOLUME OF LEAK</b>		
Total Crude Oil =	0.00	bbls
Total Produced Water =	9.46	bbls
<b>TOTAL VOLUME RECOVERED</b>		
Total Crude Oil =	0.00	bbls
Total Produced Water =	0.00	bbls

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## Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>&gt;100</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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

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

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

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

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

Printed Name: Garrett Green

Title: SSHE Coordinator

Signature: 

Date: Oct 23 2023

email: garrett.green@exxonmobil.com

Telephone: 575-200-0729

**OCD Only**

Received by: Shelly Wells

Date: 10/24/2023

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## Closure

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

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

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

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

Printed Name: Garrett Green Title: Environmental Coordinator

Signature:  Date: Oct 23 2023

email: garrett.green@exxonmobil.com Telephone: 575-200-0729

**OCD Only**

Received by: Shelly Wells Date: 10/24/2023

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

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_



October 23, 2023

**New Mexico Oil Conservation Division**

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

**Re: Closure Request  
James Ranch Unit 21 DI 9 Riser  
Incident Number NAPP2322141858  
Eddy County, New Mexico**

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared this *Closure Request* to document assessment, delineation, excavation, and soil sampling activities performed at the James Ranch Unit 21 DI 9 Riser (Site). The purpose of the Site assessment, delineation, excavation, and soil sampling activities was to address impacts to soil resulting from a release of produced water at the Site. Based on excavation activities and laboratory analytical results from the soil sampling events, XTO is submitting this *Closure Request*, describing remedial actions that have occurred and requesting closure for Incident Number NAPP2322141858.

**SITE DESCRIPTION AND RELEASE SUMMARY**

The Site is located in Unit A, Section 21, Township 22 South, Range 30 East, in Eddy County, New Mexico (32.38232°, -103.88167°) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM).

On July 26, 2023, an isolation valve on a produced water riser failed due to internal corrosion. This resulted in the release of 9.46 barrels (bbls) of produced water onto the surface of a pasture area and into the adjacent lease road. No released fluids were able to be recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification Form C-141 (Form C-141) on August 9, 2023. The release was assigned Incident Number NAPP2322141858.

**SITE CHARACTERIZATION AND CLOSURE CRITERIA**

The Site was characterized to assess the applicability of Table I, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC). Results from the characterization desktop review are presented on page 3 of the Form C-141, Site Assessment/Characterization.

Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest groundwater well data. The nearest permitted groundwater well with depth to groundwater data is New Mexico Office of the State Engineer (OSE) well C-01916. The well is located approximately 490 feet southwest of the Site. In 2013, the groundwater well was plugged to make way for new construction. The *Plugging Plan* was approved by the OSE on April 1, 2013. The *Plugging Plan* indicates the groundwater well had a reported groundwater depth of 110 feet bgs and a total depth of 188 feet bgs. Ground surface elevation at the groundwater well location is 3,161 feet above mean sea

XTO Energy, Inc  
Closure Request  
James Ranch Unit 21 DI 9 Riser



level (amsl), which is approximately 8 feet lower in elevation than the Site. The location of the well was adjusted to reflect the GPS coordinates provided on the approved *Plugging Plan*, as the previous location of the well was reflective of the approved drilling permit. All wells used for depth to groundwater determination are presented on Figure 1. The approved *Plugging Plan* is included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a dry wash, located approximately 749 feet northeast of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is underlain by unstable geology (high potential karst designation area). All potential Site receptors are presented on Figure 1.

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

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

## **SITE ASSESSMENT ACTIVITIES AND LABORATORY ANALYTICAL RESULTS**

On August 31, 2023, Site assessment activities were conducted to evaluate the release extent based on information provided on the Form C-141 and visual observations. Eight delineation soil samples (SS01 through SS08) were collected at a depth of 0.5 feet bgs to assess the extent of the release. Soil samples SS01 through SS04 were collected within the release area and soil samples SS05 through SS08 were collected outside the release area. The delineation soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. The release extent and delineation soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation of the Site assessment is included in Appendix B.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of the following chemicals of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-Gasoline Range Organics (GRO), TPH-Diesel Range Organics(DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0. Soil samples delivered to the laboratory the same day they were collected may not have equilibrated to 6.0 degrees Celsius required for shipment and long-term storage but are considered to have been received in acceptable condition by the laboratory.

Laboratory analytical results for delineation soil samples SS01 through SS04 indicated chloride concentrations exceeded the Closure Criteria. Based on laboratory analytical results, additional delineation and excavation activities were warranted.

## **DELINEATION AND EXCAVATION SOIL SAMPLING ACTIVITIES**



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James Ranch Unit 21 DI 9 Riser



On September 21 and 22, 2023, Ensolum personnel returned to the Site to oversee additional delineation and excavation activities. One pothole was advanced via backhoe within the release footprint to assess the vertical extent of impacted soil. The pothole was advanced to a depth of 2 feet bgs. Discrete soil samples were collected at depths of 1-foot and 2 feet bgs and field screened for VOCs and chloride. The field screening results suggested impacted soil was present from ground surface to 1-foot bgs.

Impacted soil was excavated from the release area as indicated by delineation field screening results and laboratory analytical results. Excavation activities were performed utilizing heavy equipment and transport vehicles. The excavation occurred in the pasture area and the adjacent lease road. To direct excavation activities, soil was field screened as described above. The excavation was completed to a depth of 1-foot bgs. Photographic documentation of the excavation activities is included in Appendix B.

Following removal of the impacted soil, 5-point composite soil samples were collected at least every 200 square feet from the sidewalls and floor of the excavation. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples SW01 through SW03 were collected from the sidewalls of the excavation at depths ranging from the ground surface to 1-foot bgs. Composite soil samples FS01 through FS07 were collected from the floor of the excavation at a depth of 1-foot bgs. The soil samples were collected and handled following the same procedures as described above and analyzed for the same COCs as described above. The excavation extent and excavation soil sample locations are presented on Figure 3.

The excavation area measured approximately 1,371 square feet. A total of approximately 51 cubic yards of impacted soil was removed during the excavation activities. The impacted soil was transported and properly disposed of at the R360 Landfill Facility located in Hobbs, New Mexico.

## LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for the lateral delineation soil samples and all confirmation soil samples collected from the final excavation extent were compliant with the Closure Criteria. Laboratory analytical results are summarized in Table 1 and laboratory analytical reports are included as Appendix C. All NMOCD correspondence is provided in Appendix D.

## CLOSURE REQUEST

Site assessment, delineation, and excavation activities were conducted at the Site to address the July 2023 release of produced water. Laboratory analytical results for all confirmation soil samples collected from the final excavation extent indicated all COC concentrations were compliant with the Site Closure Criteria. This includes sidewall soil samples SW01 through SW03, which confirms the edge of the release extent is fully defined. Based on the soil sample analytical results, no further remediation was required. XTO backfilled the excavation on October 5, 2023, with material purchased locally and recontoured the Site to match pre-existing Site conditions. The pasture area affected by the release will be reseeded with an approved BLM seed mixture. Photographic documentation of the backfilled excavation is included in Appendix B.

Excavation of impacted soil has mitigated impacts at this Site. Depth to groundwater has been estimated to be greater than 100 feet bgs and no other sensitive receptors were identified near the release extent. XTO believes these remedial actions are protective of human health, the environment, and groundwater. As such, XTO respectfully requests closure for Incident Number NAPP2322141858.

XTO Energy, Inc  
Closure Request  
James Ranch Unit 21 DI 9 Riser



If you have any questions or comments, please contact Mr. Benjamin Belill at (989) 854-0852 or bbelill@ensolum.com.

Sincerely,  
**Ensolum, LLC**

A handwritten signature in blue ink that reads "Connor Whitman".

Connor Whitman  
Staff Geologist

A handwritten signature in blue ink that reads "Ashley L. Ager".

Ashley L. Ager, MS, PG  
Principal

cc: Garrett Green, XTO  
Tommee Lambert, XTO  
BLM

Appendices:

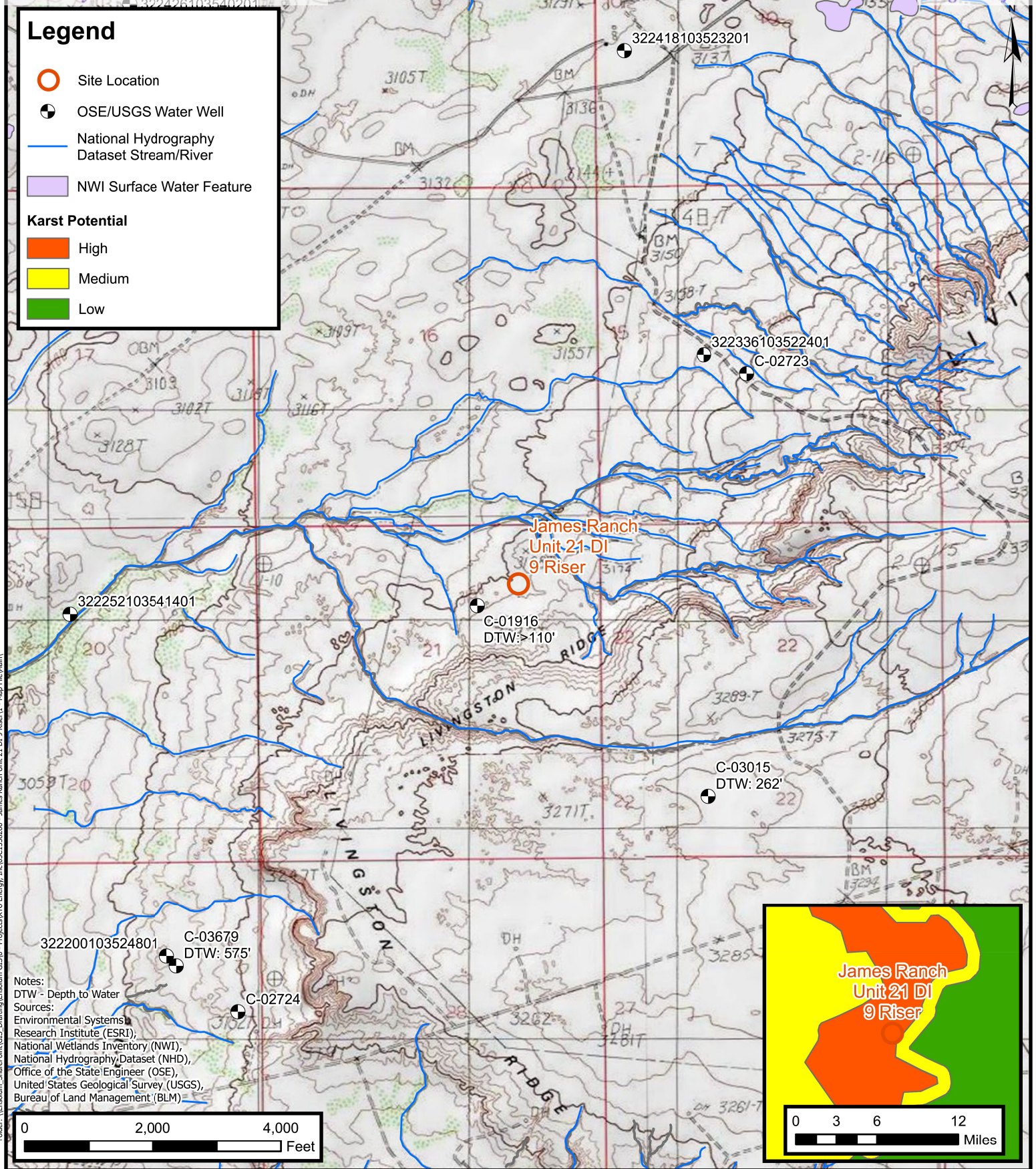
Figure 1	Site Receptor Map
Figure 2	Delineation Soil Sample Locations
Figure 3	Excavation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Groundwater Well Plugging Plan
Appendix B	Photographic Log
Appendix C	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix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





FIGURES





## Site Receptor Map

XTO Energy Inc.  
James Ranch Unit 21 DI 9 Riser  
Incident Number: NAPP2322141858  
Unit A, Sec 21, T22S, R30E  
Eddy County, New Mexico

FIGURE

1

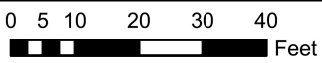


## Legend

- Delineation soil sample compliant with Closure Criteria
- Delineation Soil Sample with concentrations exceeding Closure Criteria
- ▲ Release Point
- Produced Water Pipeline
- Release Extent



Notes:  
 Sample ID @ Depth Below Ground Surface.  
 Samples in bold indicate sample exceeded applicable closure criteria.  
 Grey text indicate soil sample was removed during excavation activities.



Sources: Environmental Systems Research Institute (ESRI)



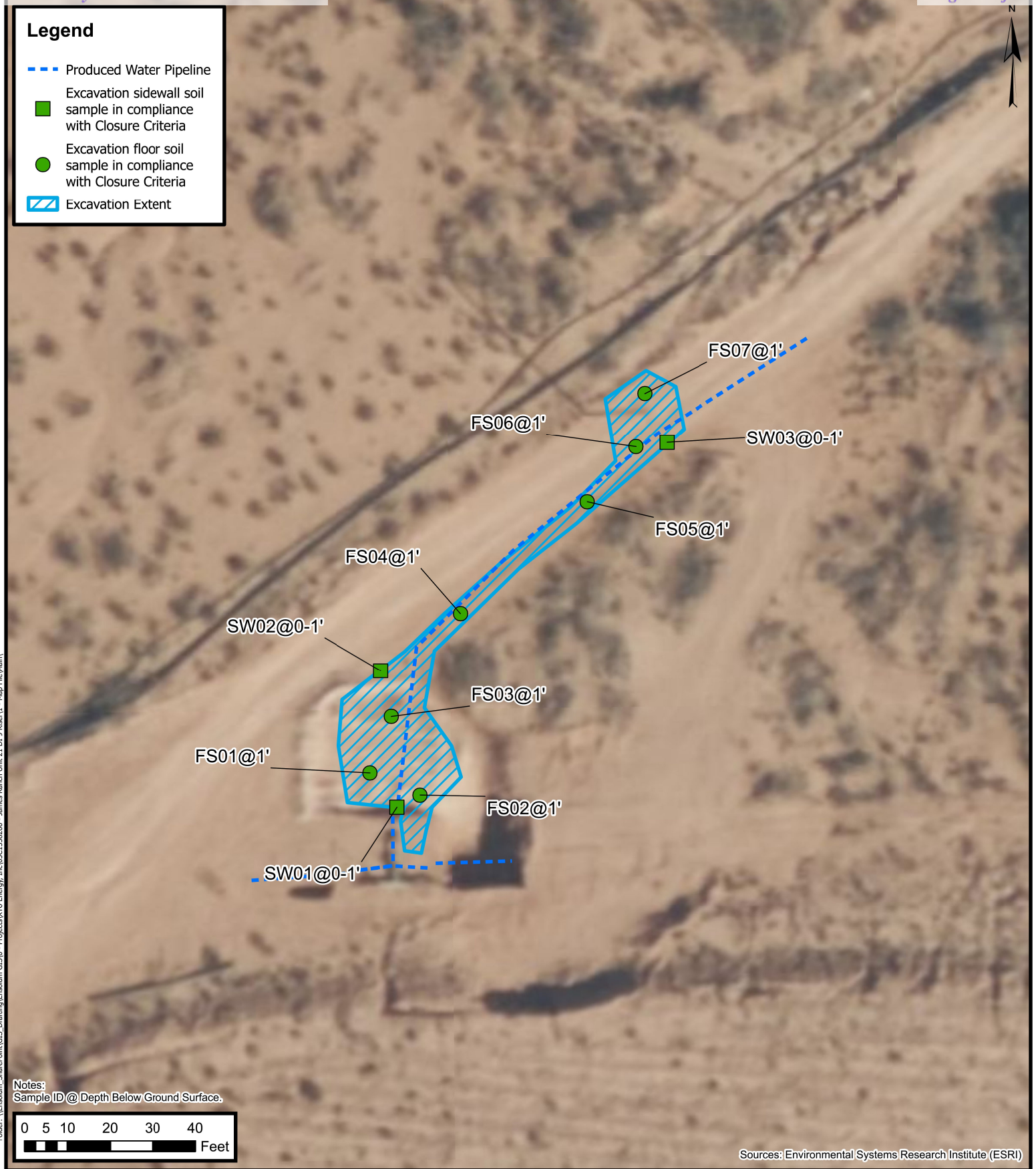
## Delineation Soil Sample Locations

XTO Energy Inc.  
 James Ranch Unit 21 DI 9 Riser  
 Incident Number: NAPP2322141858  
 Unit A, Sec 21, T22S, R30E  
 Eddy County, New Mexico

FIGURE

2







TABLES



TABLE 1  
SOIL SAMPLE ANALYTICAL RESULTS  
James Ranch Unit 21 DI9 Riser  
XTO Energy, Inc  
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)										
Delineation Soil Samples										
SS01	08/31/2023	0-5	<0.00200	<0.00401	<50.2	<50.2	<50.2	<50.2	<50.2	1,640
SS02	08/31/2023	0-5	<0.00198	<0.00396	<49.9	<49.9	<49.9	<49.9	<49.9	7,430
SS03	08/31/2023	0-5	<0.00202	<0.00403	<50.3	<50.3	<50.3	<50.3	<50.3	1,920
SS04	08/31/2023	0-5	<0.00198	<0.00396	<50.5	<50.5	<50.5	<50.5	<50.5	4,220
SS05	08/31/2023	0.5	<0.00199	<0.00398	<50.5	<50.5	<50.5	<50.5	<50.5	456
SS06	08/31/2023	0.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	137
SS07	08/31/2023	0.5	<0.00200	<0.00399	<49.5	<49.5	<49.5	<49.5	<49.5	153
SS08	08/31/2023	0.5	<0.00200	<0.00401	<50.3	<50.3	<50.3	<50.3	<50.3	509
Confirmation Soil Samples										
FS01	09/21/2023	1	<0.00201	<0.00402	<49.6	<49.6	<49.6	<49.6	<49.6	460
FS02	09/21/2023	1	<0.00199	<0.00398	<49.6	<49.6	<49.6	<49.6	<49.6	241
FS03	09/21/2023	1	<0.00199	<0.00398	<50.3	<50.3	<50.3	<50.3	<50.3	218
FS04	09/22/2023	1	<0.00199	<0.00398	<50.2	<50.2	<50.2	<50.2	<50.2	237
FS05	09/22/2023	1	<0.00200	<0.00399	<50.5	<50.5	<50.5	<50.5	<50.5	239
FS06	09/22/2023	1	<0.00201	<0.00402	<50.4	<50.4	<50.4	<50.4	<50.4	84.6
FS07	09/22/2023	1	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	123
SW01	09/22/2023	0 - 1	<0.00199	<0.00398	<49.8	<49.8	<49.8	<49.8	<49.8	135
SW02	09/22/2023	0 - 1	<0.00198	<0.00396	<49.6	<49.6	<49.6	<49.6	<49.6	123
SW03	09/22/2023	0 - 1	<0.00200	<0.00401	<50.1	<50.1	<50.1	<50.1	<50.1	124

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



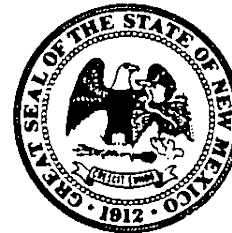
## APPENDIX A

### Groundwater Well Plugging Plan

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## WELL PLUGGING PLAN OF OPERATIONS



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

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

### **II. GENERAL / WELL OWNERSHIP:**

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

Name of well owner: BOPCO L.P.

