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	NAPP2211654411
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party XTO Energy	OGRID 5380
Contact Name Adrian Baker	Contact Telephone 432-236-3808
Contact email adrian.baker@exxonmobil.com	Incident # *(assigned by OCD)*
Contact mailing address 6401 Holiday Hill Rd Bldg 5, Midland, Texas, 79707	

Location of Release Source

Latitude 32.36263 Longitude -103.83621
(NAD 83 in decimal degrees to 5 decimal places)

Site Name James Ranch Unit 2 702H	Site Type Production Well
Date Release Discovered 04/13/2022	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
K	25	22S	30E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☒ Other (describe) Produced water w/FR	Volume/Weight Released (provide units) 55.00 BBLS	Volume/Weight Recovered (provide units) 40.00 BBLS

Cause of Release: During frac operations on the James Ranch Unit 2 702H, the fluid end separated from power end, causing fluids to release both to containment and pad. All free fluids were recovered. A third-party contractor has been retained for remediation activities.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2211654411
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? A release equal to or greater than 25 barrels.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Yes, by Adrian Baker to ocd.enviro@state.nm.us on Friday, April 15, 2022 1:57 PM via email.

Initial Response

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

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

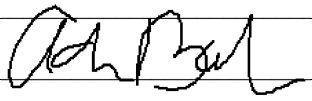
If all the actions described above have not been undertaken, explain why:

NA

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

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: Adrian Baker Title: SSHE Coordinator

Signature:  Date: 4/26/22

email: adrian.baker@exxonmobil.com Telephone: 432-236-3808

OCD Only

Received by: Jocelyn Harimon Date: 04/26/2022

Location:	James Ranch Unit 2 702H	
Spill Date:	4/13/2022	

Area 1		
Approximate Area =	28.07	cu.ft.
VOLUME OF LEAK		
Total Crude Oil =	0.00	bbls
Total Produced Water =	5.00	bbls

Area 2		
Approximate Area =	5221.00	sq. ft.
Average Saturation (or depth) of spill =	4.30	inches

Average Porosity Factor =	0.03	

VOLUME OF LEAK		
Total Crude Oil =	0.00	bbls
Total Produced Water =	50.00	bbls

TOTAL VOLUME OF LEAK		
Total Crude Oil =	**0.00**	**bbls**
Total Produced Water =	**55.00**	**bbls**
TOTAL VOLUME RECOVERED		
Total Crude Oil =	**0.00**	**bbls**
Total Produced Water =	**40.00**	**bbls**

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 101715

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 101715
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	4/26/2022

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2211654411
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2211654411
District RP	
Facility ID	
Application ID	

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

Printed Name: _Garrett Green_____ Title: _Environmental Coordinator_____

Signature:_____ _____ Date: ____10/04/2022_____

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

OCD Only

Received by: Jocelyn Harimon Date: 10/04/2022

Incident ID	NAPP2211654411
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: _Garrett Green_____ Title: __ Environmental Coordinator _____

Signature: ____ _____ Date: _10/04/2022_____

email: __ garrett.green@exxonmobil.com _____ Telephone: __575-200-0729_____

OCD Only

Received by: Jocelyn Harimon Date: 10/04/2022

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

Signature: _____ Date: 12/28/2022

Workplan/Remediation Plan is approved with the following conditions:
• When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided. If evidence of depth to ground water within a ½ mile radius of the site cannot be provided, impacted soils will need to meet Table 1 Closure Criteria for ground water at a depth of 50 feet or less.
• Workplan/Remediation Plan is approved with the following conditions: Please make sure the floor confirmation samples are delineated/excavated to meet closure criteria standards for proven depth to water determination. Sidewall samples should be delineated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release.

ENSOLUM

October 4, 2022

District II
New Mexico Oil Conservation Division
811 S. First St.
Artesia, New Mexico 88210

Re: Remediation Work Plan
James Ranch Unit 2 702H
Incident Number nAPP2211654411
Eddy County, New Mexico

To Whom It May Concern:

Ensolum, LLC (Ensolum) on behalf of XTO Energy, Inc. (XTO), has prepared the following Remediation Work Plan (Work Plan) to document the site assessment activities completed to date and propose a work plan to address the impacted soil identified at the James Ranch Unit 2 702H (Site). The purpose of the site assessment activities was to delineate the lateral and vertical extent of impacted soil resulting from a release of recycled water at the Site. The following Work Plan proposes to excavate of the top one foot of impacted soil.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit K, Section 25, Township 22 South, Range 30 East, in Eddy County, New Mexico (32.36263° N, 103.83621° W) and is associated with oil and gas exploration and production operations on federal land managed by the Bureau of Land Management.

On April 13, 2022, during hydraulic fracturing (frac) operations, hosing separated and resulted in the release of 55 barrels (bbls) of produced water treated with friction reducer into a temporary lined containment and onto the well pad. A vacuum truck was immediately dispatched to the Site to recover the free-standing fluids; approximately 40 bbls of treated produced water were recovered. XTO reported the release immediately to the NMOCD via email on April 15, 2022 and submitted a Release Notification Form C-141 on April 26, 2022. The release was assigned Incident Number nAPP2211654411.

Produced water is recycled through filtering and separation, then mixed in a blender with friction reducer and used as hydraulic fracturing fluid during the well completion process. The safety data sheet (SDS) for friction reducer is provided in the appendices.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

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

Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater well with depth to groundwater data is USGS well 322215103502701, located approximately 0.6 miles northwest of the Site. The groundwater well has a reported depth to groundwater of 419 feet bgs and an unknown total depth. Ground surface elevation at the groundwater well location is 3,360 feet above mean sea level (amsl), which is approximately 14 feet higher in elevation than the Site. There are additional water wells and recently drilled soil borings located within 1.5 miles of the Site in all cardinal directions which indicate regional depth to water is greater than 100 feet bgs. There are no regional or Site-specific hydrological conditions, such as shallow surface water, karst features, wetlands, or vegetation that suggest the Site is conducive to shallow groundwater. All wells used for depth to groundwater determination are presented on Figure 1. The referenced well records are included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a dry wash, located approximately 4,982 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 not underlain by unstable geology (low potential karst designation area). Site receptors are identified on Figure 1.

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

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

SITE ASSESSMENT AND DELINEATION ACTIVITIES

Once ongoing frac operations were complete, a Site visit was conducted to evaluate the release extent based on information provided on the Form C-141 and visual observations. The temporary containment had been removed at the time of the Site visit. The release extent was mapped utilizing a handheld Global Positioning System (GPS) unit and is depicted on Figure 2.

Between September 6, 2022 and September 7, 2022, delineation activities were conducted at the Site to assess the lateral and vertical extent of impacted soil. Potholes PH01 through PH04 were advanced via track mounted backhoe within the release extent. The potholes were advanced to a maximum depth of 1 foot bgs. Discrete delineation soil samples were collected from each pothole at depths of 0.5 feet to 1 foot bgs. Soil from the potholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Field screening results and observations for the potholes were logged on lithologic/soil sampling logs, which are included in Appendix B. Additionally, lateral delineation (horizontal definition) soil samples (SS01 and SS02) were collected from a depth of 0.5 feet bgs to the south and east of the release extent to confirm the lateral extent of the release did not reach the pad boundary. The delineation soil sample locations are depicted on Figure 2. Photographic documentation was completed during the Site visit and a photographic log is included in Appendix C.

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

at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for the delineation soil samples collected from potholes PH02 and PH04 collected at 0.5 feet bgs, indicated that TPH-GRO/TPH-DRO concentrations exceeded the Closure Criteria. The concentrations identified in the terminal depth sample, collected at 1 foot bgs, were compliant with the Closure Criteria and successfully defined the vertical extent of impacted soil.

Laboratory analytical results for the delineation soil samples collected from potholes PH01 and PH03, as well as lateral delineation samples SS01 and SS02, indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with Closure Criteria and defined the lateral extent of the impacted soil. The laboratory analytical results are summarized on the attached Table 1 and the complete laboratory analytical reports are included in Appendix D.