Mailing address: P.O. Box 2760

City: Midland State: Texas Zip code: 79702

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

### **III. WELL DRILLER INFORMATION:**

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

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

### **IV. WELL INFORMATION:**

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

- 1) GPS Well Location: Latitude: 32 deg, 22 min, 54.42 sec  
Longitude: -103 deg, 53 min, 00.57 sec, NAD83
- 2) Reason(s) for plugging well: Water well is in the path of new construction. Water quality is below useable quality.

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

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

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

- 6) Depth of the well: 188 feet

Well Plugging Plan  
Version: December, 2011  
Page 1 of 5

C-1916  
41057710



- 7) Inside diameter of innermost casing: 5 inches.
- 8) Casing material: Steel
- 9) The well was constructed with:  
UNKWN an open-hole production interval, state the open interval: \_\_\_\_\_  
UNKWN a well screen or perforated pipe, state the screened interval(s): \_\_\_\_\_
- 10) What annular interval surrounding the artesian casing of this well is cement-grouted? NA
- 11) Was the well built with surface casing? UNKWN If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? \_\_\_\_\_ If yes, please describe: \_\_\_\_\_
- 12) Has all pumping equipment and associated piping been removed from the well? yes If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

#### **V. DESCRIPTION OF PLANNED WELL PLUGGING:**

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

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

#### **VI. PLUGGING AND SEALING MATERIALS:**

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

- 1) For plugging intervals that employ cement grout, complete and attach Table A.
- 2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
- 3) Theoretical volume of grout required to plug the well to land surface: 20 Sacks
- 4) Type of Cement proposed: See Attached Conditions of Approval C. 6  
5% Fullers Earth / Type II/V Cement
- 5) Proposed cement grout mix: See Attached Conditions of Approval C. 6  
8 gallons of water per 94 pound sack of Portland cement.
- 6) Will the grout be: \_\_\_\_\_ batch-mixed and delivered to the site  
X mixed on site

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

SEE Attached Conditions of Approval C.G.

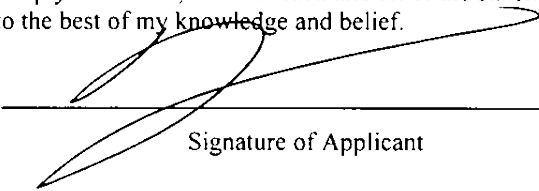
- 8) Additional notes and calculations: ((dia.<sup>2</sup> \* 0.005454)\*Depth)/ 1.25 cuft-bag

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

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

**VIII. SIGNATURE:**

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

  
Signature of Applicant

03/28/2013

Date

**IX. ACTION OF THE STATE ENGINEER:**

This Well Plugging Plan of Operations is:

- ☒ Approved subject to the attached conditions.  
☐ Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 17<sup>th</sup> day of April, 13

Scott A. Verhines, State Engineer

By: Tim Williams

Tim Williams

Carlsbad Basin Watermaster

**TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.**

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

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 RUSSELL  
 2013 APR - 1 P 1:19

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

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

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**STATE OF NEW MEXICO**  
OFFICE OF THE STATE ENGINEER  
ROSWELL

**Scott A. Verhines, P.E.**  
State Engineer

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

April 17, 2013

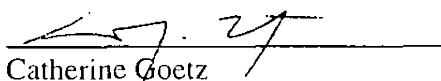
BOPCO, L.P.  
P.O. Box 2760  
Midland, Texas 79702

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

Greetings:

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

Sincerely,

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

Enclosures

cc: Office of the State Engineer Santa Fe  
Straub Corporation

**Analytical Laboratory Report for:  
BOPCO**

Account Representative:  
Willis Mossman

---

**Production Water Analysis**

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

Lab Test Number	Sample Date
201301003615	02/13/2013

Specific Gravity:	1.100
TDS:	153402
pH:	6.65

Cations	mg/L
---------	------

Calcium as Ca <sup>++</sup>	2669
Magnesium as Mg <sup>++</sup>	2188
Sodium as Na <sup>+</sup>	52812
Iron as Fe <sup>++</sup>	9.49
Potassium as K <sup>+</sup>	7466.0
Barium as Ba <sup>++</sup>	0.28
Strontium as Sr <sup>++</sup>	86.46
Manganese as Mn <sup>++</sup>	0.46

Anions	mg/L
--------	------

Bicarbonate as HCO <sub>3</sub> <sup>-</sup>	171
Sulfate as SO <sub>4</sub> <sup>=</sup>	6500
Chloride as Cl <sup>-</sup>	81500

Gases	mg/L
-------	------

Carbon Dioxide as CO <sub>2</sub>	30
Hydrogen Sulfide as H <sub>2</sub> S	0.0

Lab Comments:  
SURFACE TEMP.=65.7°F

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ROSWELL, NEW MEXICO  
2013 APR - 1 P 1:19

**Analytical Laboratory Report for:  
BOPCO****Account Representative:**  
Willis Mossman**DownHole SAT™ Scale Prediction @ 250 deg. F**

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

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO <sub>3</sub> )	0.46	-0.05
Strontianite (SrCO <sub>3</sub> )	0.00	-25.80
Anhydrite (CaSO <sub>4</sub> )	6.85	1699.09
Gypsum (CaSO <sub>4</sub> *2H <sub>2</sub> O)	1.55	710.25
Barite (BaSO <sub>4</sub> )	0.07	-6.67
Celestite (SrSO <sub>4</sub> )	0.23	-487.80
Siderite (FeCO <sub>3</sub> )	3.44	0.04
Halite (NaCl)	0.04	-545840.63
Iron sulfide (FeS)	0.00	-1.34

**Interpretation of DHSat Results:**

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

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ROSWELL  
2013 APR -1 P 1:19



# New Mexico Office of the State Engineer Transaction Summary

72121 All Applications Under Statute 72-12-1

Transaction Number: 199433

Transaction Desc: C 01916

File Date: 07/31/1980

Primary Status: EXP Expired Permit

Secondary Status: EXP Expired

Person Assigned: mvigil

Applicant: PERRY R. BASS

## Events

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

## Change To:

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
C 01916		3		PRO 72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE
<b>**Point of Diversion</b>				
C 01916		605068	3582947*	

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

## Remarks

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

## Conditions

- 3 Appropriation and use of water under this permit shall not exceed a period of one year from the date of approval.
- 5A A totalizing meter shall be installed before the first branch of the discharge line from the well and the installation shall be acceptable to the State Engineer; the Engineer shall be advised of the make, model, serial number, date of installation, and initial reading of the meter prior to appropriation of water; pumping records shall be submitted to the District Supervisor for each calendar month on or before the 10th day of the following month.
- 6 The well shall be plugged upon completion of the permitted use, and a plugging report shall be filed with the State Engineer within 10 days.

## Action of the State Engineer

Approval Code: A - Approved

Action Date: 08/04/1980

Log Due Date: 08/31/1981

State Engineer:

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

6/10/10 9:43 AM

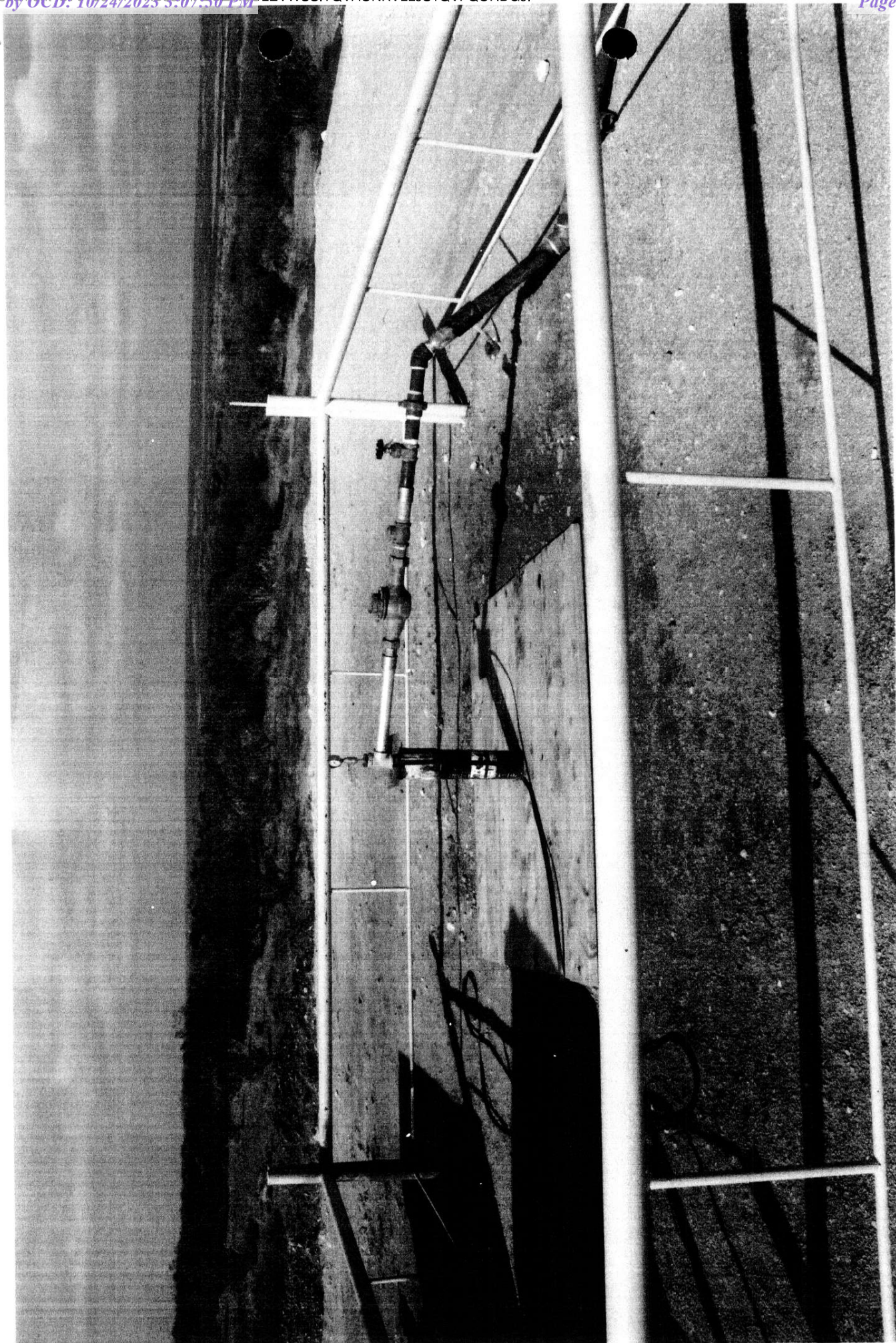
Page 1 of 1

TRANSACTION SUMMARY



Conditions of Approval for C-1916 abandonment:

- 1) Plugging operations will be conducted in accordance with NMED, NMOCD, or other State or Federal agency having oversight for the above described project.
- 2) The well shall be plugged using a cement slurry (5.2 gals water per 94lb bag of Portland cement). It is understood that due to the high sulfate content Type V cement will be used as the data provided on water quality indicates 6,500 ppm sulfates. The cement grout will be pumped via tremie line from bottom up.
- 3) By item 2 above, the plan meets OSE requirements for tremie/grout abandonment, however, well records are not available to confirm well design/annular seals.







## APPENDIX B

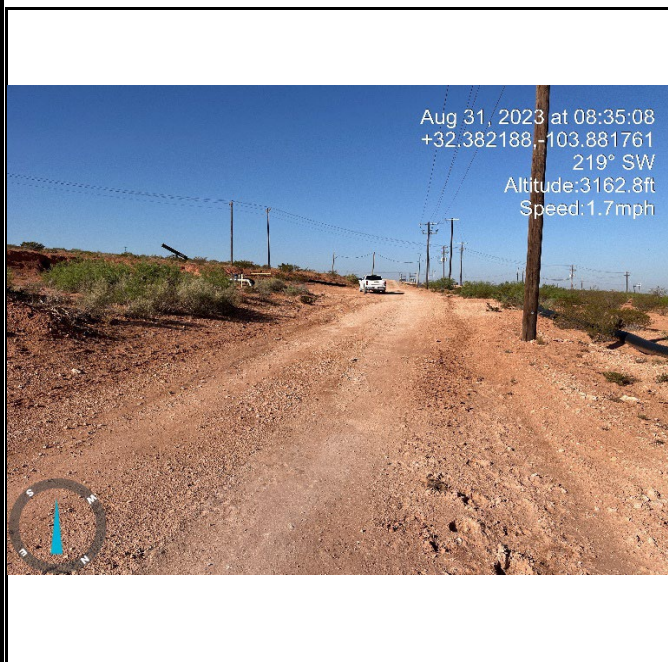
### Photographic Log

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## Photographic Log

XTO Energy, Inc  
James Ranch Unit 21 DI 9 Riser  
Incident Number NAPP2322141858



Photograph 1  
Date: 8/31/2023  
Description: Release area during initial site visit.  
View: Southwest



Photograph 2  
Date: 9/21/2023  
Description: Hydro-vac spotting produced water pipeline  
View: South



Photograph 3  
Date: 9/21/2023  
Description: Excavation extent near release point.  
View: North



Photograph 4  
Date: 9/22/2023  
Description: Excavation extent crossing lease road.  
View: South



**Photographic Log**

XTO Energy, Inc  
James Ranch Unit 21 DI 9 Riser  
Incident Number NAPP2322141858



Photograph 5 Date: 10/5/2023  
Description: Excavation backfilled.  
View: Northeast



Photograph 6 Date: 10/5/2023  
Description: Excavation backfilled.  
View: North



## APPENDIX C

### Laboratory Analytical Reports & Chain of Custody Documentation

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Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ben Belill  
Ensolum  
601 N. Marienfeld St.  
Suite 400  
Midland, Texas 79701  
Generated 9/7/2023 11:49:32 AM

## JOB DESCRIPTION

James Ranch Unit 21 DI 9 Riser  
SDG NUMBER 03C1558266

## JOB NUMBER

890-5189-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

See page two for job notes and contact information.



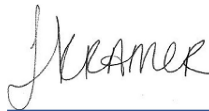
# Eurofins Carlsbad

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
9/7/2023 11:49:32 AM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440



Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Laboratory Job ID: 890-5189-1  
SDG: 03C1558266

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Definitions/Glossary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

## Job ID: 890-5189-1

## Laboratory: Eurofins Carlsbad

## Narrative

Job Narrative  
890-5189-1

## Receipt

The samples were received on 9/1/2023 8:11 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.8°C

## Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: SS01 (890-5189-1), SS02 (890-5189-2), SS03 (890-5189-3), SS04 (890-5189-4), SS05 (890-5189-5), SS06 (890-5189-6), SS07 (890-5189-7) and SS08 (890-5189-8).

## GC VOA

Method 8021B: Surrogate recovery for the following samples were outside control limits: (CCV 880-61895/2), (CCV 880-61895/20), (LCS 880-61916/1-A), (LCSD 880-61916/2-A) and (880-32833-A-1-B MDLV). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following samples were outside control limits: SS04 (890-5189-4), SS05 (890-5189-5), SS06 (890-5189-6), SS07 (890-5189-7), SS08 (890-5189-8) and (890-5189-A-4-E MS). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-61895 recovered above the upper control limit for Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 880-61895/20).

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

## GC Semi VOA

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-61797 and analytical batch 880-61786 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: SS01 (890-5189-1), SS02 (890-5189-2), SS03 (890-5189-3), SS04 (890-5189-4), SS05 (890-5189-5), SS06 (890-5189-6), SS07 (890-5189-7), SS08 (890-5189-8), (890-5188-A-4-B) and (890-5188-A-4-D MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-61786/20), (CCV 880-61786/31) and (CCV 880-61786/5). Evidence of matrix interferences is not obvious.

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

## HPLC/IC

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-61800 and analytical batch 880-61917 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Client Sample ID: SS01  
Date Collected: 08/31/23 08:30  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-1  
Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/05/23 09:19	09/05/23 15:04	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/05/23 09:19	09/05/23 15:04	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/05/23 09:19	09/05/23 15:04	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		09/05/23 09:19	09/05/23 15:04	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/05/23 09:19	09/05/23 15:04	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		09/05/23 09:19	09/05/23 15:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	81		70 - 130			09/05/23 09:19	09/05/23 15:04	1
1,4-Difluorobenzene (Surr)	107		70 - 130			09/05/23 09:19	09/05/23 15:04	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			09/05/23 17:36	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.2	U	50.2	mg/Kg			09/06/23 09:47	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	50.2	mg/Kg		09/05/23 09:43	09/05/23 15:06	1
Diesel Range Organics (Over C10-C28)	<50.2	U	50.2	mg/Kg		09/05/23 09:43	09/05/23 15:06	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2	mg/Kg		09/05/23 09:43	09/05/23 15:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	135	S1+	70 - 130			09/05/23 09:43	09/05/23 15:06	1
o-Terphenyl	145	S1+	70 - 130			09/05/23 09:43	09/05/23 15:06	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1640	F1	25.3	mg/Kg			09/06/23 14:48	5

Client Sample ID: SS02  
Date Collected: 08/31/23 08:35  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-2  
Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		09/06/23 08:31	09/06/23 11:43	1
Toluene	<0.00198	U	0.00198	mg/Kg		09/06/23 08:31	09/06/23 11:43	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		09/06/23 08:31	09/06/23 11:43	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		09/06/23 08:31	09/06/23 11:43	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		09/06/23 08:31	09/06/23 11:43	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		09/06/23 08:31	09/06/23 11:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		70 - 130			09/06/23 08:31	09/06/23 11:43	1

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Client Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Client Sample ID: SS02  
Date Collected: 08/31/23 08:35  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-2  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)									
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1,4-Difluorobenzene (Surr)	106		70 - 130			09/06/23 08:31	09/06/23 11:43	1	
Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00396	U	0.00396	mg/Kg			09/06/23 14:46	1	
Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<49.9	U	49.9	mg/Kg			09/06/23 09:47	1	
Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/05/23 09:43	09/05/23 15:28	1	
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		09/05/23 09:43	09/05/23 15:28	1	
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/05/23 09:43	09/05/23 15:28	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	132	S1+	70 - 130			09/05/23 09:43	09/05/23 15:28	1	
o-Terphenyl	144	S1+	70 - 130			09/05/23 09:43	09/05/23 15:28	1	
Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	7430		101	mg/Kg			09/06/23 15:26	20	

Client Sample ID: SS03  
Date Collected: 08/31/23 08:40  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-3  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00202	U	0.00202	mg/Kg		09/06/23 08:31	09/06/23 12:04	1	
Toluene	<0.00202	U	0.00202	mg/Kg		09/06/23 08:31	09/06/23 12:04	1	
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		09/06/23 08:31	09/06/23 12:04	1	
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		09/06/23 08:31	09/06/23 12:04	1	
o-Xylene	<0.00202	U	0.00202	mg/Kg		09/06/23 08:31	09/06/23 12:04	1	
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		09/06/23 08:31	09/06/23 12:04	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	83		70 - 130			09/06/23 08:31	09/06/23 12:04	1	
1,4-Difluorobenzene (Surr)	110		70 - 130			09/06/23 08:31	09/06/23 12:04	1	
Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00403	U	0.00403	mg/Kg			09/06/23 14:46	1	
Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<50.3	U	50.3	mg/Kg			09/06/23 09:47	1	

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Client Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Client Sample ID: SS03  
Date Collected: 08/31/23 08:40  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-3  
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3	mg/Kg		09/05/23 09:43	09/05/23 15:50	1	
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3	mg/Kg		09/05/23 09:43	09/05/23 15:50	1	
Oil Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		09/05/23 09:43	09/05/23 15:50	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	137	S1+	70 - 130			09/05/23 09:43	09/05/23 15:50	1	
o-Terphenyl	148	S1+	70 - 130			09/05/23 09:43	09/05/23 15:50	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	1920		24.9	mg/Kg			09/06/23 15:46	5	

Client Sample ID: SS04  
Date Collected: 08/31/23 08:45  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-4  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00198	U	0.00198	mg/Kg		09/06/23 09:47	09/06/23 12:15	1	
Toluene	<0.00198	U	0.00198	mg/Kg		09/06/23 09:47	09/06/23 12:15	1	
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		09/06/23 09:47	09/06/23 12:15	1	
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		09/06/23 09:47	09/06/23 12:15	1	
o-Xylene	<0.00198	U	0.00198	mg/Kg		09/06/23 09:47	09/06/23 12:15	1	
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		09/06/23 09:47	09/06/23 12:15	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	153	S1+	70 - 130			09/06/23 09:47	09/06/23 12:15	1	
1,4-Difluorobenzene (Surr)	73		70 - 130			09/06/23 09:47	09/06/23 12:15	1	

Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00396	U	0.00396	mg/Kg			09/07/23 11:12	1	

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<50.5	U	50.5	mg/Kg			09/06/23 09:47	1	

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5	mg/Kg		09/05/23 09:43	09/05/23 16:34	1	
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5	mg/Kg		09/05/23 09:43	09/05/23 16:34	1	
Oil Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		09/05/23 09:43	09/05/23 16:34	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	119		70 - 130			09/05/23 09:43	09/05/23 16:34	1	
o-Terphenyl	132	S1+	70 - 130			09/05/23 09:43	09/05/23 16:34	1	

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Client Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Client Sample ID: SS04  
Date Collected: 08/31/23 08:45  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-4  
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	4220		49.9	mg/Kg			09/06/23 15:52	10	

Client Sample ID: SS05  
Date Collected: 08/31/23 08:50  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-5  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00199	U	0.00199	mg/Kg		09/06/23 09:47	09/06/23 12:41	1	
Toluene	<0.00199	U	0.00199	mg/Kg		09/06/23 09:47	09/06/23 12:41	1	
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/06/23 09:47	09/06/23 12:41	1	
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/06/23 09:47	09/06/23 12:41	1	
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/06/23 09:47	09/06/23 12:41	1	
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/06/23 09:47	09/06/23 12:41	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	209	S1+	70 - 130			09/06/23 09:47	09/06/23 12:41	1	
1,4-Difluorobenzene (Surr)	75		70 - 130			09/06/23 09:47	09/06/23 12:41	1	

Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/07/23 11:12	1	

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<50.5	U	50.5	mg/Kg			09/06/23 09:47	1	

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5	mg/Kg		09/05/23 09:43	09/05/23 16:57	1	
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5	mg/Kg		09/05/23 09:43	09/05/23 16:57	1	
Oil Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		09/05/23 09:43	09/05/23 16:57	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	122		70 - 130			09/05/23 09:43	09/05/23 16:57	1	
o-Terphenyl	134	S1+	70 - 130			09/05/23 09:43	09/05/23 16:57	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	456		4.98	mg/Kg			09/06/23 15:58	1	



Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Client Sample ID: SS06  
Date Collected: 08/31/23 08:55  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-6  
Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/06/23 09:47	09/06/23 13:07	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/06/23 09:47	09/06/23 13:07	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/06/23 09:47	09/06/23 13:07	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/06/23 09:47	09/06/23 13:07	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/06/23 09:47	09/06/23 13:07	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/06/23 09:47	09/06/23 13:07	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	210	S1+	70 - 130			09/06/23 09:47	09/06/23 13:07	1
1,4-Difluorobenzene (Surr)	78		70 - 130			09/06/23 09:47	09/06/23 13:07	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/07/23 11:12	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			09/06/23 09:47	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/05/23 09:43	09/05/23 17:19	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		09/05/23 09:43	09/05/23 17:19	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/05/23 09:43	09/05/23 17:19	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	140	S1+	70 - 130			09/05/23 09:43	09/05/23 17:19	1
o-Terphenyl	153	S1+	70 - 130			09/05/23 09:43	09/05/23 17:19	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	137		5.04	mg/Kg			09/06/23 16:05	1

Client Sample ID: SS07  
Date Collected: 08/31/23 09:00  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-7  
Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 13:33	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 13:33	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 13:33	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		09/06/23 09:47	09/06/23 13:33	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 13:33	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		09/06/23 09:47	09/06/23 13:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	192	S1+	70 - 130			09/06/23 09:47	09/06/23 13:33	1

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Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Client Sample ID: SS07  
Date Collected: 08/31/23 09:00  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-7  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)									
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1,4-Difluorobenzene (Surr)	88		70 - 130			09/06/23 09:47	09/06/23 13:33	1	
Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00399	U	0.00399	mg/Kg			09/07/23 11:12	1	
Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<49.5	U	49.5	mg/Kg			09/06/23 09:47	1	
Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<49.5	U	49.5	mg/Kg		09/05/23 09:43	09/05/23 17:41	1	
Diesel Range Organics (Over C10-C28)	<49.5	U	49.5	mg/Kg		09/05/23 09:43	09/05/23 17:41	1	
Oil Range Organics (Over C28-C36)	<49.5	U	49.5	mg/Kg		09/05/23 09:43	09/05/23 17:41	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	126		70 - 130			09/05/23 09:43	09/05/23 17:41	1	
o-Terphenyl	136	S1+	70 - 130			09/05/23 09:43	09/05/23 17:41	1	
Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	153		5.03	mg/Kg			09/06/23 16:11	1	

Client Sample ID: SS08  
Date Collected: 08/31/23 09:05  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-8  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 13:59	1	
Toluene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 13:59	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 13:59	1	
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		09/06/23 09:47	09/06/23 13:59	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 13:59	1	
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		09/06/23 09:47	09/06/23 13:59	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	189	S1+	70 - 130			09/06/23 09:47	09/06/23 13:59	1	
1,4-Difluorobenzene (Surr)	78		70 - 130			09/06/23 09:47	09/06/23 13:59	1	
Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00401	U	0.00401	mg/Kg			09/07/23 11:12	1	
Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<50.3	U	50.3	mg/Kg			09/06/23 09:47	1	

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Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Client Sample ID: SS08  
Date Collected: 08/31/23 09:05  
Date Received: 09/01/23 08:11  
Sample Depth: 0.5

Lab Sample ID: 890-5189-8  
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3	mg/Kg		09/05/23 09:43	09/05/23 18:04	1	
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3	mg/Kg		09/05/23 09:43	09/05/23 18:04	1	
Oil Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		09/05/23 09:43	09/05/23 18:04	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	146	S1+	70 - 130			09/05/23 09:43	09/05/23 18:04	1	
o-Terphenyl	162	S1+	70 - 130			09/05/23 09:43	09/05/23 18:04	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	509		4.99	mg/Kg			09/06/23 16:17	1	

Surrogate Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

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)
880-32807-A-1-B MS	Matrix Spike	94	104
880-32807-A-1-C MSD	Matrix Spike Duplicate	103	101
890-5189-1	SS01	81	107
890-5189-2	SS02	79	106
890-5189-2 MS	SS02	110	100
890-5189-2 MSD	SS02	111	100
890-5189-3	SS03	83	110
890-5189-4	SS04	153 S1+	73
890-5189-4 MS	SS04	196 S1+	83
890-5189-4 MSD	SS04	189 S1+	81
890-5189-5	SS05	209 S1+	75
890-5189-6	SS06	210 S1+	78
890-5189-7	SS07	192 S1+	88
890-5189-8	SS08	189 S1+	78
LCS 880-61792/1-A	Lab Control Sample	109	100
LCS 880-61899/1-A	Lab Control Sample	97	102
LCS 880-61916/1-A	Lab Control Sample	191 S1+	76
LCSD 880-61792/2-A	Lab Control Sample Dup	94	96
LCSD 880-61899/2-A	Lab Control Sample Dup	107	94
LCSD 880-61916/2-A	Lab Control Sample Dup	200 S1+	88
MB 880-61792/5-A	Method Blank	82	89
MB 880-61899/5-A	Method Blank	78	92
MB 880-61916/5-A	Method Blank	105	70
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)
890-5188-A-4-C MS	Matrix Spike	127	129
890-5188-A-4-D MSD	Matrix Spike Duplicate	145 S1+	141 S1+
890-5189-1	SS01	135 S1+	145 S1+
890-5189-2	SS02	132 S1+	144 S1+
890-5189-3	SS03	137 S1+	148 S1+
890-5189-4	SS04	119	132 S1+
890-5189-5	SS05	122	134 S1+
890-5189-6	SS06	140 S1+	153 S1+
890-5189-7	SS07	126	136 S1+
890-5189-8	SS08	146 S1+	162 S1+
LCS 880-61797/2-A	Lab Control Sample	93	109
LCSD 880-61797/3-A	Lab Control Sample Dup	85	97
MB 880-61797/1-A	Method Blank	132 S1+	151 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

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QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-61792/5-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 61790						Prep Batch: 61792			
Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		09/05/23 09:19	09/05/23 11:36	1	
Toluene	<0.00200	U	0.00200	mg/Kg		09/05/23 09:19	09/05/23 11:36	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/05/23 09:19	09/05/23 11:36	1	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/05/23 09:19	09/05/23 11:36	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/05/23 09:19	09/05/23 11:36	1	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/05/23 09:19	09/05/23 11:36	1	
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	82		70 - 130			09/05/23 09:19	09/05/23 11:36	1	
1,4-Difluorobenzene (Surr)	89		70 - 130			09/05/23 09:19	09/05/23 11:36	1	

Lab Sample ID: LCS 880-61792/1-A					Client Sample ID: Lab Control Sample				
Matrix: Solid					Prep Type: Total/NA				
Analysis Batch: 61790					Prep Batch: 61792				
Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec		
	Added	Result	Qualifier				Limits		
Benzene	0.100	0.07257		mg/Kg		73	70 - 130		
Toluene	0.100	0.08360		mg/Kg		84	70 - 130		
Ethylbenzene	0.100	0.09101		mg/Kg		91	70 - 130		
m-Xylene & p-Xylene	0.200	0.1929		mg/Kg		96	70 - 130		
o-Xylene	0.100	0.09226		mg/Kg		92	70 - 130		
Surrogate	LCS	LCS	Limits						
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	109		70 - 130						
1,4-Difluorobenzene (Surr)	100		70 - 130						

Lab Sample ID: LCSD 880-61792/2-A						Client Sample ID: Lab Control Sample Dup				
Matrix: Solid						Prep Type: Total/NA				
Analysis Batch: 61790						Prep Batch: 61792				
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit	
Benzene	0.100	0.07131		mg/Kg		71	70 - 130	2	35	
Toluene	0.100	0.07437		mg/Kg		74	70 - 130	12	35	
Ethylbenzene	0.100	0.07582		mg/Kg		76	70 - 130	18	35	
m-Xylene & p-Xylene	0.200	0.1548		mg/Kg		77	70 - 130	22	35	
o-Xylene	0.100	0.07453		mg/Kg		75	70 - 130	21	35	
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits							
4-Bromofluorobenzene (Surr)	94		70 - 130							
1,4-Difluorobenzene (Surr)	96		70 - 130							

Lab Sample ID: 880-32807-A-1-B MS						Client Sample ID: Matrix Spike			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 61790						Prep Batch: 61792			
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.0996	0.07683		mg/Kg		77	70 - 130
Toluene	<0.00199	U	0.0996	0.07608		mg/Kg		76	70 - 130

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QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

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

Lab Sample ID: 880-32807-A-1-B MS						Client Sample ID: Matrix Spike				
Matrix: Solid						Prep Type: Total/NA				
Analysis Batch: 61790						Prep Batch: 61792				
	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Ethylbenzene	<0.00199	U	0.0996	0.07529		mg/Kg		76	70 - 130	
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1509		mg/Kg		76	70 - 130	
o-Xylene	<0.00199	U	0.0996	0.07090		mg/Kg		71	70 - 130	
	MS	MS								
Surrogate	%Recovery	Qualifier	Limits							
4-Bromofluorobenzene (Surr)	94		70 - 130							
1,4-Difluorobenzene (Surr)	104		70 - 130							