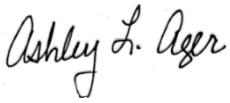
PROPOSED REMEDIATION WORK PLAN

The results of the delineation soil sampling suggest soil containing elevated TPH-GRO/TPH-DRO concentrations extend across a 3,450 square foot area and extends to maximum depth of 1 foot bgs. Based on the extent and volume of impacted soil, XTO proposes excavation of the hydrocarbon impacted soil. Excavation will proceed laterally until sidewall samples confirm TPH-GRO/TPH-DRO concentrations are compliant with the Closure Criteria. An estimated 775 cubic yards of soil will be excavated. The excavated soil will be transferred a New Mexico approved landfill facility for disposal. The excavation will be backfilled and recontoured to match pre-existing conditions. XTO will complete excavation activities and submit a Closure Request within 90 days of the date of approval of this Work Plan by the NMOCD.

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

Sincerely,
Ensolum, LLC

Tacoma Morrissey
Senior Geologist



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

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

Appendices:

Figure 1 Site Location Map
Figure 2 Delineation Soil Sample Locations

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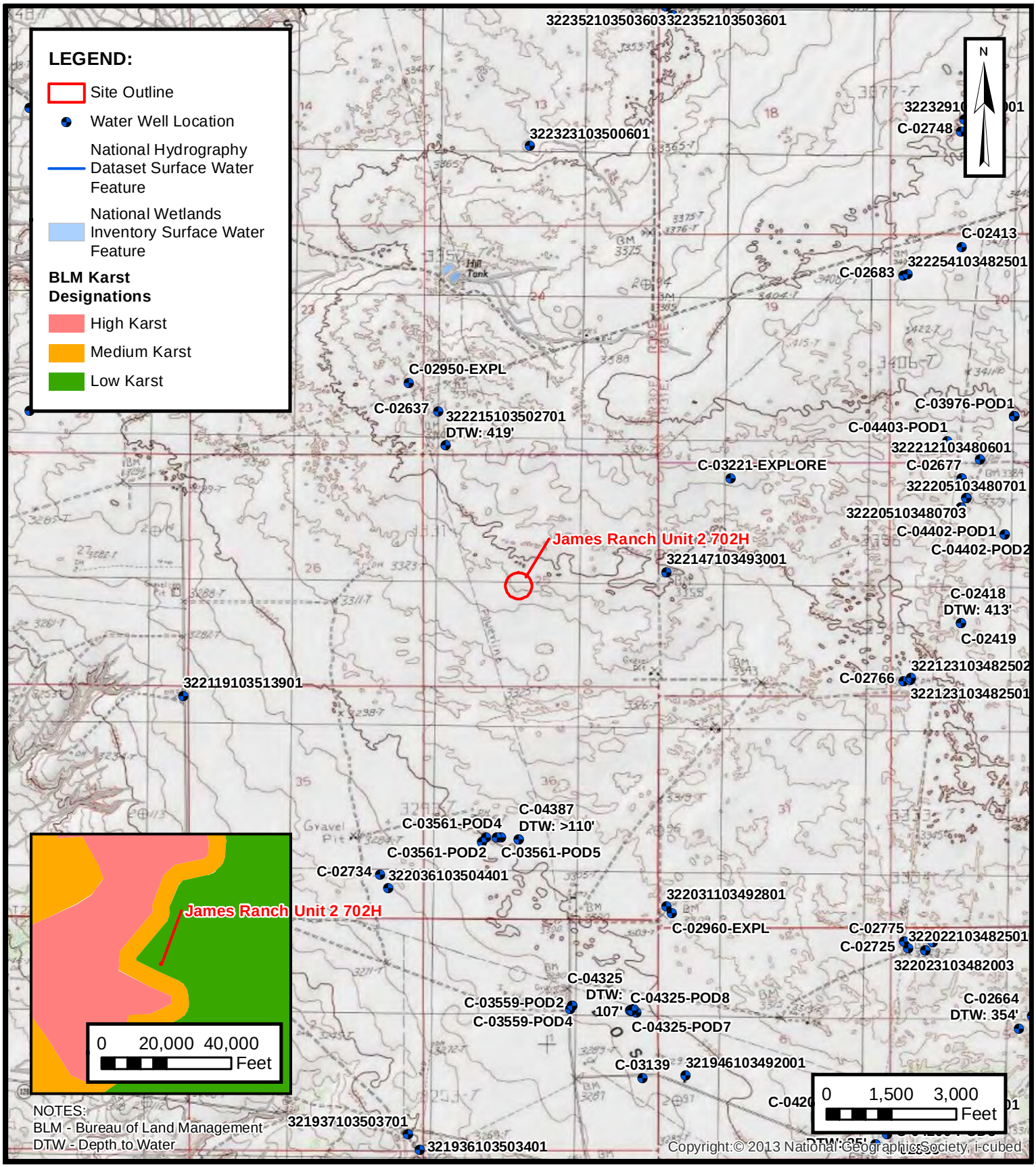
FIGURES



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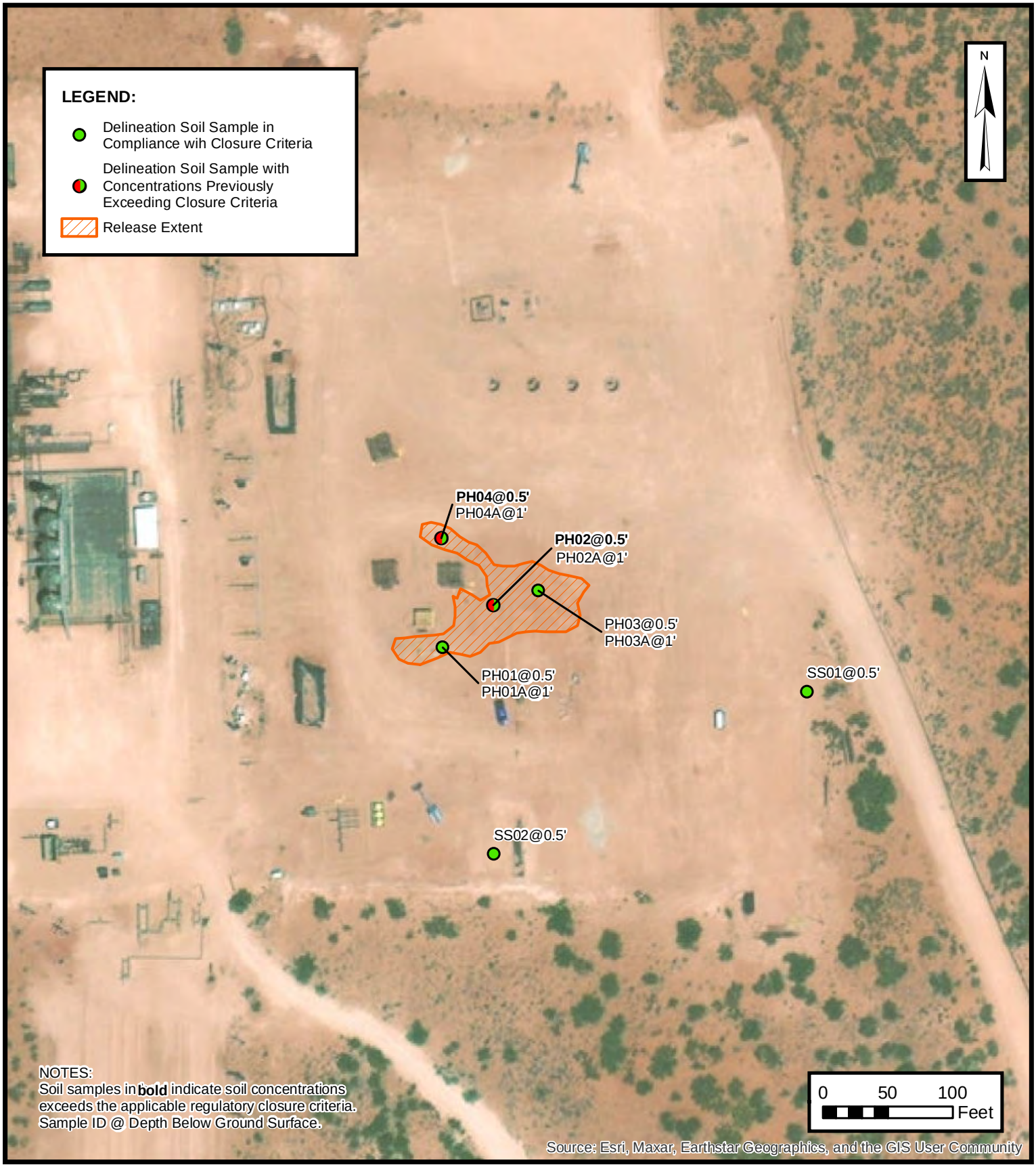
Environmental, Engineering and Hydrogeologic Consultants