Lab Sample ID: 880-32807-A-1-C MSD						Client Sample ID: Matrix Spike Duplicate					
Matrix: Solid						Prep Type: Total/NA					
Analysis Batch: 61790						Prep Batch: 61792					
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00199	U	0.100	0.08037		mg/Kg		80	70 - 130	5	35
Toluene	<0.00199	U	0.100	0.08412		mg/Kg		84	70 - 130	10	35
Ethylbenzene	<0.00199	U	0.100	0.08422		mg/Kg		84	70 - 130	11	35
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1706		mg/Kg		85	70 - 130	12	35
o-Xylene	<0.00199	U	0.100	0.08032		mg/Kg		80	70 - 130	12	35
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	103		70 - 130								
1,4-Difluorobenzene (Surr)	101		70 - 130								

Lab Sample ID: MB 880-61899/5-A						Client Sample ID: Method Blank		
Matrix: Solid						Prep Type: Total/NA		
Analysis Batch: 61898						Prep Batch: 61899		
	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/06/23 08:31	09/06/23 11:21	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/06/23 08:31	09/06/23 11:21	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/06/23 08:31	09/06/23 11:21	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/06/23 08:31	09/06/23 11:21	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/06/23 08:31	09/06/23 11:21	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/06/23 08:31	09/06/23 11:21	1
	MB	MB						
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		70 - 130			09/06/23 08:31	09/06/23 11:21	1
1,4-Difluorobenzene (Surr)	92		70 - 130			09/06/23 08:31	09/06/23 11:21	1

Lab Sample ID: LCS 880-61899/1-A				Client Sample ID: Lab Control Sample			
Matrix: Solid				Prep Type: Total/NA			
Analysis Batch: 61898				Prep Batch: 61899			
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1055		mg/Kg		106	70 - 130
Toluene	0.100	0.1026		mg/Kg		103	70 - 130
Ethylbenzene	0.100	0.1021		mg/Kg		102	70 - 130
m-Xylene & p-Xylene	0.200	0.2074		mg/Kg		104	70 - 130

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QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

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

Lab Sample ID: LCS 880-61899/1-A						Client Sample ID: Lab Control Sample				
Matrix: Solid						Prep Type: Total/NA				
Analysis Batch: 61898						Prep Batch: 61899				
Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
o-Xylene			0.100	0.09836		mg/Kg		98	70 - 130	
Surrogate	LCS		LCS							
	%Recovery	Qualifier	Limits							
4-Bromofluorobenzene (Surr)	97		70 - 130							
1,4-Difluorobenzene (Surr)	102		70 - 130							

Lab Sample ID: LCSD 880-61899/2-A				Client Sample ID: Lab Control Sample Dup							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 61898				Prep Batch: 61899							
				Spike	LCSD	LCSD			%Rec		RPD
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene			0.100	0.09332		mg/Kg		93	70 - 130	12	35
Toluene			0.100	0.1018		mg/Kg		102	70 - 130	1	35
Ethylbenzene			0.100	0.1068		mg/Kg		107	70 - 130	4	35
m-Xylene & p-Xylene			0.200	0.2299		mg/Kg		115	70 - 130	10	35
o-Xylene			0.100	0.1079		mg/Kg		108	70 - 130	9	35
		LCSD	LCSD								
Surrogate		%Recovery	Qualifier	Limits							
4-Bromofluorobenzene (Surr)		107		70 - 130							
1,4-Difluorobenzene (Surr)		94		70 - 130							

Lab Sample ID: 890-5189-2 MS								Client Sample ID: SS02			
Matrix: Solid								Prep Type: Total/NA			
Analysis Batch: 61898								Prep Batch: 61899			
	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Benzene	<0.00198	U	0.0996	0.09806		mg/Kg		98	70 - 130		
Toluene	<0.00198	U	0.0996	0.1078		mg/Kg		108	70 - 130		
Ethylbenzene	<0.00198	U	0.0996	0.1153		mg/Kg		116	70 - 130		
m-Xylene & p-Xylene	<0.00396	U	0.199	0.2417		mg/Kg		121	70 - 130		
o-Xylene	<0.00198	U	0.0996	0.1143		mg/Kg		115	70 - 130		
	MS	MS									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	110		70 - 130								
1,4-Difluorobenzene (Surr)	100		70 - 130								

Lab Sample ID: 890-5189-2 MSD								Client Sample ID: SS02			
Matrix: Solid								Prep Type: Total/NA			
Analysis Batch: 61898								Prep Batch: 61899			
Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	RPD		
	Result	Qualifier	Added	Result	Qualifier			Limits	RPD	Limits	
Benzene	<0.00198	U	0.0994	0.09366		mg/Kg		94	70 - 130	5	35
Toluene	<0.00198	U	0.0994	0.1039		mg/Kg		104	70 - 130	4	35
Ethylbenzene	<0.00198	U	0.0994	0.1126		mg/Kg		113	70 - 130	2	35
m-Xylene & p-Xylene	<0.00396	U	0.199	0.2392		mg/Kg		120	70 - 130	1	35
o-Xylene	<0.00198	U	0.0994	0.1136		mg/Kg		114	70 - 130	1	35



QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

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

Lab Sample ID: 890-5189-2 MSD  
Matrix: Solid  
Analysis Batch: 61898

Client Sample ID: SS02  
Prep Type: Total/NA  
Prep Batch: 61899

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: MB 880-61916/5-A  
Matrix: Solid  
Analysis Batch: 61895

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 61916

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Benzene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 11:49	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 11:49	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 11:49	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/06/23 09:47	09/06/23 11:49	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/06/23 09:47	09/06/23 11:49	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/06/23 09:47	09/06/23 11:49	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	105		70 - 130	09/06/23 09:47	09/06/23 11:49	1
1,4-Difluorobenzene (Surr)	70		70 - 130	09/06/23 09:47	09/06/23 11:49	1

Lab Sample ID: LCS 880-61916/1-A  
Matrix: Solid  
Analysis Batch: 61895

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 61916

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Benzene	0.100	0.1072		mg/Kg		107	70 - 130
Toluene	0.100	0.1168		mg/Kg		117	70 - 130
Ethylbenzene	0.100	0.09687		mg/Kg		97	70 - 130
m-Xylene & p-Xylene	0.200	0.2248		mg/Kg		112	70 - 130
o-Xylene	0.100	0.1122		mg/Kg		112	70 - 130

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	191	S1+	70 - 130
1,4-Difluorobenzene (Surr)	76		70 - 130

Lab Sample ID: LCSD 880-61916/2-A  
Matrix: Solid  
Analysis Batch: 61895

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 61916

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec Limits	RPD	
		Result	Qualifier					RPD	Limit
Benzene	0.100	0.1170		mg/Kg		117	70 - 130	9	35
Toluene	0.100	0.1226		mg/Kg		123	70 - 130	5	35
Ethylbenzene	0.100	0.1018		mg/Kg		102	70 - 130	5	35
m-Xylene & p-Xylene	0.200	0.2344		mg/Kg		117	70 - 130	4	35
o-Xylene	0.100	0.1195		mg/Kg		120	70 - 130	6	35

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	200	S1+	70 - 130

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QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

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

Lab Sample ID: LCSD 880-61916/2-A				Client Sample ID: Lab Control Sample Dup			
Matrix: Solid				Prep Type: Total/NA			
Analysis Batch: 61895				Prep Batch: 61916			
		LCSD	LCSD				
Surrogate	%Recovery	Qualifier	Limits				
1,4-Difluorobenzene (Surr)	88		70 - 130				

Lab Sample ID: 890-5189-4 MS				Client Sample ID: SS04			
Matrix: Solid				Prep Type: Total/NA			
Analysis Batch: 61895				Prep Batch: 61916			
		Sample	Sample	Spike	MS	MS	%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	Limits
Benzene	<0.00198	U	0.0998	0.1244		mg/Kg	70 - 130
Toluene	<0.00198	U	0.0998	0.1137		mg/Kg	70 - 130
Ethylbenzene	<0.00198	U	0.0998	0.1081		mg/Kg	70 - 130
m-Xylene & p-Xylene	<0.00396	U	0.200	0.2501		mg/Kg	70 - 130
o-Xylene	<0.00198	U	0.0998	0.1250		mg/Kg	70 - 130
		MS	MS				
Surrogate	%Recovery	Qualifier	Limits				
4-Bromofluorobenzene (Surr)	196	S1+	70 - 130				
1,4-Difluorobenzene (Surr)	83		70 - 130				

Lab Sample ID: 890-5189-4 MSD							Client Sample ID: SS04				
Matrix: Solid							Prep Type: Total/NA				
Analysis Batch: 61895							Prep Batch: 61916				
	Sample	Sample	Spike	MSD	MSD			%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	
Benzene	<0.00198	U	0.100	0.1186		mg/Kg		118	70 - 130	35	
Toluene	<0.00198	U	0.100	0.1205		mg/Kg		120	70 - 130	35	
Ethylbenzene	<0.00198	U	0.100	0.1035		mg/Kg		103	70 - 130	35	
m-Xylene & p-Xylene	<0.00396	U	0.201	0.2377		mg/Kg		118	70 - 130	35	
o-Xylene	<0.00198	U	0.100	0.1177		mg/Kg		117	70 - 130	35	
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	189	S1+	70 - 130								
1,4-Difluorobenzene (Surr)	81		70 - 130								

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

Lab Sample ID: MB 880-61797/1-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 61786						Prep Batch: 61797			
	MB	MB							
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/05/23 07:40	09/05/23 08:20		1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/05/23 07:40	09/05/23 08:20		1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/05/23 07:40	09/05/23 08:20		1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	132	S1+	70 - 130			09/05/23 07:40	09/05/23 08:20		1
o-Terphenyl	151	S1+	70 - 130			09/05/23 07:40	09/05/23 08:20		1

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QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

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

Lab Sample ID: LCS 880-61797/2-A				Client Sample ID: Lab Control Sample						
Matrix: Solid				Prep Type: Total/NA						
Analysis Batch: 61786				Prep Batch: 61797						
Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C6-C10			1000	973.8		mg/Kg		97	70 - 130	
Diesel Range Organics (Over C10-C28)			1000	967.7		mg/Kg		97	70 - 130	
		LCS	LCS							
Surrogate		%Recovery	Qualifier	Limits						
1-Chlorooctane		93		70 - 130						
o-Terphenyl		109		70 - 130						

Lab Sample ID: LCSD 880-61797/3-A				Client Sample ID: Lab Control Sample Dup						
Matrix: Solid				Prep Type: Total/NA						
Analysis Batch: 61786				Prep Batch: 61797						
Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	831.1		mg/Kg		83	70 - 130	16 20
Diesel Range Organics (Over C10-C28)			1000	822.5		mg/Kg		82	70 - 130	16 20
		LCSD	LCSD							
Surrogate		%Recovery	Qualifier	Limits						
1-Chlorooctane		85		70 - 130						
o-Terphenyl		97		70 - 130						

Lab Sample ID: 890-5188-A-4-C MS				Client Sample ID: Matrix Spike						
Matrix: Solid				Prep Type: Total/NA						
Analysis Batch: 61786				Prep Batch: 61797						
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	998	924.8		mg/Kg		88	70 - 130	
Diesel Range Organics (Over C10-C28)	<50.5	U	998	1076		mg/Kg		104	70 - 130	
		MS	MS							
Surrogate		%Recovery	Qualifier	Limits						
1-Chlorooctane		127		70 - 130						
o-Terphenyl		129		70 - 130						

Lab Sample ID: 890-5188-A-4-D MSD				Client Sample ID: Matrix Spike Duplicate						
Matrix: Solid				Prep Type: Total/NA						
Analysis Batch: 61786				Prep Batch: 61797						
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	998	1082		mg/Kg		104	70 - 130	16 20
Diesel Range Organics (Over C10-C28)	<50.5	U	998	1220		mg/Kg		119	70 - 130	12 20
		MSD	MSD							
Surrogate		%Recovery	Qualifier	Limits						
1-Chlorooctane		145	S1+	70 - 130						

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QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

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

Lab Sample ID: 890-5188-A-4-D MSD				Client Sample ID: Matrix Spike Duplicate			
Matrix: Solid				Prep Type: Total/NA			
Analysis Batch: 61786				Prep Batch: 61797			
		MSD	MSD				
Surrogate	%Recovery	Qualifier	Limits				
o-Terphenyl	141	S1+	70 - 130				

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-61800/1-A					Client Sample ID: Method Blank			
Matrix: Solid					Prep Type: Soluble			
Analysis Batch: 61917								
	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/06/23 14:29	1

Lab Sample ID: LCS 880-61800/2-A					Client Sample ID: Lab Control Sample				
Matrix: Solid					Prep Type: Soluble				
Analysis Batch: 61917									
			Spike	LCS	LCS				%Rec
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits
Chloride			250	250.8		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 880-61800/3-A					Client Sample ID: Lab Control Sample Dup					
Matrix: Solid					Prep Type: Soluble					
Analysis Batch: 61917										
			Spike	LCSD	LCSD				%Rec	RPD
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD
Chloride			250	248.3		mg/Kg		99	90 - 110	1
						</				

Lab Sample ID: 890-5189-1 MS								Client Sample ID: SS01	
Matrix: Solid								Prep Type: Soluble	
Analysis Batch: 61917									
	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Chloride	1640	F1	1260	3053	F1	mg/Kg		112	90 - 110

Lab Sample ID: 890-5189-1 MSD

Client Sample ID: SS01

Matrix: Solid

Prep Type: Soluble

Analysis Batch: 61917

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limits
Chloride	1640	F1	1260	3041	F1	mg/Kg		111	90 - 110	0	20

## QC Association Summary

Client: Ensolum  
 Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
 SDG: 03C1558266

### GC VOA

#### Analysis Batch: 61790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-1	SS01	Total/NA	Solid	8021B	61792
MB 880-61792/5-A	Method Blank	Total/NA	Solid	8021B	61792
LCS 880-61792/1-A	Lab Control Sample	Total/NA	Solid	8021B	61792
LCSD 880-61792/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	61792
880-32807-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	61792
880-32807-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	61792

#### Prep Batch: 61792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-1	SS01	Total/NA	Solid	5035	
MB 880-61792/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-61792/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-61792/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-32807-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-32807-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

#### Analysis Batch: 61879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-1	SS01	Total/NA	Solid	Total BTEX	
890-5189-2	SS02	Total/NA	Solid	Total BTEX	
890-5189-3	SS03	Total/NA	Solid	Total BTEX	
890-5189-4	SS04	Total/NA	Solid	Total BTEX	
890-5189-5	SS05	Total/NA	Solid	Total BTEX	
890-5189-6	SS06	Total/NA	Solid	Total BTEX	
890-5189-7	SS07	Total/NA	Solid	Total BTEX	
890-5189-8	SS08	Total/NA	Solid	Total BTEX	

#### Analysis Batch: 61895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-4	SS04	Total/NA	Solid	8021B	61916
890-5189-5	SS05	Total/NA	Solid	8021B	61916
890-5189-6	SS06	Total/NA	Solid	8021B	61916
890-5189-7	SS07	Total/NA	Solid	8021B	61916
890-5189-8	SS08	Total/NA	Solid	8021B	61916
MB 880-61916/5-A	Method Blank	Total/NA	Solid	8021B	61916
LCS 880-61916/1-A	Lab Control Sample	Total/NA	Solid	8021B	61916
LCSD 880-61916/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	61916
890-5189-4 MS	SS04	Total/NA	Solid	8021B	61916
890-5189-4 MSD	SS04	Total/NA	Solid	8021B	61916

#### Analysis Batch: 61898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-2	SS02	Total/NA	Solid	8021B	61899
890-5189-3	SS03	Total/NA	Solid	8021B	61899
MB 880-61899/5-A	Method Blank	Total/NA	Solid	8021B	61899
LCS 880-61899/1-A	Lab Control Sample	Total/NA	Solid	8021B	61899
LCSD 880-61899/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	61899
890-5189-2 MS	SS02	Total/NA	Solid	8021B	61899
890-5189-2 MSD	SS02	Total/NA	Solid	8021B	61899

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QC Association Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

GC VOA

Prep Batch: 61899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-2	SS02	Total/NA	Solid	5035	
890-5189-3	SS03	Total/NA	Solid	5035	
MB 880-61899/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-61899/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-61899/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5189-2 MS	SS02	Total/NA	Solid	5035	
890-5189-2 MSD	SS02	Total/NA	Solid	5035	

Prep Batch: 61916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-4	SS04	Total/NA	Solid	5035	
890-5189-5	SS05	Total/NA	Solid	5035	
890-5189-6	SS06	Total/NA	Solid	5035	
890-5189-7	SS07	Total/NA	Solid	5035	
890-5189-8	SS08	Total/NA	Solid	5035	
MB 880-61916/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-61916/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-61916/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5189-4 MS	SS04	Total/NA	Solid	5035	
890-5189-4 MSD	SS04	Total/NA	Solid	5035	

GC Semi VOA

Analysis Batch: 61786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-1	SS01	Total/NA	Solid	8015B NM	61797
890-5189-2	SS02	Total/NA	Solid	8015B NM	61797
890-5189-3	SS03	Total/NA	Solid	8015B NM	61797
890-5189-4	SS04	Total/NA	Solid	8015B NM	61797
890-5189-5	SS05	Total/NA	Solid	8015B NM	61797
890-5189-6	SS06	Total/NA	Solid	8015B NM	61797
890-5189-7	SS07	Total/NA	Solid	8015B NM	61797
890-5189-8	SS08	Total/NA	Solid	8015B NM	61797
MB 880-61797/1-A	Method Blank	Total/NA	Solid	8015B NM	61797
LCS 880-61797/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	61797
LCSD 880-61797/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	61797
890-5188-A-4-C MS	Matrix Spike	Total/NA	Solid	8015B NM	61797
890-5188-A-4-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	61797

Prep Batch: 61797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-1	SS01	Total/NA	Solid	8015NM Prep	
890-5189-2	SS02	Total/NA	Solid	8015NM Prep	
890-5189-3	SS03	Total/NA	Solid	8015NM Prep	
890-5189-4	SS04	Total/NA	Solid	8015NM Prep	
890-5189-5	SS05	Total/NA	Solid	8015NM Prep	
890-5189-6	SS06	Total/NA	Solid	8015NM Prep	
890-5189-7	SS07	Total/NA	Solid	8015NM Prep	
890-5189-8	SS08	Total/NA	Solid	8015NM Prep	
MB 880-61797/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-61797/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

GC Semi VOA (Continued)

Prep Batch: 61797 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-61797/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5188-A-4-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-5188-A-4-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 61915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-1	SS01	Total/NA	Solid	8015 NM	
890-5189-2	SS02	Total/NA	Solid	8015 NM	
890-5189-3	SS03	Total/NA	Solid	8015 NM	
890-5189-4	SS04	Total/NA	Solid	8015 NM	
890-5189-5	SS05	Total/NA	Solid	8015 NM	
890-5189-6	SS06	Total/NA	Solid	8015 NM	
890-5189-7	SS07	Total/NA	Solid	8015 NM	
890-5189-8	SS08	Total/NA	Solid	8015 NM	

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Leach Batch: 61800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-1	SS01	Soluble	Solid	DI Leach	
890-5189-2	SS02	Soluble	Solid	DI Leach	
890-5189-3	SS03	Soluble	Solid	DI Leach	
890-5189-4	SS04	Soluble	Solid	DI Leach	
890-5189-5	SS05	Soluble	Solid	DI Leach	
890-5189-6	SS06	Soluble	Solid	DI Leach	
890-5189-7	SS07	Soluble	Solid	DI Leach	
890-5189-8	SS08	Soluble	Solid	DI Leach	
MB 880-61800/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-61800/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-61800/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-5189-1 MS	SS01	Soluble	Solid	DI Leach	
890-5189-1 MSD	SS01	Soluble	Solid	DI Leach	

Analysis Batch: 61917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5189-1	SS01	Soluble	Solid	300.0	61800
890-5189-2	SS02	Soluble	Solid	300.0	61800
890-5189-3	SS03	Soluble	Solid	300.0	61800
890-5189-4	SS04	Soluble	Solid	300.0	61800
890-5189-5	SS05	Soluble	Solid	300.0	61800
890-5189-6	SS06	Soluble	Solid	300.0	61800
890-5189-7	SS07	Soluble	Solid	300.0	61800
890-5189-8	SS08	Soluble	Solid	300.0	61800
MB 880-61800/1-A	Method Blank	Soluble	Solid	300.0	61800
LCS 880-61800/2-A	Lab Control Sample	Soluble	Solid	300.0	61800
LCSD 880-61800/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	61800
890-5189-1 MS	SS01	Soluble	Solid	300.0	61800
890-5189-1 MSD	SS01	Soluble	Solid	300.0	61800



Lab Chronicle

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Client Sample ID: SS01  
Date Collected: 08/31/23 08:30  
Date Received: 09/01/23 08:11

Lab Sample ID: 890-5189-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	61792	09/05/23 09:19	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	61790	09/05/23 15:04	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			61879	09/05/23 17:36	SM	EET MID
Total/NA	Analysis	8015 NM		1			61915	09/06/23 09:47	SM	EET MID
Total/NA	Prep	8015NM Prep			9.97 g	10 mL	61797	09/05/23 09:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	61786	09/05/23 15:06	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	61800	09/05/23 10:30	SMC	EET MID
Soluble	Analysis	300.0		5			61917	09/06/23 14:48	CH	EET MID

Client Sample ID: SS02  
Date Collected: 08/31/23 08:35  
Date Received: 09/01/23 08:11

Lab Sample ID: 890-5189-2  
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			5.05 g	5 mL	61899	09/06/23 08:31	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	61898	09/06/23 11:43	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			61879	09/06/23 14:46	SM	EET MID
Total/NA	Analysis	8015 NM		1			61915	09/06/23 09:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	61797	09/05/23 09:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	61786	09/05/23 15:28	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	61800	09/05/23 10:30	SMC	EET MID
Soluble	Analysis	300.0		20			61917	09/06/23 15:26	CH	EET MID

Client Sample ID: SS03  
Date Collected: 08/31/23 08:40  
Date Received: 09/01/23 08:11

Lab Sample ID: 890-5189-3  
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			4.96 g	5 mL	61899	09/06/23 08:31	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	61898	09/06/23 12:04	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			61879	09/06/23 14:46	SM	EET MID
Total/NA	Analysis	8015 NM		1			61915	09/06/23 09:47	SM	EET MID
Total/NA	Prep	8015NM Prep			9.95 g	10 mL	61797	09/05/23 09:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	61786	09/05/23 15:50	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	61800	09/05/23 10:30	SMC	EET MID
Soluble	Analysis	300.0		5			61917	09/06/23 15:46	CH	EET MID

Client Sample ID: SS04  
Date Collected: 08/31/23 08:45  
Date Received: 09/01/23 08:11

Lab Sample ID: 890-5189-4  
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			5.05 g	5 mL	61916	09/06/23 09:47	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	61895	09/06/23 12:15	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			61879	09/07/23 11:12	SM	EET MID

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Lab Chronicle

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Client Sample ID: SS04

Date Collected: 08/31/23 08:45

Date Received: 09/01/23 08:11

Lab Sample ID: 890-5189-4

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			61915	09/06/23 09:47	SM	EET MID
Total/NA	Prep	8015NM Prep			9.91 g	10 mL	61797	09/05/23 09:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	61786	09/05/23 16:34	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	61800	09/05/23 10:30	SMC	EET MID
Soluble	Analysis	300.0		10			61917	09/06/23 15:52	CH	EET MID

Client Sample ID: SS05

Date Collected: 08/31/23 08:50

Date Received: 09/01/23 08:11

Lab Sample ID: 890-5189-5

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	61916	09/06/23 09:47	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	61895	09/06/23 12:41	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			61879	09/07/23 11:12	SM	EET MID
Total/NA	Analysis	8015 NM		1			61915	09/06/23 09:47	SM	EET MID
Total/NA	Prep	8015NM Prep			9.90 g	10 mL	61797	09/05/23 09:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	61786	09/05/23 16:57	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	61800	09/05/23 10:30	SMC	EET MID
Soluble	Analysis	300.0		1			61917	09/06/23 15:58	CH	EET MID

Client Sample ID: SS06

Date Collected: 08/31/23 08:55

Date Received: 09/01/23 08:11

Lab Sample ID: 890-5189-6

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			5.03 g	5 mL	61916	09/06/23 09:47	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	61895	09/06/23 13:07	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			61879	09/07/23 11:12	SM	EET MID
Total/NA	Analysis	8015 NM		1			61915	09/06/23 09:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	61797	09/05/23 09:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	61786	09/05/23 17:19	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	61800	09/05/23 10:30	SMC	EET MID
Soluble	Analysis	300.0		1			61917	09/06/23 16:05	CH	EET MID

Client Sample ID: SS07

Date Collected: 08/31/23 09:00

Date Received: 09/01/23 08:11

Lab Sample ID: 890-5189-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	61916	09/06/23 09:47	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	61895	09/06/23 13:33	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			61879	09/07/23 11:12	SM	EET MID
Total/NA	Analysis	8015 NM		1			61915	09/06/23 09:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.10 g	10 mL	61797	09/05/23 09:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	61786	09/05/23 17:41	SM	EET MID

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Lab Chronicle

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Client Sample ID: SS07

Date Collected: 08/31/23 09:00

Date Received: 09/01/23 08:11

Lab Sample ID: 890-5189-7

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	61800	09/05/23 10:30	SMC	EET MID
Soluble	Analysis	300.0		1			61917	09/06/23 16:11	CH	EET MID

Client Sample ID: SS08

Date Collected: 08/31/23 09:05

Date Received: 09/01/23 08:11

Lab Sample ID: 890-5189-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	61916	09/06/23 09:47	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	61895	09/06/23 13:59	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			61879	09/07/23 11:12	SM	EET MID
Total/NA	Analysis	8015 NM		1			61915	09/06/23 09:47	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	61797	09/05/23 09:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	61786	09/05/23 18:04	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	61800	09/05/23 10:30	SMC	EET MID
Soluble	Analysis	300.0		1			61917	09/06/23 16:17	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: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

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

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

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

## Method Summary

Client: Ensolum

Job ID: 890-5189-1

Project/Site: James Ranch Unit 21 DI 9 Riser

SDG: 03C1558266

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

### Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

### Laboratory References:

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

Eurofins Carlsbad



Sample Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5189-1  
SDG: 03C1558266

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5189-1	SS01	Solid	08/31/23 08:30	09/01/23 08:11	0.5
890-5189-2	SS02	Solid	08/31/23 08:35	09/01/23 08:11	0.5
890-5189-3	SS03	Solid	08/31/23 08:40	09/01/23 08:11	0.5
890-5189-4	SS04	Solid	08/31/23 08:45	09/01/23 08:11	0.5
890-5189-5	SS05	Solid	08/31/23 08:50	09/01/23 08:11	0.5
890-5189-6	SS06	Solid	08/31/23 08:55	09/01/23 08:11	0.5
890-5189-7	SS07	Solid	08/31/23 09:00	09/01/23 08:11	0.5
890-5189-8	SS08	Solid	08/31/23 09:05	09/01/23 08:11	0.5

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- 11
- 12
- 13
- 14

## Chain of Custody

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

## Environment Testing

**Xenco**

**Work Order No:**

www.xenco.com Page 1 of 1



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

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

Project Name:		James Ranch Unit 21 DI 9 Riser Turn Around		Pres. Code		ANALYSIS REQUEST		Preservative Codes	
Project Number:		03C155B266		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush				None: NO DI Water: H <sub>2</sub> O	
Project Location:		32-38232-103.8816.7		Due Date:				Cool: Cool MeOH: Me	
Sampler's Name:		Mercedith Roberts		TAT starts the day received by the lab, if received by 4:30pm				HCL: HC HNO <sub>3</sub> : HN NaOH: Na	
PO #:								H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub>	
SAMPLE RECEIPT		Temp Blank: (Yes) No (Yes) No		Wet Ice: (Yes) No				H <sub>3</sub> PO <sub>4</sub> : HP	
Samples Received Intact:		(Yes) No		Thermometer ID: 11A0017				NaHSO <sub>4</sub> : NABIS	
Cooler Custody Seals:		Yes No (N/A)		Correction Factor: -0.2				Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>	
Sample Custody Seals:		Yes No (N/A)		Temperature Reading: 110				Zn Acetate+NaOH: Zn	
Total Containers:				Corrected Temperature: 3.8				NaOH+Ascorbic Acid: SAPC	
Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	Sample Comments	
SS01	S	8/31/13	0830	0.5'	G	1	X	Incident #:	NAPP232141858
SS02			0835				X	Cost Center:	1081711001
SS03			0840				X		
SS04			0845				X		
SS05			0850				X		
SS06			0855				X		
SS07			0900				X		
SS08			0905				X		

[illegible]

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if those losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$45.00 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 in writing. A minimum charge of \$45.00 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 in writing.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			9-1-23	2		
3				4		
5				6		

Revised Date: 02/25/2020 Rev: 2000.2

2020年12月27日 星期日

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5189-1

SDG Number: 03C1558266

Login Number: 5189

List Number: 1

Creator: Lopez, Abraham

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5189-1

SDG Number: 03C1558266

Login Number: 5189

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/05/23 08:34 AM

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



Environment Testing

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ben Belill  
Ensolum  
601 N. Marienfeld St.  
Suite 400  
Midland, Texas 79701  
Generated 10/2/2023 4:15:59 PM

## JOB DESCRIPTION

James Ranch Unit 21 DI 9 Riser  
SDG NUMBER 03C1558266

## JOB NUMBER

890-5329-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

See page two for job notes and contact information.



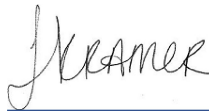
# Eurofins Carlsbad

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/2/2023 4:15:59 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Laboratory Job ID: 890-5329-1  
SDG: 03C1558266

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Definitions/Glossary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

## Case Narrative

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

## Job ID: 890-5329-1

## Laboratory: Eurofins Carlsbad

## Narrative

Job Narrative  
890-5329-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

## Receipt

The samples were received on 9/22/2023 12:49 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 3.8°C

## Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: FS01 (890-5329-1), FS02 (890-5329-2) and FS03 (890-5329-3).

## GC VOA

Method 8021B: Surrogate recovery for the following sample was outside control limits: FS02 (890-5329-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-63582 recovered above the upper control limit for Benzene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8021B: The matrix spike (MS) and/or matrix spike duplicate (MSD) recovery for preparation batch 880-63241 and analytical batch 880-63582 was outside control limits for the following analyte(s): m-Xylene & p-Xylene. Results may be biased high because this analyte is a common laboratory solvent and contaminant.

Method 8021B: The laboratory control sample (LCS) for preparation batch 880-63241 and analytical batch 880-63582 recovered outside control limits for the following analytes: o-Xylene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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 880-63226 and analytical batch 880-63178 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8015MOD\_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-63226 and analytical batch 880-63178 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

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 880-63038 and analytical batch 880-63344 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because

Case Narrative

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

Job ID: 890-5329-1 (Continued)

Laboratory: Eurofins Carlsbad (Continued)

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.

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Client Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

Client Sample ID: FS01  
Date Collected: 09/21/23 01:10  
Date Received: 09/22/23 12:49  
Sample Depth: 1'

Lab Sample ID: 890-5329-1  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00201	U	0.00201	mg/Kg		09/25/23 15:04	09/30/23 11:07	1	
Toluene	<0.00201	U	0.00201	mg/Kg		09/25/23 15:04	09/30/23 11:07	1	
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		09/25/23 15:04	09/30/23 11:07	1	
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		09/25/23 15:04	09/30/23 11:07	1	
o-Xylene	<0.00201	U **	0.00201	mg/Kg		09/25/23 15:04	09/30/23 11:07	1	
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		09/25/23 15:04	09/30/23 11:07	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	89		70 - 130			09/25/23 15:04	09/30/23 11:07	1	
1,4-Difluorobenzene (Surr)	72		70 - 130			09/25/23 15:04	09/30/23 11:07	1	

Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00402	U	0.00402	mg/Kg			09/30/23 11:07	1	

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<49.6	U	49.6	mg/Kg			09/25/23 17:17	1	

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6	mg/Kg		09/25/23 11:15	09/25/23 17:17	1	
Diesel Range Organics (Over C10-C28)	<49.6	U *1	49.6	mg/Kg		09/25/23 11:15	09/25/23 17:17	1	
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		09/25/23 11:15	09/25/23 17:17	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	90		70 - 130			09/25/23 11:15	09/25/23 17:17	1	
o-Terphenyl	99		70 - 130			09/25/23 11:15	09/25/23 17:17	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	460		25.3	mg/Kg			09/26/23 17:10	5	

Client Sample ID: FS02  
Date Collected: 09/21/23 01:15  
Date Received: 09/22/23 12:49  
Sample Depth: 1'

Lab Sample ID: 890-5329-2  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:04	09/30/23 11:28	1	
Toluene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:04	09/30/23 11:28	1	
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:04	09/30/23 11:28	1	
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/25/23 15:04	09/30/23 11:28	1	
o-Xylene	<0.00199	U **	0.00199	mg/Kg		09/25/23 15:04	09/30/23 11:28	1	
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/25/23 15:04	09/30/23 11:28	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	87		70 - 130			09/25/23 15:04	09/30/23 11:28	1	

Eurofins Carlsbad



Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

Client Sample ID: FS02  
Date Collected: 09/21/23 01:15  
Date Received: 09/22/23 12:49  
Sample Depth: 1'

Lab Sample ID: 890-5329-2  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)									
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1,4-Difluorobenzene (Surr)	63	S1-	70 - 130			09/25/23 15:04	09/30/23 11:28	1	
Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/30/23 11:28	1	
Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<49.6	U	49.6	mg/Kg			09/25/23 17:40	1	
Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6	mg/Kg		09/25/23 11:15	09/25/23 17:40	1	
Diesel Range Organics (Over C10-C28)	<49.6	U *1	49.6	mg/Kg		09/25/23 11:15	09/25/23 17:40	1	
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		09/25/23 11:15	09/25/23 17:40	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	77		70 - 130			09/25/23 11:15	09/25/23 17:40	1	
o-Terphenyl	84		70 - 130			09/25/23 11:15	09/25/23 17:40	1	
Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	241		5.04	mg/Kg			09/28/23 13:22	1	

Client Sample ID: FS03  
Date Collected: 09/21/23 01:45  
Date Received: 09/22/23 12:49  
Sample Depth: 1'