SITE RECEPTOR MAP

XTO ENERGY, INC
JAMES RANCH UNIT 2 702H
NAPP2211654411
Unit K, Sec 25, T22S, R30E
Eddy County, New Mexico

FIGURE
1



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

DELINEATION SOIL SAMPLE LOCATIONS

XTO ENERGY, INC
JAMES RANCH UNIT 2 702H
NAPP2211654411
Unit K, Sec 25, T22S, R30E
Eddy County, New Mexico

FIGURE
2

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TABLES

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
James Ranch Unit 2 702H
XTO Energy, Inc.
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Delineation Soil Samples										
SS01	09/07/2022	0.5'	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	527
SS02	09/07/2022	0.5'	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	206
PH01	09/06/2022	0.5	<0.00200	<0.00401	<50.0	344	<50.0	344	344	2,100
PH01A	09/06/2022	1	<0.00202	<0.00403	<49.9	<49.9	<49.9	<49.9	<49.9	1,280
PH02	09/06/2022	0.5	<0.00200	<0.00399	<50.0	1,230	<50.0	**1,230**	1,230	8,000
PH02A	09/06/2022	1	<0.00200	<0.00399	<49.8	<49.8	<49.8	<49.8	<49.8	1,960
PH03	09/06/2022	0.5	<0.00200	<0.00401	<49.9	110	<49.9	110	110	7,740
PH03A	09/06/2022	1	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	4,710
PH04	09/06/2022	0.5	<0.00200	<0.00399	<49.9	1,230	<49.9	**1,230**	1,230	5,900
PH04A	09/06/2022	1	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	739

Notes:

bgs: below ground surface
mg/kg: milligrams per kilogram
NMOCD: New Mexico Oil Conservation Division
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
Concentrations in bold exceed the NMOCD Table 1 Closure Criteria or reclamation standard where applicable.

GRO: Gasoline Range Organics
DRO: Diesel Range Organics
ORO: Oil Range Organics
TPH: Total Petroleum Hydrocarbon

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APPENDIX A

Referenced Well Records

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click to hideNews Bulletins

- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

site_no list =

- 322215103502701

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

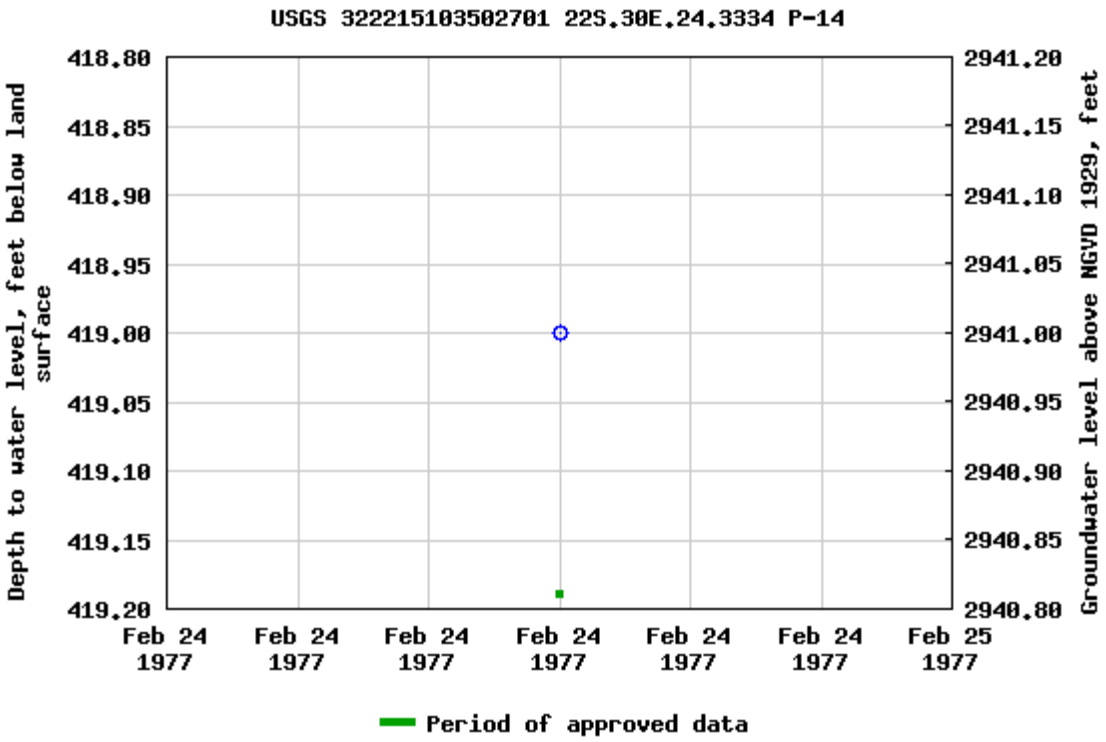
USGS 322215103502701 22S.30E.24.3334 P-14

Available data for this site | Groundwater: Field measurements | GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°22'15", Longitude 103°50'27" NAD27
Land-surface elevation 3,360 feet above NGVD29
This well is completed in the Other aquifers (N9999OTHER) national aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

LT Environmental, Inc.
508 West Stevens Street
Carlsbad, New Mexico 88220
Compliance · Engineering · Remediation

Identifier:	Date:
BH01 (C-04387)	1/18-1/21/20
Project Name: JRU 29	RP Number: 2RP-3302, 2RP-3726, 2RP-4040, 2RP-3082

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: BB, FS, WM	Method: Sonic Drill

Lat/Long:	Field Screening: NA	Hole Diameter:	Total Depth:
32.346278,-103.835913		6"	110'

Comments:
No field screenings, lithology remarks only

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D			N		0	0'	CCHE	CALICHE, tan-off white, fill
						0.5'	SP	SAND, dry, reddish brown, poorly graded, fine-very fine, soft no odor, no stain
D			N			5'	CCHE	CALICHE, dry, tan-off white, few subangular gravel, trace fine sand, no odor, no stain
D			N		10'	12.5'	SP-SM	silty SAND, dry, reddish brown, poorly graded, fine grained, few tan-off white subangular gravel, no stain, no odor
D			N		20'	23'	ML-S	SILTSTONE, dry, reddish brown, moderatley consolidated, 2mm caliche inclusions, trace off-white subangular gravel, no stain, no odor
D			N		30'			
M			N			37'		moist
D			N		40'	45'		dry
D			N		50'			
D			N		60'	58'	CL-S	CLAYSTONE, dry, reddish brown, low plasticity, cohesive, well consolidated with some silty dolomite inclusions (1-2mm), no stain, no odor
D			N		70'			
D			N		80'			
D			N		90'			
D			N		100'			
M			N			102'		moist
M			N		110'			Total Depth 110 feet bgs

ENSOLUM

APPENDIX B

Lithologic Soil Sampling Logs

ENSOLUM

	Sample Name: PH01	Date: 09/06/2022
	Site Name: James Ranch Unit 2 702H	
	Incident Number: nAPP2211654411	
	Job Number: 03E1558049	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: CW	Method: Trackhoe
Coordinates: 32.362455, -103.836643	Hole Diameter: 3- 4 feet	Total Depth: 1 foot

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% correction factor is included.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0		
D	918	0.7	y	PH01	0.5	0.5	CCHE	Caliche pad soils
D	3,046	1.4	n	PH01A	1	1	SM	sand with some silt TD @ 1 foot bgs

ENSOLUM

	Sample Name: PH02	Date: 09/06/2022
	Site Name: James Ranch Unit 2 702H	
	Incident Number: nAPP2211654411	
	Job Number: 03E1558049	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: CW	Method: Trackhoe
Coordinates: 32.362545, -103.836522	Hole Diameter: 3- 4 feet	Total Depth: 1 foot

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% correction factor is included.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0		
D	10,046	0.4	y	PH02	0.5	0.5	CCHE	Caliche pad soils
D	3,365	0.8	n	PH02A	1	1	SM	sand with some silt TD @ 1 foot bgs

ENSOLUM

	Sample Name: PH03	Date: 09/06/2022
	Site Name: James Ranch Unit 2 702H	
	Incident Number: nAPP2211654411	
	Job Number: 03E1558049	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: CW	Method: Trackhoe
Coordinates: 32.362573, -103.836401	Hole Diameter: 3- 4 feet	Total Depth: 1 foot

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% correction factor is included.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0		
D	8,596	0.3	y	PH03	0.5	0.5	CCHE	Caliche pad soils
D	17,673	0.5	n	PH03A	1	1	SM	sand with some silt TD @ 1 foot bgs

ENSOLUM

	Sample Name: PH04	Date: 09/06/2022
	Site Name: James Ranch Unit 2 702H	
	Incident Number: nAPP2211654411	
	Job Number: 03E1558049	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: CW	Method: Trackhoe
Coordinates: 32.362681, -103.836648	Hole Diameter: 3- 4 feet	Total Depth: 1 foot

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% correction factor is included.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0		
D	14,935	1.2	y	PH04	0.5	0.5	CCHE	Caliche pad soils
D	1,086	0.2	n	PH04A	1	1	SM	sand with some silt TD @ 1 foot bgs

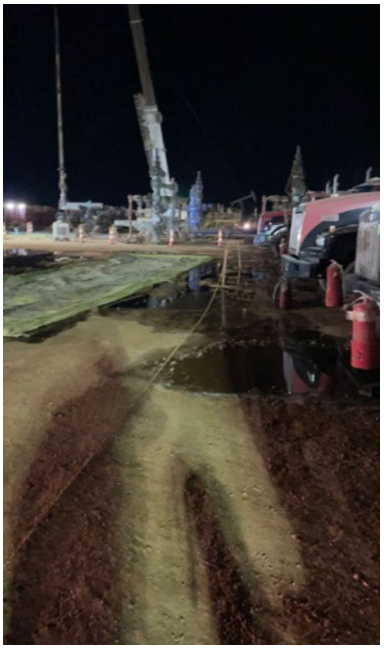
ENSOLUM

APPENDIX C

Photographic Log

ENSOLUM

Photographic Log
XTO Energy, Inc.
James Ranch Unit 2 702H
Incident Number nAPP2211654411



Photograph 1 Date: April 14, 2022
Description: View of the release and temporary containment facing north.

Photograph 2 Date: April 14, 2022
Description: View of the release and temporary containment facing south.

Photograph 3 Date: Sept 6, 2022
Description: View of release extent during delineation activities, facing southeast.

Photograph 4 Date: Sept 6, 2022
Description: View of release extent and nearby wellhead equipment during delineation activities, facing northeast.

ENSOLUM

APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-2895-1
Laboratory Sample Delivery Group: 03E1558049/03E1558019
Client Project/Site: JRU DI 2 707H/JRU DI 2 702H

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

Attn: Tacoma Morrissey

JKramer

Authorized for release by:
9/19/2022 9:58:25 AM

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

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Laboratory Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

Table of Contents

Definitions/Glossary

Client: Ensolum Job ID: 890-2895-1
Project/Site: JRU DI 2 707H/JRU DI 2 702H SDG: 03E1558049/03E1558019

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

Job ID: 890-2895-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2895-1

Receipt
The sample was received on 9/8/2022 9:30 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.8°C

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

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

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

Client Sample Results

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

Client Sample ID: SS02

Date Collected: 09/07/22 09:35
Date Received: 09/08/22 09:30
Sample Depth: 0.5

Lab Sample ID: 890-2895-1

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/16/22 13:13	09/18/22 09:58	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/16/22 13:13	09/18/22 09:58	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/16/22 13:13	09/18/22 09:58	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		09/16/22 13:13	09/18/22 09:58	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/16/22 13:13	09/18/22 09:58	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		09/16/22 13:13	09/18/22 09:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*09/16/22 13:13*	*09/18/22 09:58*	*1*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*	*09/16/22 13:13*	*09/18/22 09:58*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401		mg/Kg			09/19/22 09:23	1

Method: 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			09/12/22 10:21	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		09/10/22 08:34	09/10/22 17:42	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		09/10/22 08:34	09/10/22 17:42	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		09/10/22 08:34	09/10/22 17:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*100*		*70 - 130*	*09/10/22 08:34*	*09/10/22 17:42*	*1*
o-Terphenyl	*94*		*70 - 130*	*09/10/22 08:34*	*09/10/22 17:42*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**206**		4.99		mg/Kg			09/13/22 14:23	1

Surrogate Summary

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-19252-A-1-E MS	Matrix Spike	101	98
880-19252-A-1-F MSD	Matrix Spike Duplicate	108	100
890-2895-1	SS02	104	108
LCS 880-34677/1-A	Lab Control Sample	104	99
LCSD 880-34677/2-A	Lab Control Sample Dup	102	92
MB 880-34413/5-A	Method Blank	103	113
MB 880-34677/5-A	Method Blank	106	106

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2895-1	SS02	100	94
890-2900-A-1-E MS	Matrix Spike	97	88
890-2900-A-1-F MSD	Matrix Spike Duplicate	99	90
LCS 880-34143/2-A	Lab Control Sample	116	117
LCSD 880-34143/3-A	Lab Control Sample Dup	117	121
MB 880-34143/1-A	Method Blank	114	111

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-34413/5-A
Matrix: Solid
Analysis Batch: 34644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 34413

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/13/22 14:26	09/17/22 13:45	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/13/22 14:26	09/17/22 13:45	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/13/22 14:26	09/17/22 13:45	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/13/22 14:26	09/17/22 13:45	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/13/22 14:26	09/17/22 13:45	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/13/22 14:26	09/17/22 13:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*	*09/13/22 14:26*	*09/17/22 13:45*	*1*
1,4-Difluorobenzene (Surr)	*113*		*70 - 130*	*09/13/22 14:26*	*09/17/22 13:45*	*1*

Lab Sample ID: MB 880-34677/5-A
Matrix: Solid
Analysis Batch: 34644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 34677

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/16/22 13:13	09/18/22 01:52	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/16/22 13:13	09/18/22 01:52	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/16/22 13:13	09/18/22 01:52	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/16/22 13:13	09/18/22 01:52	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/16/22 13:13	09/18/22 01:52	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/16/22 13:13	09/18/22 01:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*	*09/16/22 13:13*	*09/18/22 01:52*	*1*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*	*09/16/22 13:13*	*09/18/22 01:52*	*1*

Lab Sample ID: LCS 880-34677/1-A
Matrix: Solid
Analysis Batch: 34644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 34677

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.07598		mg/Kg		76	70 - 130		
Toluene			0.100	0.07427		mg/Kg		74	70 - 130		
Ethylbenzene			0.100	0.07874		mg/Kg		79	70 - 130		
m-Xylene & p-Xylene			0.200	0.1639		mg/Kg		82	70 - 130		
o-Xylene			0.100	0.08391		mg/Kg		84	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 880-34677/2-A
Matrix: Solid
Analysis Batch: 34644

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 34677

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.07327		mg/Kg		73	70 - 130	4	35

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

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

Lab Sample ID: LCSD 880-34677/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34644 — **Prep Batch: 34677**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.08021		mg/Kg		80	70 - 130	8	35
Ethylbenzene			0.100	0.08135		mg/Kg		81	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.1765		mg/Kg		88	70 - 130	7	35
o-Xylene			0.100	0.09069		mg/Kg		91	70 - 130	8	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*

Lab Sample ID: 880-19252-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34644 — **Prep Batch: 34677**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.0998	0.08548		mg/Kg		86	70 - 130
Toluene	<0.00201	U	0.0998	0.08620		mg/Kg		86	70 - 130
Ethylbenzene	<0.00201	U	0.0998	0.08822		mg/Kg		88	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1859		mg/Kg		93	70 - 130
o-Xylene	<0.00201	U	0.0998	0.09455		mg/Kg		95	70 - 130

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

Lab Sample ID: 880-19252-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34644 — **Prep Batch: 34677**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.08554		mg/Kg		86	70 - 130	0	35
Toluene	<0.00201	U	0.0996	0.08821		mg/Kg		89	70 - 130	2	35
Ethylbenzene	<0.00201	U	0.0996	0.08834		mg/Kg		89	70 - 130	0	35
m-Xylene & p-Xylene	<0.00402	U	0.199	0.1887		mg/Kg		95	70 - 130	1	35
o-Xylene	<0.00201	U	0.0996	0.09680		mg/Kg		97	70 - 130	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