Lab Sample ID: 890-5329-3  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:04	09/30/23 11:48	1	
Toluene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:04	09/30/23 11:48	1	
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:04	09/30/23 11:48	1	
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/25/23 15:04	09/30/23 11:48	1	
o-Xylene	<0.00199	U *	0.00199	mg/Kg		09/25/23 15:04	09/30/23 11:48	1	
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/25/23 15:04	09/30/23 11:48	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	88		70 - 130			09/25/23 15:04	09/30/23 11:48	1	
1,4-Difluorobenzene (Surr)	70		70 - 130			09/25/23 15:04	09/30/23 11:48	1	
Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/30/23 11:48	1	
Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<50.3	U	50.3	mg/Kg			09/25/23 18:02	1	

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Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

Client Sample ID: FS03  
Date Collected: 09/21/23 01:45  
Date Received: 09/22/23 12:49  
Sample Depth: 1'

Lab Sample ID: 890-5329-3  
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3	mg/Kg		09/25/23 11:15	09/25/23 18:02	1	
Diesel Range Organics (Over C10-C28)	<50.3	U *1	50.3	mg/Kg		09/25/23 11:15	09/25/23 18:02	1	
Oil Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		09/25/23 11:15	09/25/23 18:02	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	89		70 - 130			09/25/23 11:15	09/25/23 18:02	1	
o-Terphenyl	95		70 - 130			09/25/23 11:15	09/25/23 18:02	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	218		25.3	mg/Kg			09/27/23 14:51	5	

## Surrogate Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

### 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)
890-5323-A-1-B MS	Matrix Spike	118	111
890-5323-A-1-C MSD	Matrix Spike Duplicate	118	109
890-5329-1	FS01	89	72
890-5329-2	FS02	87	63 S1-
890-5329-3	FS03	88	70
LCS 880-63241/1-A	Lab Control Sample	125	114
LCSD 880-63241/2-A	Lab Control Sample Dup	120	105
MB 880-63241/5-A	Method Blank	74	86
MB 880-63561/5-A	Method Blank	70	98
<b>Surrogate Legend</b>			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-5322-A-1-E MS	Matrix Spike	81	76
890-5322-A-1-F MSD	Matrix Spike Duplicate	79	74
890-5329-1	FS01	90	99
890-5329-2	FS02	77	84
890-5329-3	FS03	89	95
LCS 880-63226/2-A	Lab Control Sample	96	98
LCSD 880-63226/3-A	Lab Control Sample Dup	79	83
MB 880-63226/1-A	Method Blank	90	99
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-63241/5-A  
Matrix: Solid  
Analysis Batch: 63582

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 63241

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:04	09/30/23 09:44	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:04	09/30/23 09:44	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:04	09/30/23 09:44	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/25/23 15:04	09/30/23 09:44	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:04	09/30/23 09:44	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/25/23 15:04	09/30/23 09:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		70 - 130	09/25/23 15:04	09/30/23 09:44	1
1,4-Difluorobenzene (Surr)	86		70 - 130	09/25/23 15:04	09/30/23 09:44	1

Lab Sample ID: LCS 880-63241/1-A  
Matrix: Solid  
Analysis Batch: 63582

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 63241

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1056		mg/Kg		106	70 - 130
Toluene	0.100	0.1028		mg/Kg		103	70 - 130
Ethylbenzene	0.100	0.09895		mg/Kg		99	70 - 130
m-Xylene & p-Xylene	0.200	0.2063		mg/Kg		103	70 - 130
o-Xylene	0.100	0.1377	*+	mg/Kg		138	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	125		70 - 130
1,4-Difluorobenzene (Surr)	114		70 - 130

Lab Sample ID: LCSD 880-63241/2-A  
Matrix: Solid  
Analysis Batch: 63582

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 63241

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1011		mg/Kg		101	70 - 130	4	35
Toluene	0.100	0.1004		mg/Kg		100	70 - 130	2	35
Ethylbenzene	0.100	0.09835		mg/Kg		98	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.2043		mg/Kg		102	70 - 130	1	35
o-Xylene	0.100	0.1162		mg/Kg		116	70 - 130	17	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	120		70 - 130
1,4-Difluorobenzene (Surr)	105		70 - 130

Lab Sample ID: 890-5323-A-1-B MS  
Matrix: Solid  
Analysis Batch: 63582

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 63241

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.0998	0.09021		mg/Kg		90	70 - 130
Toluene	<0.00199	U	0.0998	0.08420		mg/Kg		84	70 - 130

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QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

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

Lab Sample ID: 890-5323-A-1-B MS  
Matrix: Solid  
Analysis Batch: 63582

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 63241

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U	0.0998	0.07776		mg/Kg		78	70 - 130
m-Xylene & p-Xylene	<0.00398	U F1	0.200	0.1505		mg/Kg		75	70 - 130
o-Xylene	<0.00199	U *+	0.0998	0.08123		mg/Kg		81	70 - 130
Surrogate	MS %Recovery	MS Qualifier	MS Limits						
4-Bromofluorobenzene (Surr)	118		70 - 130						
1,4-Difluorobenzene (Surr)	111		70 - 130						

Lab Sample ID: 890-5323-A-1-C MSD  
Matrix: Solid  
Analysis Batch: 63582

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 63241

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.0996	0.08527		mg/Kg		86	70 - 130	6	35
Toluene	<0.00199	U	0.0996	0.07934		mg/Kg		80	70 - 130	6	35
Ethylbenzene	<0.00199	U	0.0996	0.07440		mg/Kg		75	70 - 130	4	35
m-Xylene & p-Xylene	<0.00398	U F1	0.199	0.1378	F1	mg/Kg		69	70 - 130	9	35
o-Xylene	<0.00199	U *+	0.0996	0.07353		mg/Kg		74	70 - 130	10	35
Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	118		70 - 130								
1,4-Difluorobenzene (Surr)	109		70 - 130								

Lab Sample ID: MB 880-63561/5-A  
Matrix: Solid  
Analysis Batch: 63582

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 63561

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/28/23 17:43	09/29/23 23:06	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/28/23 17:43	09/29/23 23:06	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/28/23 17:43	09/29/23 23:06	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/28/23 17:43	09/29/23 23:06	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/28/23 17:43	09/29/23 23:06	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/28/23 17:43	09/29/23 23:06	1
Surrogate	MB %Recovery	MB Qualifier	MB Limits					
4-Bromofluorobenzene (Surr)	70		70 - 130					
1,4-Difluorobenzene (Surr)	98		70 - 130					

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

Lab Sample ID: MB 880-63226/1-A  
Matrix: Solid  
Analysis Batch: 63178

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 63226

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/25/23 08:00	09/25/23 08:12	1

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QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

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

Lab Sample ID: MB 880-63226/1-A  
Matrix: Solid  
Analysis Batch: 63178

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 63226

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/25/23 08:00	09/25/23 08:12	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/25/23 08:00	09/25/23 08:12	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	90		70 - 130			09/25/23 08:00	09/25/23 08:12	1
o-Terphenyl	99		70 - 130			09/25/23 08:00	09/25/23 08:12	1

Lab Sample ID: LCS 880-63226/2-A  
Matrix: Solid  
Analysis Batch: 63178

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 63226

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	767.1		mg/Kg		77	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1099		mg/Kg		110	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	96		70 - 130				
o-Terphenyl	98		70 - 130				

Lab Sample ID: LCSD 880-63226/3-A  
Matrix: Solid  
Analysis Batch: 63178

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 63226

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	921.2		mg/Kg		92	70 - 130	18	20
Diesel Range Organics (Over C10-C28)	1000	883.8	*1	mg/Kg		88	70 - 130	22	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	79		70 - 130						
o-Terphenyl	83		70 - 130						

Lab Sample ID: 890-5322-A-1-E MS  
Matrix: Solid  
Analysis Batch: 63178

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 63226

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.1	U F1	993	652.3	F1	mg/Kg		63	70 - 130
Diesel Range Organics (Over C10-C28)	<50.1	U *1 F1	993	693.1	F1	mg/Kg		68	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	81		70 - 130						
o-Terphenyl	76		70 - 130						



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10/2/2023

## QC Sample Results

Client: Ensolum  
 Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
 SDG: 03C1558266

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

Lab Sample ID: MB 880-63263/1-A  
 Matrix: Solid  
 Analysis Batch: 63421

Client Sample ID: Method Blank  
 Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/27/23 12:49	1

Lab Sample ID: LCS 880-63263/2-A  
 Matrix: Solid  
 Analysis Batch: 63421

Client Sample ID: Lab Control Sample  
 Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	243.1		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-63263/3-A  
 Matrix: Solid  
 Analysis Batch: 63421

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	236.2		mg/Kg		94	90 - 110	3	20

Lab Sample ID: 880-33590-A-5-D MS  
 Matrix: Solid  
 Analysis Batch: 63421

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	84.5		251	326.6		mg/Kg		96	90 - 110

Lab Sample ID: 880-33590-A-5-E MSD  
 Matrix: Solid  
 Analysis Batch: 63421

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	84.5		251	319.5		mg/Kg		94	90 - 110	2	20

QC Association Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

GC VOA

Prep Batch: 63241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5329-1	FS01	Total/NA	Solid	5035	
890-5329-2	FS02	Total/NA	Solid	5035	
890-5329-3	FS03	Total/NA	Solid	5035	
MB 880-63241/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-63241/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-63241/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5323-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
890-5323-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 63561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-63561/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 63582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5329-1	FS01	Total/NA	Solid	8021B	63241
890-5329-2	FS02	Total/NA	Solid	8021B	63241
890-5329-3	FS03	Total/NA	Solid	8021B	63241
MB 880-63241/5-A	Method Blank	Total/NA	Solid	8021B	63241
MB 880-63561/5-A	Method Blank	Total/NA	Solid	8021B	63561
LCS 880-63241/1-A	Lab Control Sample	Total/NA	Solid	8021B	63241
LCSD 880-63241/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	63241
890-5323-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	63241
890-5323-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	63241

Analysis Batch: 63810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5329-1	FS01	Total/NA	Solid	Total BTEX	
890-5329-2	FS02	Total/NA	Solid	Total BTEX	
890-5329-3	FS03	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 63178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5329-1	FS01	Total/NA	Solid	8015B NM	63226
890-5329-2	FS02	Total/NA	Solid	8015B NM	63226
890-5329-3	FS03	Total/NA	Solid	8015B NM	63226
MB 880-63226/1-A	Method Blank	Total/NA	Solid	8015B NM	63226
LCS 880-63226/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	63226
LCSD 880-63226/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	63226
890-5322-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	63226
890-5322-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	63226

Prep Batch: 63226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5329-1	FS01	Total/NA	Solid	8015NM Prep	
890-5329-2	FS02	Total/NA	Solid	8015NM Prep	
890-5329-3	FS03	Total/NA	Solid	8015NM Prep	
MB 880-63226/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-63226/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

GC Semi VOA (Continued)

Prep Batch: 63226 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-63226/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5322-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-5322-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 63288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5329-1	FS01	Total/NA	Solid	8015 NM	
890-5329-2	FS02	Total/NA	Solid	8015 NM	
890-5329-3	FS03	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 63038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5329-1	FS01	Soluble	Solid	DI Leach	
MB 880-63038/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-63038/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-63038/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
820-10216-A-2-D MS	Matrix Spike	Soluble	Solid	DI Leach	
820-10216-A-2-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Leach Batch: 63263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5329-2	FS02	Soluble	Solid	DI Leach	
890-5329-3	FS03	Soluble	Solid	DI Leach	
MB 880-63263/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-63263/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-63263/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-33590-A-5-D MS	Matrix Spike	Soluble	Solid	DI Leach	
880-33590-A-5-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 63344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5329-1	FS01	Soluble	Solid	300.0	63038
MB 880-63038/1-A	Method Blank	Soluble	Solid	300.0	63038
LCS 880-63038/2-A	Lab Control Sample	Soluble	Solid	300.0	63038
LCSD 880-63038/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	63038
820-10216-A-2-D MS	Matrix Spike	Soluble	Solid	300.0	63038
820-10216-A-2-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	63038

Analysis Batch: 63421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5329-2	FS02	Soluble	Solid	300.0	63263
890-5329-3	FS03	Soluble	Solid	300.0	63263
MB 880-63263/1-A	Method Blank	Soluble	Solid	300.0	63263
LCS 880-63263/2-A	Lab Control Sample	Soluble	Solid	300.0	63263
LCSD 880-63263/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	63263
880-33590-A-5-D MS	Matrix Spike	Soluble	Solid	300.0	63263
880-33590-A-5-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	63263

Lab Chronicle

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

Client Sample ID: FS01

Lab Sample ID: 890-5329-1

Date Collected: 09/21/23 01:10

Matrix: Solid

Date Received: 09/22/23 12:49

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	63241	09/25/23 15:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63582	09/30/23 11:07	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63810	09/30/23 11:07	SM	EET MID
Total/NA	Analysis	8015 NM		1			63288	09/25/23 17:17	SM	EET MID
Total/NA	Prep	8015NM Prep			10.08 g	10 mL	63226	09/25/23 11:15	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63178	09/25/23 17:17	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	63038	09/25/23 12:50	AG	EET MID
Soluble	Analysis	300.0		5			63344	09/26/23 17:10	CH	EET MID

Client Sample ID: FS02

Lab Sample ID: 890-5329-2

Date Collected: 09/21/23 01:15

Matrix: Solid

Date Received: 09/22/23 12:49

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	63241	09/25/23 15:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63582	09/30/23 11:28	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63810	09/30/23 11:28	SM	EET MID
Total/NA	Analysis	8015 NM		1			63288	09/25/23 17:40	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	63226	09/25/23 11:15	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63178	09/25/23 17:40	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	63263	09/25/23 15:57	SMC	EET MID
Soluble	Analysis	300.0		1			63421	09/28/23 13:22	CH	EET MID

Client Sample ID: FS03

Lab Sample ID: 890-5329-3

Date Collected: 09/21/23 01:45

Matrix: Solid

Date Received: 09/22/23 12:49

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	63241	09/25/23 15:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63582	09/30/23 11:48	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63810	09/30/23 11:48	SM	EET MID
Total/NA	Analysis	8015 NM		1			63288	09/25/23 18:02	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	63226	09/25/23 11:15	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63178	09/25/23 18:02	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	63263	09/25/23 15:57	SMC	EET MID
Soluble	Analysis	300.0		5			63421	09/27/23 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: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

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

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

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



Method Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

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

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

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

Sample Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5329-1  
SDG: 03C1558266

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5329-1	FS01	Solid	09/21/23 01:10	09/22/23 12:49	1'
890-5329-2	FS02	Solid	09/21/23 01:15	09/22/23 12:49	1'
890-5329-3	FS03	Solid	09/21/23 01:45	09/22/23 12:49	1'

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



Environment Testing  
Xenco

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

## Chain of Custody

**Work Order No:**

Page 1 of 1  
www.xenco.com

Project Manager:	Ben Beilli	Bill to: (if different)	Garrett Green
Company Name:	Ensolum	Company Name:	XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E. Green St.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad NM 88220
Phone:	303-887-2946	Email:	Garrett.Green@ExxonMobil.com

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

[illegible][illegible]

	200.7 / 6010	200.8 / 6020:
Total	200.7 / 6010	200.8 / 6020:
Method(s) and Metal(s) to be analyzed	8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO <sub>2</sub> Na Sr Ti Sn U V Zn	
	TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	Hg: 1633.1/245.1/7470 /7471

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>Chh</i>	<i>Swars</i>	9/22/12 49			
3					
5					

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5329-1

SDG Number: 03C1558266

Login Number: 5329

List Number: 1

Creator: Bruns, Shannon

List Source: Eurofins Carlsbad

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5329-1

SDG Number: 03C1558266

Login Number: 5329

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/25/23 09:54 AM

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



Environment Testing

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ben Belill  
Ensolum  
601 N. Marienfeld St.  
Suite 400  
Midland, Texas 79701

Generated 10/4/2023 2:22:56 PM Revision 1

## JOB DESCRIPTION

James Ranch Unit 21 DI 9 Riser  
SDG NUMBER 03C1558266

## JOB NUMBER

890-5330-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

See page two for job notes and contact information.



## Eurofins Carlsbad

### Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

### Authorization



Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Generated  
10/4/2023 2:22:56 PM  
Revision 1

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Laboratory Job ID: 890-5330-1  
SDG: 03C1558266

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## Definitions/Glossary

Client: Ensolum  
 Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
 SDG: 03C1558266

### Qualifiers

#### GC VOA

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

#### GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
F1	MS and/or MSD recovery exceeds control limits.
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: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
 SDG: 03C1558266

**Job ID: 890-5330-1**

**Laboratory: Eurofins Carlsbad**

### Narrative

#### Job Narrative 890-5330-1

#### REVISION

The report being provided is a revision of the original report sent on 10/2/2023. The report (revision 1) is being revised due to Per client email, requesting chloride re run on sample SW03.

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

#### Receipt

The samples were received on 9/22/2023 12:49 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 3.8°C

#### Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: FS 04 (890-5330-1), FS 05 (890-5330-2), FS 06 (890-5330-3), FS 07 (890-5330-4), SW01 (890-5330-5), SW02 (890-5330-6) and SW03 (890-5330-7).