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

Lab Sample ID: MB 880-34143/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34139 — **Prep Batch: 34143**

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		09/10/22 08:34	09/10/22 10:04	1

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

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

Lab Sample ID: MB 880-34143/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34139 — **Prep Batch: 34143**

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		09/10/22 08:34	09/10/22 10:04	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/10/22 08:34	09/10/22 10:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*114*		*70 - 130*	*09/10/22 08:34*	*09/10/22 10:04*	*1*
o-Terphenyl	*111*		*70 - 130*	*09/10/22 08:34*	*09/10/22 10:04*	*1*

Lab Sample ID: LCS 880-34143/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34139 — **Prep Batch: 34143**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1026		mg/Kg		103	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	933.9		mg/Kg		93	70 - 130		

Surrogate			*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane			*116*		*70 - 130*
o-Terphenyl			*117*		*70 - 130*

Lab Sample ID: LCSD 880-34143/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34139 — **Prep Batch: 34143**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	902.3		mg/Kg		90	70 - 130	13	20
Diesel Range Organics (Over C10-C28)			1000	908.5		mg/Kg		91	70 - 130	3	20

Surrogate			*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane			*117*		*70 - 130*
o-Terphenyl			*121*		*70 - 130*

Lab Sample ID: 890-2900-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34139 — **Prep Batch: 34143**

Analyte		Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10		<49.9	U	997	822.0		mg/Kg		81	70 - 130		
Diesel Range Organics (Over C10-C28)		<49.9	U	997	897.4		mg/Kg		88	70 - 130		

Surrogate			*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane			*97*		*70 - 130*
o-Terphenyl			*88*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

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

Lab Sample ID: 890-2900-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34139 — **Prep Batch: 34143**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	849.1		mg/Kg		83	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	935.9		mg/Kg		92	70 - 130	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*99*		*70 - 130*
o-Terphenyl	*90*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-34100/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 34369

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			09/13/22 12:02	1

Lab Sample ID: LCS 880-34100/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 34369

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	240.2		mg/Kg		96	90 - 110		

Lab Sample ID: LCSD 880-34100/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 34369

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	240.3		mg/Kg		96	90 - 110	0	20

Lab Sample ID: 890-2892-A-8-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 34369

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	223		249	473.2		mg/Kg		100	90 - 110		

Lab Sample ID: 890-2892-A-8-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 34369

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	223		249	472.5		mg/Kg		100	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

GC VOA

Prep Batch: 34413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-34413/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 34644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2895-1	SS02	Total/NA	Solid	8021B	34677
MB 880-34413/5-A	Method Blank	Total/NA	Solid	8021B	34413
MB 880-34677/5-A	Method Blank	Total/NA	Solid	8021B	34677
LCS 880-34677/1-A	Lab Control Sample	Total/NA	Solid	8021B	34677
LCSD 880-34677/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	34677
880-19252-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	34677
880-19252-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	34677

Prep Batch: 34677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2895-1	SS02	Total/NA	Solid	5035	
MB 880-34677/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-34677/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-34677/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-19252-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-19252-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 34773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2895-1	SS02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 34139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2895-1	SS02	Total/NA	Solid	8015B NM	34143
MB 880-34143/1-A	Method Blank	Total/NA	Solid	8015B NM	34143
LCS 880-34143/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	34143
LCSD 880-34143/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	34143
890-2900-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	34143
890-2900-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	34143

Prep Batch: 34143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2895-1	SS02	Total/NA	Solid	8015NM Prep	
MB 880-34143/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-34143/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-34143/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2900-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2900-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 34268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2895-1	SS02	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

HPLC/IC

Leach Batch: 34100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2895-1	SS02	Soluble	Solid	DI Leach	
MB 880-34100/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-34100/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-34100/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2892-A-8-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2892-A-8-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 34369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2895-1	SS02	Soluble	Solid	300.0	34100
MB 880-34100/1-A	Method Blank	Soluble	Solid	300.0	34100
LCS 880-34100/2-A	Lab Control Sample	Soluble	Solid	300.0	34100
LCSD 880-34100/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	34100
890-2892-A-8-B MS	Matrix Spike	Soluble	Solid	300.0	34100
890-2892-A-8-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	34100

Lab Chronicle

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

Client Sample ID: SS02

Date Collected: 09/07/22 09:35
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2895-1

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	34677	09/16/22 13:13	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	34644	09/18/22 09:58	MR	EET MID
Total/NA	Analysis	Total BTEX		1			34773	09/19/22 09:23	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34268	09/12/22 10:21	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	34143	09/10/22 08:34	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34139	09/10/22 17:42	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	34100	09/09/22 12:23	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	34369	09/13/22 14:23	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
Job ID: 890-2895-1
Project/Site: JRU DI 2 707H/JRU DI 2 702H
SDG: 03E1558049/03E1558019

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum Job ID: 890-2895-1
Project/Site: JRU DI 2 707H/JRU DI 2 702H SDG: 03E1558049/03E1558019

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2895-1
SDG: 03E1558049/03E1558019

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2895-1	SS02	Solid	09/07/22 09:35	09/08/22 09:30	0.5

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Tacoma Morrissey	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:	Garret.Green@ExxonMobil.com

Work Order Comments

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

Project Name:	JRU DI 2 707H/JRU DI 2 702H	Turn Around	
Project Number:	03E1558049 / 03E1558019	☑ Routine ☐ Rush	
Project Location:		Due Date:	
Sampler's Name:	Connor Whitman	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Samples Received Intact:	Yes No	Thermometer ID:	IR-NM007	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	5.0	
Total Containers:		Corrected Temperature:	4.8	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)	Sample Comments
SS02	S	9/7/2022	9:35	0.5	G	1		x	x	x	

ANALYSIS REQUEST

Parameters

890-2895 Chain of Custody

Preservative Codes

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

Sample Comments

Incident ID:
nAPP2211654411/ nAPP2208349430
Cost Center:
1632561001/1632571001
AFE:

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		9.8.22 9:30			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2895-1
SDG Number: 03E1558049/03E1558019

Login Number: 2895
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2895-1
SDG Number: 03E1558049/03E1558019

Login Number: 2895
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 09/09/22 11:04 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-2896-1
Laboratory Sample Delivery Group: 03E1558049/03E1558019
Client Project/Site: JRU DI 2 707H/JRU DI 2 702H

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

Attn: Tacoma Morrissey

JKramer

Authorized for release by:
9/20/2022 11:38:07 AM

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

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Laboratory Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

Table of Contents

Definitions/Glossary

Client: Ensolum Job ID: 890-2896-1
Project/Site: JRU DI 2 707H/JRU DI 2 702H SDG: 03E1558049/03E1558019

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

Job ID: 890-2896-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2896-1

Receipt
The sample was received on 9/8/2022 9:30 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.8°C

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-34690 and analytical batch 880-34832 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-19067-A-51-F). 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.

GC Semi VOA
Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (LCS 880-34144/2-A) and (LCSD 880-34144/3-A). Evidence of matrix interferences is not obvious.

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

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

Client Sample Results

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

Client Sample ID: SS01

Date Collected: 09/07/22 10:30
Date Received: 09/08/22 09:30
Sample Depth: 0.5

Lab Sample ID: 890-2896-1

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/16/22 16:06	09/20/22 07:31	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/16/22 16:06	09/20/22 07:31	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/16/22 16:06	09/20/22 07:31	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		09/16/22 16:06	09/20/22 07:31	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/16/22 16:06	09/20/22 07:31	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		09/16/22 16:06	09/20/22 07:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*09/16/22 16:06*	*09/20/22 07:31*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*	*09/16/22 16:06*	*09/20/22 07:31*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401		mg/Kg			09/20/22 09:49	1

Method: 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			09/12/22 11:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		09/10/22 08:45	09/10/22 13:21	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		09/10/22 08:45	09/10/22 13:21	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		09/10/22 08:45	09/10/22 13:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*74*		*70 - 130*	*09/10/22 08:45*	*09/10/22 13:21*	*1*
o-Terphenyl	*81*		*70 - 130*	*09/10/22 08:45*	*09/10/22 13:21*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**527**		5.00		mg/Kg			09/13/22 14:28	1

Surrogate Summary

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-19067-A-51-D MS	Matrix Spike	88	109
880-19067-A-51-E MSD	Matrix Spike Duplicate	88	109
890-2896-1	SS01	101	101
LCS 880-34690/1-A	Lab Control Sample	89	101
LCSD 880-34690/2-A	Lab Control Sample Dup	84	104
MB 880-34689/5-B	Method Blank	101	117
MB 880-34690/5-A	Method Blank	101	113

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2894-A-1-C MS	Matrix Spike	89	93
890-2894-A-1-D MSD	Matrix Spike Duplicate	89	91
890-2896-1	SS01	74	81
LCS 880-34144/2-A	Lab Control Sample	116	133 S1+
LCSD 880-34144/3-A	Lab Control Sample Dup	114	132 S1+
MB 880-34144/1-A	Method Blank	96	108

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-34689/5-B
Matrix: Solid
Analysis Batch: 34832

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 34689

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/16/22 15:45	09/19/22 17:24	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/16/22 15:45	09/19/22 17:24	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/16/22 15:45	09/19/22 17:24	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/16/22 15:45	09/19/22 17:24	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/16/22 15:45	09/19/22 17:24	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/16/22 15:45	09/19/22 17:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*09/16/22 15:45*	*09/19/22 17:24*	*1*
1,4-Difluorobenzene (Surr)	*117*		*70 - 130*	*09/16/22 15:45*	*09/19/22 17:24*	*1*

Lab Sample ID: MB 880-34690/5-A
Matrix: Solid
Analysis Batch: 34832

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 34690

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/16/22 16:06	09/20/22 05:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/16/22 16:06	09/20/22 05:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/16/22 16:06	09/20/22 05:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/16/22 16:06	09/20/22 05:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/16/22 16:06	09/20/22 05:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/16/22 16:06	09/20/22 05:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*09/16/22 16:06*	*09/20/22 05:00*	*1*
1,4-Difluorobenzene (Surr)	*113*		*70 - 130*	*09/16/22 16:06*	*09/20/22 05:00*	*1*

Lab Sample ID: LCS 880-34690/1-A
Matrix: Solid
Analysis Batch: 34832

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 34690

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09325		mg/Kg		93	70 - 130		
Toluene			0.100	0.08049		mg/Kg		80	70 - 130		
Ethylbenzene			0.100	0.07759		mg/Kg		78	70 - 130		
m-Xylene & p-Xylene			0.200	0.1618		mg/Kg		81	70 - 130		
o-Xylene			0.100	0.08093		mg/Kg		81	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-34690/2-A
Matrix: Solid
Analysis Batch: 34832

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 34690

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09922		mg/Kg		99	70 - 130	6	35

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

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

Lab Sample ID: LCSD 880-34690/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34832 — **Prep Batch: 34690**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.08461		mg/Kg		85	70 - 130	5	35
Ethylbenzene			0.100	0.08148		mg/Kg		81	70 - 130	5	35
m-Xylene & p-Xylene			0.200	0.1684		mg/Kg		84	70 - 130	4	35
o-Xylene			0.100	0.08379		mg/Kg		84	70 - 130	3	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*84*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

Lab Sample ID: 880-19067-A-51-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34832 — **Prep Batch: 34690**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.00286	F2 F1	0.0998	0.02851	F1	mg/Kg		26	70 - 130
Toluene	0.00518	F2 F1	0.0998	0.02409	F1	mg/Kg		19	70 - 130
Ethylbenzene	0.00860	F2 F1	0.0998	0.02194	F1	mg/Kg		13	70 - 130
m-Xylene & p-Xylene	0.0175	F2 F1	0.200	0.04087	F1	mg/Kg		12	70 - 130
o-Xylene	0.00724	F2 F1	0.0998	0.02291	F1	mg/Kg		16	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*

Lab Sample ID: 880-19067-A-51-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34832 — **Prep Batch: 34690**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.00286	F2 F1	0.0990	0.05017	F2 F1	mg/Kg		48	70 - 130	55	35
Toluene	0.00518	F2 F1	0.0990	0.04534	F2 F1	mg/Kg		41	70 - 130	61	35
Ethylbenzene	0.00860	F2 F1	0.0990	0.04136	F2 F1	mg/Kg		33	70 - 130	61	35
m-Xylene & p-Xylene	0.0175	F2 F1	0.198	0.07749	F2 F1	mg/Kg		30	70 - 130	62	35
o-Xylene	0.00724	F2 F1	0.0990	0.04246	F2 F1	mg/Kg		36	70 - 130	60	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*

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

Lab Sample ID: MB 880-34144/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34141 — **Prep Batch: 34144**

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		09/10/22 08:45	09/10/22 10:04	1

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

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

Lab Sample ID: MB 880-34144/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34141 — **Prep Batch: 34144**

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		09/10/22 08:45	09/10/22 10:04	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/10/22 08:45	09/10/22 10:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*96*		*70 - 130*	*09/10/22 08:45*	*09/10/22 10:04*	*1*
o-Terphenyl	*108*		*70 - 130*	*09/10/22 08:45*	*09/10/22 10:04*	*1*

Lab Sample ID: LCS 880-34144/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34141 — **Prep Batch: 34144**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	819.2		mg/Kg		82	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	765.4		mg/Kg		77	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*116*		*70 - 130*
o-Terphenyl	*133*	*S1+*	*70 - 130*

Lab Sample ID: LCSD 880-34144/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34141 — **Prep Batch: 34144**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	844.5		mg/Kg		84	70 - 130	3	20
Diesel Range Organics (Over C10-C28)			1000	758.8		mg/Kg		76	70 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*114*		*70 - 130*
o-Terphenyl	*132*	*S1+*	*70 - 130*

Lab Sample ID: 890-2894-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34141 — **Prep Batch: 34144**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	997	899.6		mg/Kg		88	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	997	730.7		mg/Kg		70	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*89*		*70 - 130*
o-Terphenyl	*93*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

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

Lab Sample ID: 890-2894-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 34141 — **Prep Batch: 34144**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	998	878.0		mg/Kg		86	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.9	U	998	733.6		mg/Kg		70	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*89*		*70 - 130*
o-Terphenyl	*91*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-34100/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 34369

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			09/13/22 12:02	1

Lab Sample ID: LCS 880-34100/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 34369

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	240.2		mg/Kg		96	90 - 110		

Lab Sample ID: LCSD 880-34100/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 34369

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	240.3		mg/Kg		96	90 - 110	0	20

Lab Sample ID: 890-2892-A-8-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 34369

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	223		249	473.2		mg/Kg		100	90 - 110		

Lab Sample ID: 890-2892-A-8-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 34369

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	223		249	472.5		mg/Kg		100	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

GC VOA

Prep Batch: 34689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-34689/5-B	Method Blank	Total/NA	Solid	5035	

Prep Batch: 34690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2896-1	SS01	Total/NA	Solid	5035	
MB 880-34690/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-34690/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-34690/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-19067-A-51-D MS	Matrix Spike	Total/NA	Solid	5035	
880-19067-A-51-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 34832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2896-1	SS01	Total/NA	Solid	8021B	34690
MB 880-34689/5-B	Method Blank	Total/NA	Solid	8021B	34689
MB 880-34690/5-A	Method Blank	Total/NA	Solid	8021B	34690
LCS 880-34690/1-A	Lab Control Sample	Total/NA	Solid	8021B	34690
LCSD 880-34690/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	34690
880-19067-A-51-D MS	Matrix Spike	Total/NA	Solid	8021B	34690
880-19067-A-51-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	34690

Analysis Batch: 34922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2896-1	SS01	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 34141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2896-1	SS01	Total/NA	Solid	8015B NM	34144
MB 880-34144/1-A	Method Blank	Total/NA	Solid	8015B NM	34144
LCS 880-34144/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	34144
LCSD 880-34144/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	34144
890-2894-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	34144
890-2894-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	34144

Prep Batch: 34144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2896-1	SS01	Total/NA	Solid	8015NM Prep	
MB 880-34144/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-34144/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-34144/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2894-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2894-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 34281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2896-1	SS01	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