#### GC VOA

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-63329 and analytical batch 880-63583 was outside the upper control limits.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-63583 recovered under the lower control limit for Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene. The samples associated with this CCV were ran within 12 hours of passing CCV; therefore, the data have been reported.>(CCV 880-63583/113)

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-63249 and analytical batch 880-63583 was outside the upper control limits.

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

#### GC Semi VOA

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-63226 and analytical batch 880-63178 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8015MOD\_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-63226 and analytical batch 880-63178 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

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

#### HPLC/IC

Case Narrative

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
SDG: 03C1558266

Job ID: 890-5330-1 (Continued)

Laboratory: Eurofins Carlsbad (Continued)

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-63860 and analytical batch 880-63882 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.

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## Client Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

Client Sample ID: FS 04

Date Collected: 09/22/23 09:00

Date Received: 09/22/23 12:49

Sample Depth: 1

Lab Sample ID: 890-5330-1

Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:08	10/01/23 10:57	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:08	10/01/23 10:57	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:08	10/01/23 10:57	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/25/23 15:08	10/01/23 10:57	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:08	10/01/23 10:57	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/25/23 15:08	10/01/23 10:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	09/25/23 15:08	10/01/23 10:57	1
1,4-Difluorobenzene (Surr)	99		70 - 130	09/25/23 15:08	10/01/23 10:57	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/01/23 10:57	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.2	U	50.2	mg/Kg			09/25/23 18:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	50.2	mg/Kg		09/25/23 11:15	09/25/23 18:23	1
Diesel Range Organics (Over C10-C28)	<50.2	U *1	50.2	mg/Kg		09/25/23 11:15	09/25/23 18:23	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2	mg/Kg		09/25/23 11:15	09/25/23 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	84		70 - 130	09/25/23 11:15	09/25/23 18:23	1
o-Terphenyl	91		70 - 130	09/25/23 11:15	09/25/23 18:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	237		5.00	mg/Kg			09/28/23 13:28	1

Client Sample ID: FS 05

Date Collected: 09/22/23 09:10

Date Received: 09/22/23 12:49

Sample Depth: 1

Lab Sample ID: 890-5330-2

Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 11:18	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 11:18	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 11:18	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		09/25/23 15:08	10/01/23 11:18	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 11:18	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		09/25/23 15:08	10/01/23 11:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	09/25/23 15:08	10/01/23 11:18	1

Eurofins Carlsbad



## Client Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

Client Sample ID: FS 05

Date Collected: 09/22/23 09:10

Date Received: 09/22/23 12:49

Sample Depth: 1

Lab Sample ID: 890-5330-2

Matrix: Solid

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	112		70 - 130	09/25/23 15:08	10/01/23 11:18	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			10/01/23 11:18	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.5	U	50.5	mg/Kg			09/25/23 18:44	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5	mg/Kg		09/25/23 11:15	09/25/23 18:44	1
Diesel Range Organics (Over C10-C28)	<50.5	U *1	50.5	mg/Kg		09/25/23 11:15	09/25/23 18:44	1
Oil Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		09/25/23 11:15	09/25/23 18:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	84		70 - 130			09/25/23 11:15	09/25/23 18:44	1
o-Terphenyl	93		70 - 130			09/25/23 11:15	09/25/23 18:44	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	239		4.99	mg/Kg			09/28/23 13:34	1

Client Sample ID: FS 06

Date Collected: 09/22/23 09:45

Date Received: 09/22/23 12:49

Sample Depth: 1

Lab Sample ID: 890-5330-3

Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		09/25/23 15:08	10/01/23 11:38	1
Toluene	<0.00201	U	0.00201	mg/Kg		09/25/23 15:08	10/01/23 11:38	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		09/25/23 15:08	10/01/23 11:38	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		09/25/23 15:08	10/01/23 11:38	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		09/25/23 15:08	10/01/23 11:38	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		09/25/23 15:08	10/01/23 11:38	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	105		70 - 130			09/25/23 15:08	10/01/23 11:38	1
1,4-Difluorobenzene (Surr)	109		70 - 130			09/25/23 15:08	10/01/23 11:38	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			10/01/23 11:38	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.4	U	50.4	mg/Kg			09/25/23 19:05	1

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Client Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
SDG: 03C1558266

Client Sample ID: FS 06  
Date Collected: 09/22/23 09:45  
Date Received: 09/22/23 12:49  
Sample Depth: 1

Lab Sample ID: 890-5330-3  
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.4	U	50.4	mg/Kg		09/25/23 11:15	09/25/23 19:05	1	
Diesel Range Organics (Over C10-C28)	<50.4	U *1	50.4	mg/Kg		09/25/23 11:15	09/25/23 19:05	1	
Oil Range Organics (Over C28-C36)	<50.4	U	50.4	mg/Kg		09/25/23 11:15	09/25/23 19:05	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	78		70 - 130			09/25/23 11:15	09/25/23 19:05	1	
o-Terphenyl	85		70 - 130			09/25/23 11:15	09/25/23 19:05	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	84.6		4.96	mg/Kg			09/27/23 15:20	1	

Client Sample ID: FS 07  
Date Collected: 09/22/23 09:50  
Date Received: 09/22/23 12:49  
Sample Depth: 1

Lab Sample ID: 890-5330-4  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 11:59	1	
Toluene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 11:59	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 11:59	1	
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		09/25/23 15:08	10/01/23 11:59	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 11:59	1	
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		09/25/23 15:08	10/01/23 11:59	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	106		70 - 130			09/25/23 15:08	10/01/23 11:59	1	
1,4-Difluorobenzene (Surr)	115		70 - 130			09/25/23 15:08	10/01/23 11:59	1	

Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00401	U	0.00401	mg/Kg			10/01/23 11:59	1	

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<49.9	U	49.9	mg/Kg			09/25/23 19:26	1	

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/25/23 11:15	09/25/23 19:26	1	
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9	mg/Kg		09/25/23 11:15	09/25/23 19:26	1	
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/25/23 11:15	09/25/23 19:26	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	79		70 - 130			09/25/23 11:15	09/25/23 19:26	1	
o-Terphenyl	86		70 - 130			09/25/23 11:15	09/25/23 19:26	1	

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## Client Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

## Client Sample ID: FS 07

Date Collected: 09/22/23 09:50

Date Received: 09/22/23 12:49

Sample Depth: 1

## Lab Sample ID: 890-5330-4

Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	123		4.95	mg/Kg			09/28/23 13:40	1

## Client Sample ID: SW01

Date Collected: 09/22/23 10:15

Date Received: 09/22/23 12:49

Sample Depth: 0-1

## Lab Sample ID: 890-5330-5

Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:08	10/01/23 12:19	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:08	10/01/23 12:19	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:08	10/01/23 12:19	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/25/23 15:08	10/01/23 12:19	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/25/23 15:08	10/01/23 12:19	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/25/23 15:08	10/01/23 12:19	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130			09/25/23 15:08	10/01/23 12:19	1
1,4-Difluorobenzene (Surr)	108		70 - 130			09/25/23 15:08	10/01/23 12:19	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/01/23 12:19	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			09/25/23 19:47	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		09/25/23 11:15	09/25/23 19:47	1
Diesel Range Organics (Over C10-C28)	<49.8	U *1	49.8	mg/Kg		09/25/23 11:15	09/25/23 19:47	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		09/25/23 11:15	09/25/23 19:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	79		70 - 130			09/25/23 11:15	09/25/23 19:47	1
o-Terphenyl	86		70 - 130			09/25/23 11:15	09/25/23 19:47	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	135		5.04	mg/Kg			09/28/23 13:46	1

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## Client Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

Client Sample ID: SW02

Date Collected: 09/22/23 10:20

Date Received: 09/22/23 12:49

Sample Depth: 0-1

Lab Sample ID: 890-5330-6

Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		09/25/23 15:08	10/01/23 12:40	1
Toluene	<0.00198	U	0.00198	mg/Kg		09/25/23 15:08	10/01/23 12:40	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		09/25/23 15:08	10/01/23 12:40	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		09/25/23 15:08	10/01/23 12:40	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		09/25/23 15:08	10/01/23 12:40	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		09/25/23 15:08	10/01/23 12:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130	09/25/23 15:08	10/01/23 12:40	1
1,4-Difluorobenzene (Surr)	104		70 - 130	09/25/23 15:08	10/01/23 12:40	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			10/01/23 12:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.6	U	49.6	mg/Kg			09/25/23 20:08	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6	mg/Kg		09/25/23 11:15	09/25/23 20:08	1
Diesel Range Organics (Over C10-C28)	<49.6	U *1	49.6	mg/Kg		09/25/23 11:15	09/25/23 20:08	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		09/25/23 11:15	09/25/23 20:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	76		70 - 130	09/25/23 11:15	09/25/23 20:08	1
o-Terphenyl	83		70 - 130	09/25/23 11:15	09/25/23 20:08	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	123		5.02	mg/Kg			09/28/23 13:52	1

Client Sample ID: SW03

Date Collected: 09/22/23 10:25

Date Received: 09/22/23 12:49

Sample Depth: 0-1

Lab Sample ID: 890-5330-7

Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 13:00	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 13:00	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 13:00	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		09/25/23 15:08	10/01/23 13:00	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 13:00	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		09/25/23 15:08	10/01/23 13:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		70 - 130	09/25/23 15:08	10/01/23 13:00	1

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## Client Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

Client Sample ID: SW03

Date Collected: 09/22/23 10:25

Date Received: 09/22/23 12:49

Sample Depth: 0-1

Lab Sample ID: 890-5330-7

Matrix: Solid

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	113		70 - 130	09/25/23 15:08	10/01/23 13:00	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			10/01/23 13:00	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.1	U	50.1	mg/Kg			09/25/23 20:29	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.1	U	50.1	mg/Kg		09/25/23 11:15	09/25/23 20:29	1
Diesel Range Organics (Over C10-C28)	<50.1	U *1	50.1	mg/Kg		09/25/23 11:15	09/25/23 20:29	1
OII Range Organics (Over C28-C36)	<50.1	U	50.1	mg/Kg		09/25/23 11:15	09/25/23 20:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	76		70 - 130	09/25/23 11:15	09/25/23 20:29	1
o-Terphenyl	82		70 - 130	09/25/23 11:15	09/25/23 20:29	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	124		5.00	mg/Kg			10/04/23 08:43	1

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## Surrogate Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

## 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)
890-5330-1	FS 04	92	99
890-5330-1 MS	FS 04	101	99
890-5330-1 MSD	FS 04	102	108
890-5330-2	FS 05	97	112
890-5330-3	FS 06	105	109
890-5330-4	FS 07	106	115
890-5330-5	SW01	112	108
890-5330-6	SW02	95	104
890-5330-7	SW03	111	113
LCS 880-63249/1-A	Lab Control Sample	94	95
LCSD 880-63249/2-A	Lab Control Sample Dup	96	104
MB 880-63249/5-A	Method Blank	112	133 S1+
MB 880-63329/5-A	Method Blank	123	144 S1+

## Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid

Prep Type: Total/NA

## Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-5322-A-1-E MS	Matrix Spike	81	76
890-5322-A-1-F MSD	Matrix Spike Duplicate	79	74
890-5330-1	FS 04	84	91
890-5330-2	FS 05	84	93
890-5330-3	FS 06	78	85
890-5330-4	FS 07	79	86
890-5330-5	SW01	79	86
890-5330-6	SW02	76	83
890-5330-7	SW03	76	82
LCS 880-63226/2-A	Lab Control Sample	96	98
LCSD 880-63226/3-A	Lab Control Sample Dup	79	83
MB 880-63226/1-A	Method Blank	90	99

## Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

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## QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

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

Lab Sample ID: MB 880-63249/5-A

Matrix: Solid

Analysis Batch: 63583

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 63249

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 10:28	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 10:28	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 10:28	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/25/23 15:08	10/01/23 10:28	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/25/23 15:08	10/01/23 10:28	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/25/23 15:08	10/01/23 10:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	09/25/23 15:08	10/01/23 10:28	1
1,4-Difluorobenzene (Surr)	133	S1+	70 - 130	09/25/23 15:08	10/01/23 10:28	1

Lab Sample ID: LCS 880-63249/1-A

Matrix: Solid

Analysis Batch: 63583

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 63249

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09854		mg/Kg		99	70 - 130
Toluene	0.100	0.08885		mg/Kg		89	70 - 130
Ethylbenzene	0.100	0.08576		mg/Kg		86	70 - 130
m-Xylene & p-Xylene	0.200	0.1753		mg/Kg		88	70 - 130
o-Xylene	0.100	0.08487		mg/Kg		85	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: LCSD 880-63249/2-A

Matrix: Solid

Analysis Batch: 63583

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 63249

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09579		mg/Kg		96	70 - 130	3	35
Toluene	0.100	0.08435		mg/Kg		84	70 - 130	5	35
Ethylbenzene	0.100	0.08048		mg/Kg		80	70 - 130	6	35
m-Xylene & p-Xylene	0.200	0.1752		mg/Kg		88	70 - 130	0	35
o-Xylene	0.100	0.08609		mg/Kg		86	70 - 130	1	35

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

Lab Sample ID: 890-5330-1 MS

Matrix: Solid

Analysis Batch: 63583

Client Sample ID: FS 04

Prep Type: Total/NA

Prep Batch: 63249

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.0998	0.1074		mg/Kg		108	70 - 130
Toluene	<0.00199	U	0.0998	0.08721		mg/Kg		87	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

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

Lab Sample ID: 890-5330-1 MS

Matrix: Solid

Analysis Batch: 63583

Client Sample ID: FS 04

Prep Type: Total/NA

Prep Batch: 63249

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U	0.0998	0.08342		mg/Kg		84	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1887		mg/Kg		95	70 - 130
o-Xylene	<0.00199	U	0.0998	0.09050		mg/Kg		90	70 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: 890-5330-1 MSD

Matrix: Solid

Analysis Batch: 63583

Client Sample ID: FS 04

Prep Type: Total/NA

Prep Batch: 63249

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.0996	0.1012		mg/Kg		102	70 - 130	6	35
Toluene	<0.00199	U	0.0996	0.08627		mg/Kg		87	70 - 130	1	35
Ethylbenzene	<0.00199	U	0.0996	0.07099		mg/Kg		71	70 - 130	16	35
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1595		mg/Kg		80	70 - 130	17	35
o-Xylene	<0.00199	U	0.0996	0.08741		mg/Kg		87	70 - 130	3	35

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	108		70 - 130

Lab Sample ID: MB 880-63329/5-A

Matrix: Solid

Analysis Batch: 63583

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 63329

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/26/23 11:47	09/30/23 22:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/26/23 11:47	09/30/23 22:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/26/23 11:47	09/30/23 22:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/26/23 11:47	09/30/23 22:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/26/23 11:47	09/30/23 22:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/26/23 11:47	09/30/23 22:53	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	123		70 - 130	09/26/23 11:47	09/30/23 22:53	1
1,4-Difluorobenzene (Surr)	144	S1+	70 - 130	09/26/23 11:47	09/30/23 22:53	1

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

Lab Sample ID: MB 880-63226/1-A

Matrix: Solid

Analysis Batch: 63178

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 63226

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/25/23 08:00	09/25/23 08:12	1

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## QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

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

Lab Sample ID: MB 880-63226/1-A

Matrix: Solid

Analysis Batch: 63178

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 63226

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/25/23 08:00	09/25/23 08:12	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/25/23 08:00	09/25/23 08:12	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	90		70 - 130			09/25/23 08:00	09/25/23 08:12	1
o-Terphenyl	99		70 - 130			09/25/23 08:00	09/25/23 08:12	1

Lab Sample ID: LCS 880-63226/2-A

Matrix: Solid

Analysis Batch: 63178

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 63226

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	767.1		mg/Kg		77	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1099		mg/Kg		110	70 - 130
Surrogate	%Recovery	Qualifier	Limits				
1-Chlorooctane	96		70 - 130				
o-Terphenyl	98		70 - 130				

Lab Sample ID: LCSD 880-63226/3-A

Matrix: Solid

Analysis Batch: 63178

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 63226

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	921.2		mg/Kg		92	70 - 130	18	20
Diesel Range Organics (Over C10-C28)	1000	883.8	*1	mg/Kg		88	70 - 130	22	20
Surrogate	%Recovery	Qualifier	Limits						
1-Chlorooctane	79		70 - 130						
o-Terphenyl	83		70 - 130						

Lab Sample ID: 890-5322-A-1-E MS

Matrix: Solid

Analysis Batch: 63178

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 63226

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.1	U F1	993	652.3	F1	mg/Kg		63	70 - 130
Diesel Range Organics (Over C10-C28)	<50.1	U *1 F1	993	693.1	F1	mg/Kg		68	70 - 130
Surrogate	%Recovery	Qualifier	Limits						
1-Chlorooctane	81		70 - 130						
o-Terphenyl	76		70 - 130						

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## QC Sample Results

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

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

Lab Sample ID: 890-5322-A-1-F MSD

Matrix: Solid

Analysis Batch: 63178

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 63226

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	<50.1	U F1	993	651.6	F1	mg/Kg		63	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	<50.1	U *1 F1	993	669.7	F1	mg/Kg		66	70 - 130	3	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	79		70 - 130								
o-Terphenyl	74		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-63263/1-A

Matrix: Solid

Analysis Batch: 63421

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/27/23 12:49	1

Lab Sample ID: LCS 880-63263/2-A

Matrix: Solid

Analysis Batch: 63421

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	243.1		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-63263/3-A

Matrix: Solid

Analysis Batch: 63421

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	236.2		mg/Kg		94	90 - 110	3	20

Lab Sample ID: 880-33590-A-5-D MS

Matrix: Solid

Analysis Batch: 63421

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	84.5		251	326.6		mg/Kg		96	90 - 110

Lab Sample ID: 880-33590-A-5-E MSD

Matrix: Solid

Analysis Batch: 63421

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	84.5		251	319.5		mg/Kg		94	90 - 110	2	20

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# QC Sample Results

Client: Ensolum  
 Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
 SDG: 03C1558266

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

Lab Sample ID: MB 880-63860/1-A  
 Matrix: Solid  
 Analysis Batch: 63882

Client Sample ID: Method Blank  
 Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			10/03/23 14:25	1

Lab Sample ID: LCS 880-63860/2-A  
 Matrix: Solid  
 Analysis Batch: 63882

Client Sample ID: Lab Control Sample  
 Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	247.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-63860/3-A  
 Matrix: Solid  
 Analysis Batch: 63882

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	249.2		mg/Kg		100	90 - 110	1	20

Lab Sample ID: 880-33936-A-2-C MS  
 Matrix: Solid  
 Analysis Batch: 63882

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	967	F1	1250	2613	F1	mg/Kg		132	90 - 110

Lab Sample ID: 880-33936-A-2-E MSD  
 Matrix: Solid  
 Analysis Batch: 63882

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	967	F1	1250	2608	F1	mg/Kg		132	90 - 110	0	20

## QC Association Summary

Client: Ensolum  
 Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
 SDG: 03C1558266

### GC VOA

#### Prep Batch: 63249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-1	FS 04	Total/NA	Solid	5035	
890-5330-2	FS 05	Total/NA	Solid	5035	
890-5330-3	FS 06	Total/NA	Solid	5035	
890-5330-4	FS 07	Total/NA	Solid	5035	
890-5330-5	SW01	Total/NA	Solid	5035	
890-5330-6	SW02	Total/NA	Solid	5035	
890-5330-7	SW03	Total/NA	Solid	5035	
MB 880-63249/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-63249/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-63249/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5330-1 MS	FS 04	Total/NA	Solid	5035	
890-5330-1 MSD	FS 04	Total/NA	Solid	5035	

#### Prep Batch: 63329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-63329/5-A	Method Blank	Total/NA	Solid	5035	

#### Analysis Batch: 63583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-1	FS 04	Total/NA	Solid	8021B	63249
890-5330-2	FS 05	Total/NA	Solid	8021B	63249
890-5330-3	FS 06	Total/NA	Solid	8021B	63249
890-5330-4	FS 07	Total/NA	Solid	8021B	63249
890-5330-5	SW01	Total/NA	Solid	8021B	63249
890-5330-6	SW02	Total/NA	Solid	8021B	63249
890-5330-7	SW03	Total/NA	Solid	8021B	63249
MB 880-63249/5-A	Method Blank	Total/NA	Solid	8021B	63249
MB 880-63329/5-A	Method Blank	Total/NA	Solid	8021B	63329
LCS 880-63249/1-A	Lab Control Sample	Total/NA	Solid	8021B	63249
LCSD 880-63249/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	63249
890-5330-1 MS	FS 04	Total/NA	Solid	8021B	63249
890-5330-1 MSD	FS 04	Total/NA	Solid	8021B	63249

#### Analysis Batch: 63793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-1	FS 04	Total/NA	Solid	Total BTEX	
890-5330-2	FS 05	Total/NA	Solid	Total BTEX	
890-5330-3	FS 06	Total/NA	Solid	Total BTEX	
890-5330-4	FS 07	Total/NA	Solid	Total BTEX	
890-5330-5	SW01	Total/NA	Solid	Total BTEX	
890-5330-6	SW02	Total/NA	Solid	Total BTEX	
890-5330-7	SW03	Total/NA	Solid	Total BTEX	

### GC Semi VOA

#### Analysis Batch: 63178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-1	FS 04	Total/NA	Solid	8015B NM	63226
890-5330-2	FS 05	Total/NA	Solid	8015B NM	63226
890-5330-3	FS 06	Total/NA	Solid	8015B NM	63226
890-5330-4	FS 07	Total/NA	Solid	8015B NM	63226

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## QC Association Summary

Client: Ensolum  
 Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
 SDG: 03C1558266

### GC Semi VOA (Continued)

#### Analysis Batch: 63178 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-5	SW01	Total/NA	Solid	8015B NM	63226
890-5330-6	SW02	Total/NA	Solid	8015B NM	63226
890-5330-7	SW03	Total/NA	Solid	8015B NM	63226
MB 880-63226/1-A	Method Blank	Total/NA	Solid	8015B NM	63226
LCS 880-63226/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	63226
LCSD 880-63226/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	63226
890-5322-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	63226
890-5322-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	63226

#### Prep Batch: 63226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-1	FS 04	Total/NA	Solid	8015NM Prep	
890-5330-2	FS 05	Total/NA	Solid	8015NM Prep	
890-5330-3	FS 06	Total/NA	Solid	8015NM Prep	
890-5330-4	FS 07	Total/NA	Solid	8015NM Prep	
890-5330-5	SW01	Total/NA	Solid	8015NM Prep	
890-5330-6	SW02	Total/NA	Solid	8015NM Prep	
890-5330-7	SW03	Total/NA	Solid	8015NM Prep	
MB 880-63226/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-63226/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-63226/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5322-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-5322-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

#### Analysis Batch: 63289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-1	FS 04	Total/NA	Solid	8015 NM	
890-5330-2	FS 05	Total/NA	Solid	8015 NM	
890-5330-3	FS 06	Total/NA	Solid	8015 NM	
890-5330-4	FS 07	Total/NA	Solid	8015 NM	
890-5330-5	SW01	Total/NA	Solid	8015 NM	
890-5330-6	SW02	Total/NA	Solid	8015 NM	
890-5330-7	SW03	Total/NA	Solid	8015 NM	

### HPLC/IC

#### Leach Batch: 63263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-1	FS 04	Soluble	Solid	DI Leach	
890-5330-2	FS 05	Soluble	Solid	DI Leach	
890-5330-3	FS 06	Soluble	Solid	DI Leach	
890-5330-4	FS 07	Soluble	Solid	DI Leach	
890-5330-5	SW01	Soluble	Solid	DI Leach	
890-5330-6	SW02	Soluble	Solid	DI Leach	
MB 880-63263/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-63263/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-63263/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-33590-A-5-D MS	Matrix Spike	Soluble	Solid	DI Leach	
880-33590-A-5-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

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## QC Association Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

## HPLC/IC

## Analysis Batch: 63421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-1	FS 04	Soluble	Solid	300.0	63263
890-5330-2	FS 05	Soluble	Solid	300.0	63263
890-5330-3	FS 06	Soluble	Solid	300.0	63263
890-5330-4	FS 07	Soluble	Solid	300.0	63263
890-5330-5	SW01	Soluble	Solid	300.0	63263
890-5330-6	SW02	Soluble	Solid	300.0	63263
MB 880-63263/1-A	Method Blank	Soluble	Solid	300.0	63263
LCS 880-63263/2-A	Lab Control Sample	Soluble	Solid	300.0	63263
LCSD 880-63263/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	63263
880-33590-A-5-D MS	Matrix Spike	Soluble	Solid	300.0	63263
880-33590-A-5-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	63263

## Leach Batch: 63860

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-7	SW03	Soluble	Solid	DI Leach	
MB 880-63860/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-63860/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-63860/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-33936-A-2-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-33936-A-2-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 63882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5330-7	SW03	Soluble	Solid	300.0	63860
MB 880-63860/1-A	Method Blank	Soluble	Solid	300.0	63860
LCS 880-63860/2-A	Lab Control Sample	Soluble	Solid	300.0	63860
LCSD 880-63860/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	63860
880-33936-A-2-C MS	Matrix Spike	Soluble	Solid	300.0	63860
880-33936-A-2-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	63860

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## Lab Chronicle

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 RiserJob ID: 890-5330-1  
SDG: 03C1558266

Client Sample ID: FS 04

Date Collected: 09/22/23 09:00

Date Received: 09/22/23 12:49

Lab Sample ID: 890-5330-1

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	63249	09/25/23 15:08	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63583	10/01/23 10:57	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63793	10/01/23 10:57	SM	EET MID
Total/NA	Analysis	8015 NM		1			63289	09/25/23 18:23	SM	EET MID
Total/NA	Prep	8015NM Prep			9.96 g	10 mL	63226	09/25/23 11:15	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63178	09/25/23 18:23	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	63263	09/25/23 15:57	SMC	EET MID
Soluble	Analysis	300.0		1			63421	09/28/23 13:28	CH	EET MID

Client Sample ID: FS 05

Date Collected: 09/22/23 09:10

Date Received: 09/22/23 12:49

Lab Sample ID: 890-5330-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	63249	09/25/23 15:08	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63583	10/01/23 11:18	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63793	10/01/23 11:18	SM	EET MID
Total/NA	Analysis	8015 NM		1			63289	09/25/23 18:44	SM	EET MID
Total/NA	Prep	8015NM Prep			9.91 g	10 mL	63226	09/25/23 11:15	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63178	09/25/23 18:44	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	63263	09/25/23 15:57	SMC	EET MID
Soluble	Analysis	300.0		1			63421	09/28/23 13:34	CH	EET MID

Client Sample ID: FS 06

Date Collected: 09/22/23 09:45

Date Received: 09/22/23 12:49

Lab Sample ID: 890-5330-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	63249	09/25/23 15:08	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63583	10/01/23 11:38	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63793	10/01/23 11:38	SM	EET MID
Total/NA	Analysis	8015 NM		1			63289	09/25/23 19:05	SM	EET MID
Total/NA	Prep	8015NM Prep			9.92 g	10 mL	63226	09/25/23 11:15	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63178	09/25/23 19:05	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	63263	09/25/23 15:57	SMC	EET MID
Soluble	Analysis	300.0		1			63421	09/27/23 15:20	CH	EET MID

Client Sample ID: FS 07

Date Collected: 09/22/23 09:50

Date Received: 09/22/23 12:49

Lab Sample ID: 890-5330-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	63249	09/25/23 15:08	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63583	10/01/23 11:59	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63793	10/01/23 11:59	SM	EET MID

Eurofins Carlsbad

## Lab Chronicle

Client: Ensolum  
 Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
 SDG: 03C1558266

**Client Sample ID: FS 07**

**Date Collected: 09/22/23 09:50**

**Date Received: 09/22/23 12:49**

**Lab Sample ID: 890-5330-4**

**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			63289	09/25/23 19:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	63226	09/25/23 11:15	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63178	09/25/23 19:26	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	63263	09/25/23 15:57	SMC	EET MID
Soluble	Analysis	300.0		1			63421	09/28/23 13:40	CH	EET MID

**Client Sample ID: SW01**

**Date Collected: 09/22/23 10:15**

**Date Received: 09/22/23 12:49**

**Lab Sample ID: 890-5330-5**

**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	63249	09/25/23 15:08	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63583	10/01/23 12:19	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63793	10/01/23 12:19	SM	EET MID
Total/NA	Analysis	8015 NM		1			63289	09/25/23 19:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	63226	09/25/23 11:15	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63178	09/25/23 19:47	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	63263	09/25/23 15:57	SMC	EET MID
Soluble	Analysis	300.0		1			63421	09/28/23 13:46	CH	EET MID

**Client Sample ID: SW02**

**Date Collected: 09/22/23 10:20**

**Date Received: 09/22/23 12:49**

**Lab Sample ID: 890-5330-6**

**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			5.05 g	5 mL	63249	09/25/23 15:08	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63583	10/01/23 12:40	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63793	10/01/23 12:40	SM	EET MID
Total/NA	Analysis	8015 NM		1			63289	09/25/23 20:08	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	63226	09/25/23 11:15	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63178	09/25/23 20:08	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	63263	09/25/23 15:57	SMC	EET MID
Soluble	Analysis	300.0		1			63421	09/28/23 13:52	CH	EET MID

**Client Sample ID: SW03**

**Date Collected: 09/22/23 10:25**

**Date Received: 09/22/23 12:49**

**Lab Sample ID: 890-5330-7**

**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			4.99 g	5 mL	63249	09/25/23 15:08	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	63583	10/01/23 13:00	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			63793	10/01/23 13:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			63289	09/25/23 20:29	SM	EET MID
Total/NA	Prep	8015NM Prep			9.99 g	10 mL	63226	09/25/23 11:15	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	63178	09/25/23 20:29	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
SDG: 03C1558266

Client Sample ID: SW03  
Date Collected: 09/22/23 10:25  
Date Received: 09/22/23 12:49

Lab Sample ID: 890-5330-7  
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 g	50 mL	63860	10/03/23 11:45	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	63882	10/04/23 08:43	CH	EET MID

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
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- 14

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
SDG: 03C1558266

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
- 2
- 3
- 4
- 5
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- 10
- 11
- 12
- 13
- 14



## Method Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
SDG: 03C1558266

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

**Protocol References:**  
ASTM = ASTM International  
EPA = US Environmental Protection Agency  
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.  
TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

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

## Sample Summary

Client: Ensolum  
Project/Site: James Ranch Unit 21 DI 9 Riser

Job ID: 890-5330-1  
SDG: 03C1558266

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5330-1	FS 04	Solid	09/22/23 09:00	09/22/23 12:49	1
890-5330-2	FS 05	Solid	09/22/23 09:10	09/22/23 12:49	1
890-5330-3	FS 06	Solid	09/22/23 09:45	09/22/23 12:49	1
890-5330-4	FS 07	Solid	09/22/23 09:50	09/22/23 12:49	1
890-5330-5	SW01	Solid	09/22/23 10:15	09/22/23 12:49	0-1
890-5330-6	SW02	Solid	09/22/23 10:20	09/22/23 12:49	0-1
890-5330-7	SW03	Solid	09/22/23 10:25	09/22/23 12:49	0-1

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13  
14



## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5330-1

SDG Number: 03C1558266

**Login Number: 5330**

**List Number: 1**

**Creator: Bruns, Shannon**

**List Source: Eurofins Carlsbad**

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

## Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5330-1

SDG Number: 03C1558266

Login Number: 5330

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/25/23 09:54 AM

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



## APPENDIX D

### NMOCD Notifications

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## Collins, Melanie

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**From:** OCDOnline@state.nm.us  
**Sent:** Wednesday, August 9, 2023 12:38 PM  
**To:** Collins, Melanie  
**Subject:** The Oil Conservation Division (OCD) has accepted the application, Application ID: 250086

### External Email - Think Before You Click

To whom it may concern (c/o Melanie Collins for XTO ENERGY, INC),

The OCD has accepted the submitted *Notification of a release* (NOR), for incident ID (n#) nAPP2322141858, with the following conditions:

- **When submitting future reports regarding this release, please submit the calculations used or specific justification for the volumes reported on the initial C-141.**

Please reference nAPP2322141858, on all subsequent C-141 submissions and communications regarding the remediation of this release.

**NOTE:** As of December 2019, NMOCD has discontinued the use of the "RP" number.

If you have any questions regarding this application, or don't know why you have received this email, please contact us.

ocd.enviro@state.nm.us

**New Mexico Energy, Minerals and Natural Resources Department**  
1220 South St. Francis Drive  
Santa Fe, NM 87505

**From:** [Collins, Melanie](#)  
**To:** [ocd.enviro \(ocd.enviro@emnrd.nm.gov\)](mailto:ocd.enviro@emnrd.nm.gov)  
**Cc:** [Green, Garrett J](#); [Ben Bellil](#); [Lambert, Tommee L](#)  
**Subject:** XTO - Sampling Notification (Week of 9/18/23 - 9/22/23)  
**Date:** Thursday, September 14, 2023 8:57:21 AM  
**Attachments:** [image001.png](#)

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

All,

XTO plans to complete final sampling activities at the sites listed below for the week of September 18, 2023.

Monday

- PLU 29 Big Sinks West CTB / NAPP2320634792

Tuesday

- Indian Flats Bass 6 / NMAP1823048577

Wednesday

- Indian Flats Bass 6 / NMAP1823048577

Thursday

- JRU 29 DI 9 Riser / NAPP2322141858

Friday

- JRU 29 DI 9 Riser / NAPP2322141858
- Poker Lake Unit 301H / NAPP2322646789

Thank you,

*Melanie Collins*



Environmental Technician

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

432-556-3756

**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 279013

**CONDITIONS**

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 279013
	Action Type: [C-141] Release Corrective Action (C-141)

**CONDITIONS**

Created By	Condition	Condition Date
rhamlet	We have received your Remediation Closure Report for Incident #NAPP2322141858 JAMES RANCH UNIT 21 DI 9 RISER, thank you. This Remediation Closure Report is approved. A report for reclamation and revegetation including pictures of the contoured backfilled excavation surface and a thorough discussion on reseeding mixture, vegetation ratio, timelines, etc..., will need to be submitted and approved prior to this incident receiving the final status of "Restoration Complete".	2/29/2024
rhamlet	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing if the back fill is coming from a rancher's pit or other local source AND/OR proof from the landfill/landfarm that their backfill is non-waste containing; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	2/29/2024