HPLC/IC

Leach Batch: 34100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2896-1	SS01	Soluble	Solid	DI Leach	
MB 880-34100/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-34100/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-34100/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2892-A-8-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2892-A-8-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 34369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2896-1	SS01	Soluble	Solid	300.0	34100
MB 880-34100/1-A	Method Blank	Soluble	Solid	300.0	34100
LCS 880-34100/2-A	Lab Control Sample	Soluble	Solid	300.0	34100
LCSD 880-34100/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	34100
890-2892-A-8-B MS	Matrix Spike	Soluble	Solid	300.0	34100
890-2892-A-8-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	34100

Lab Chronicle

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

Client Sample ID: SS01

Date Collected: 09/07/22 10:30
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2896-1

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	34690	09/16/22 16:06	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	34832	09/20/22 07:31	MR	EET MID
Total/NA	Analysis	Total BTEX		1			34922	09/20/22 09:49	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34281	09/12/22 11:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	34144	09/10/22 08:45	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34141	09/10/22 13:21	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	34100	09/09/22 12:23	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	34369	09/13/22 14:28	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 Job ID: 890-2896-1
Project/Site: JRU DI 2 707H/JRU DI 2 702H SDG: 03E1558049/03E1558019

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: JRU DI 2 707H/JRU DI 2 702H

Job ID: 890-2896-1
SDG: 03E1558049/03E1558019

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2896-1	SS01	Solid	09/07/22 10:30	09/08/22 09:30	0.5

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Tacoma Morrissey	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:	Garret.Green@ExxonMobil.com

Work Order Comments

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

Project Name:	JRU DI 2 707H/JRU DI 2 702H	Turn Around	
Project Number:	03E1558049 / 03E1558019	☑ Routine ☐ Rush	
Project Location:		Due Date:	
Sampler's Name:	Connor Whitman	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TM007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	5.0
Total Containers:		Corrected Temperature:	4.8

Preservative Codes

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

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: CHLORIDES (EPA: 300.0)	Parameters: TPH (8015)	Parameters: BTEX (8021)
SS01	S	9/7/2022	10:30	0.5	G	1		x	x	x

890-2896 Chain of Custody

Sample Comments

Incident ID:
nAPP2211654411/ nAPP2208349430
Cost Center:
1632561001/1632571001
AFE:

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn

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

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			9.8.22 936			
3				4		
5				6		

Revised Date 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2896-1
SDG Number: 03E1558049/03E1558019

Login Number: 2896
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2896-1
SDG Number: 03E1558049/03E1558019

Login Number: 2896
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 09/09/22 11:04 AM

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-2902-1
Laboratory Sample Delivery Group: 03E1558049
Client Project/Site: JRU DI 2 702H

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

Attn: Tacoma Morrissey

JKramer

Authorized for release by:
9/20/2022 11:33:18 AM

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

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: JRU DI 2 702H

Laboratory Job ID: 890-2902-1
SDG: 03E1558049

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Job ID: 890-2902-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2902-1

Receipt
The samples were received on 9/8/2022 9:30 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 4.8°C

GC VOA
Method 8021B: Surrogate recovery for the following sample was outside control limits: (LCS 880-34801/1-A). Evidence of matrix interferences is not obvious.

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

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

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

Client Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Client Sample ID: PH01

Date Collected: 09/06/22 11:30
Date Received: 09/08/22 09:30
Sample Depth: 0.5

Lab Sample ID: 890-2902-1
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 03:29	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 03:29	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 03:29	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		09/15/22 14:33	09/20/22 03:29	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 03:29	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		09/15/22 14:33	09/20/22 03:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*	*09/15/22 14:33*	*09/20/22 03:29*	*1*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*	*09/15/22 14:33*	*09/20/22 03:29*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401		mg/Kg			09/20/22 09:23	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**344**		50.0		mg/Kg			09/12/22 10:21	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		09/10/22 08:34	09/10/22 13:21	1
Diesel Range Organics (Over C10-C28)	**344**		50.0		mg/Kg		09/10/22 08:34	09/10/22 13:21	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/10/22 08:34	09/10/22 13:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*94*		*70 - 130*	*09/10/22 08:34*	*09/10/22 13:21*	*1*
o-Terphenyl	*89*		*70 - 130*	*09/10/22 08:34*	*09/10/22 13:21*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2100**		25.2		mg/Kg			09/13/22 15:31	5

Client Sample ID: PH01A

Date Collected: 09/06/22 13:55
Date Received: 09/08/22 09:30
Sample Depth: 1

Lab Sample ID: 890-2902-2
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		09/15/22 14:33	09/20/22 03:49	1
Toluene	<0.00202	U	0.00202		mg/Kg		09/15/22 14:33	09/20/22 03:49	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		09/15/22 14:33	09/20/22 03:49	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		09/15/22 14:33	09/20/22 03:49	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		09/15/22 14:33	09/20/22 03:49	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		09/15/22 14:33	09/20/22 03:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*	*09/15/22 14:33*	*09/20/22 03:49*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Client Sample ID: PH01A

Date Collected: 09/06/22 13:55
Date Received: 09/08/22 09:30
Sample Depth: 1

Lab Sample ID: 890-2902-2

Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*76*		*70 - 130*	*09/15/22 14:33*	*09/20/22 03:49*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			09/20/22 09:23	1

Method: 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			09/12/22 10:21	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/10/22 08:34	09/10/22 13:42	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		09/10/22 08:34	09/10/22 13:42	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/10/22 08:34	09/10/22 13:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*91*		*70 - 130*	*09/10/22 08:34*	*09/10/22 13:42*	*1*
o-Terphenyl	*84*		*70 - 130*	*09/10/22 08:34*	*09/10/22 13:42*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1280**		25.0	mg/Kg			09/13/22 15:36	5

Client Sample ID: PH02

Date Collected: 09/06/22 11:35
Date Received: 09/08/22 09:30
Sample Depth: 0.5

Lab Sample ID: 890-2902-3

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/15/22 14:33	09/20/22 04:10	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/15/22 14:33	09/20/22 04:10	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/15/22 14:33	09/20/22 04:10	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		09/15/22 14:33	09/20/22 04:10	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/15/22 14:33	09/20/22 04:10	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		09/15/22 14:33	09/20/22 04:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*	*09/15/22 14:33*	*09/20/22 04:10*	*1*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*	*09/15/22 14:33*	*09/20/22 04:10*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			09/20/22 09:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**1230**		50.0	mg/Kg			09/12/22 10:21	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Client Sample ID: PH02

Date Collected: 09/06/22 11:35
Date Received: 09/08/22 09:30
Sample Depth: 0.5

Lab Sample ID: 890-2902-3
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		09/10/22 08:34	09/10/22 14:04	1
Diesel Range Organics (Over C10-C28)	**1230**		50.0		mg/Kg		09/10/22 08:34	09/10/22 14:04	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/10/22 08:34	09/10/22 14:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*94*		*70 - 130*	*09/10/22 08:34*	*09/10/22 14:04*	*1*
o-Terphenyl	*89*		*70 - 130*	*09/10/22 08:34*	*09/10/22 14:04*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8000**		100		mg/Kg			09/13/22 15:51	20

Client Sample ID: PH02A

Date Collected: 09/06/22 14:00
Date Received: 09/08/22 09:30
Sample Depth: 1

Lab Sample ID: 890-2902-4
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 04:30	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 04:30	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 04:30	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		09/15/22 14:33	09/20/22 04:30	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 04:30	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		09/15/22 14:33	09/20/22 04:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*	*09/15/22 14:33*	*09/20/22 04:30*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*	*09/15/22 14:33*	*09/20/22 04:30*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399		mg/Kg			09/20/22 09:23	1

Method: 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			09/12/22 10:21	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		09/10/22 08:34	09/10/22 14:26	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		09/10/22 08:34	09/10/22 14:26	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		09/10/22 08:34	09/10/22 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*100*		*70 - 130*	*09/10/22 08:34*	*09/10/22 14:26*	*1*
o-Terphenyl	*92*		*70 - 130*	*09/10/22 08:34*	*09/10/22 14:26*	*1*

Client Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Client Sample ID: PH02A

Lab Sample ID: 890-2902-4
Matrix: Solid
Date Collected: 09/06/22 14:00
Date Received: 09/08/22 09:30
Sample Depth: 1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1960**		24.8		mg/Kg			09/13/22 15:55	5

Client Sample ID: PH03

Lab Sample ID: 890-2902-5
Matrix: Solid
Date Collected: 09/06/22 11:40
Date Received: 09/08/22 09:30
Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 04:51	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 04:51	1
Ethylbenzene	**0.00256**		0.00200		mg/Kg		09/15/22 14:33	09/20/22 04:51	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		09/15/22 14:33	09/20/22 04:51	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 04:51	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		09/15/22 14:33	09/20/22 04:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*	*09/15/22 14:33*	*09/20/22 04:51*	*1*
1,4-Difluorobenzene (Surr)	*86*		*70 - 130*	*09/15/22 14:33*	*09/20/22 04:51*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401		mg/Kg			09/20/22 09:23	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**110**		49.9		mg/Kg			09/12/22 10:21	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		09/10/22 08:34	09/10/22 14:48	1
Diesel Range Organics (Over C10-C28)	**110**		49.9		mg/Kg		09/10/22 08:34	09/10/22 14:48	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		09/10/22 08:34	09/10/22 14:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*95*		*70 - 130*	*09/10/22 08:34*	*09/10/22 14:48*	*1*
o-Terphenyl	*90*		*70 - 130*	*09/10/22 08:34*	*09/10/22 14:48*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7740**		49.8		mg/Kg			09/13/22 16:00	10

Client Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Client Sample ID: PH03A

Date Collected: 09/06/22 14:05
Date Received: 09/08/22 09:30
Sample Depth: 1

Lab Sample ID: 890-2902-6
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		09/15/22 14:33	09/20/22 05:11	1
Toluene	<0.00201	U	0.00201		mg/Kg		09/15/22 14:33	09/20/22 05:11	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		09/15/22 14:33	09/20/22 05:11	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		09/15/22 14:33	09/20/22 05:11	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		09/15/22 14:33	09/20/22 05:11	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		09/15/22 14:33	09/20/22 05:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*	*09/15/22 14:33*	*09/20/22 05:11*	*1*
1,4-Difluorobenzene (Surr)	*83*		*70 - 130*	*09/15/22 14:33*	*09/20/22 05:11*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			09/20/22 09:23	1

Method: 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			09/12/22 10:21	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		09/10/22 08:34	09/10/22 15:09	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		09/10/22 08:34	09/10/22 15:09	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		09/10/22 08:34	09/10/22 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*93*		*70 - 130*	*09/10/22 08:34*	*09/10/22 15:09*	*1*
o-Terphenyl	*87*		*70 - 130*	*09/10/22 08:34*	*09/10/22 15:09*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4710**		50.4		mg/Kg			09/13/22 16:05	10

Client Sample ID: PH04

Date Collected: 09/06/22 11:45
Date Received: 09/08/22 09:30
Sample Depth: 0.5

Lab Sample ID: 890-2902-7
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 05:32	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 05:32	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 05:32	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		09/15/22 14:33	09/20/22 05:32	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/20/22 05:32	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		09/15/22 14:33	09/20/22 05:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*	*09/15/22 14:33*	*09/20/22 05:32*	*1*

Client Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Client Sample ID: PH04

Date Collected: 09/06/22 11:45
Date Received: 09/08/22 09:30
Sample Depth: 0.5

Lab Sample ID: 890-2902-7

Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*85*		*70 - 130*	*09/15/22 14:33*	*09/20/22 05:32*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			09/20/22 09:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**1230**		49.9	mg/Kg			09/12/22 10:21	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/10/22 08:34	09/10/22 15:53	1
Diesel Range Organics (Over C10-C28)	**1230**		49.9	mg/Kg		09/10/22 08:34	09/10/22 15:53	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/10/22 08:34	09/10/22 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*93*		*70 - 130*	*09/10/22 08:34*	*09/10/22 15:53*	*1*
o-Terphenyl	*89*		*70 - 130*	*09/10/22 08:34*	*09/10/22 15:53*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5900**		50.5	mg/Kg			09/13/22 16:10	10

Client Sample ID: PH04A

Date Collected: 09/06/22 14:10
Date Received: 09/08/22 09:30
Sample Depth: 1

Lab Sample ID: 890-2902-8

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/15/22 14:33	09/20/22 05:52	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/15/22 14:33	09/20/22 05:52	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/15/22 14:33	09/20/22 05:52	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/15/22 14:33	09/20/22 05:52	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/15/22 14:33	09/20/22 05:52	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/15/22 14:33	09/20/22 05:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*	*09/15/22 14:33*	*09/20/22 05:52*	*1*
1,4-Difluorobenzene (Surr)	*86*		*70 - 130*	*09/15/22 14:33*	*09/20/22 05:52*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/20/22 09:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			09/12/22 10:21	1

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Client Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Client Sample ID: PH04A

Date Collected: 09/06/22 14:10
Date Received: 09/08/22 09:30
Sample Depth: 1

Lab Sample ID: 890-2902-8

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		09/10/22 08:34	09/10/22 16:15	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		09/10/22 08:34	09/10/22 16:15	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/10/22 08:34	09/10/22 16:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*09/10/22 08:34*	*09/10/22 16:15*	*1*
o-Terphenyl	*98*		*70 - 130*	*09/10/22 08:34*	*09/10/22 16:15*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**739**		5.00		mg/Kg			09/13/22 16:15	1

Surrogate Summary

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-18965-A-1-G MS	Matrix Spike	113	106
880-18965-A-1-H MSD	Matrix Spike Duplicate	109	105
890-2902-1	PH01	114	89
890-2902-2	PH01A	117	76
890-2902-3	PH02	117	92
890-2902-4	PH02A	114	88
890-2902-5	PH03	115	86
890-2902-6	PH03A	115	83
890-2902-7	PH04	109	85
890-2902-8	PH04A	116	86
LCS 880-34597/1-A	Lab Control Sample	120	103
LCS 880-34801/1-A	Lab Control Sample	131 S1+	98
LCSD 880-34597/2-A	Lab Control Sample Dup	115	106
LCSD 880-34801/2-A	Lab Control Sample Dup	128	97
MB 880-34597/5-A	Method Blank	103	89
MB 880-34801/5-A	Method Blank	104	84

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2900-A-1-E MS	Matrix Spike	97	88
890-2900-A-1-F MSD	Matrix Spike Duplicate	99	90
890-2902-1	PH01	94	89
890-2902-2	PH01A	91	84
890-2902-3	PH02	94	89
890-2902-4	PH02A	100	92
890-2902-5	PH03	95	90
890-2902-6	PH03A	93	87
890-2902-7	PH04	93	89
890-2902-8	PH04A	108	98
LCS 880-34143/2-A	Lab Control Sample	116	117
LCSD 880-34143/3-A	Lab Control Sample Dup	117	121
MB 880-34143/1-A	Method Blank	114	111

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-34597/5-A
Matrix: Solid
Analysis Batch: 34746

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 34597

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/19/22 22:01	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/19/22 22:01	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/19/22 22:01	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/15/22 14:33	09/19/22 22:01	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/15/22 14:33	09/19/22 22:01	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/15/22 14:33	09/19/22 22:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*	*09/15/22 14:33*	*09/19/22 22:01*	*1*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*	*09/15/22 14:33*	*09/19/22 22:01*	*1*

Lab Sample ID: LCS 880-34597/1-A
Matrix: Solid
Analysis Batch: 34746

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 34597

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.08304		mg/Kg		83	70 - 130		
Toluene			0.100	0.07619		mg/Kg		76	70 - 130		
Ethylbenzene			0.100	0.08173		mg/Kg		82	70 - 130		
m-Xylene & p-Xylene			0.200	0.1722		mg/Kg		86	70 - 130		
o-Xylene			0.100	0.09898		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*120*		*70 - 130*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*

Lab Sample ID: LCSD 880-34597/2-A
Matrix: Solid
Analysis Batch: 34746

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 34597

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.08511		mg/Kg		85	70 - 130	2	35
Toluene			0.100	0.07870		mg/Kg		79	70 - 130	3	35
Ethylbenzene			0.100	0.08172		mg/Kg		82	70 - 130	0	35
m-Xylene & p-Xylene			0.200	0.1710		mg/Kg		85	70 - 130	1	35
o-Xylene			0.100	0.09826		mg/Kg		98	70 - 130	1	35

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

Lab Sample ID: MB 880-34801/5-A
Matrix: Solid
Analysis Batch: 34746

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 34801

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/19/22 10:02	09/19/22 11:26	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/19/22 10:02	09/19/22 11:26	1

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QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

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

Lab Sample ID: MB 880-34801/5-A
Matrix: Solid
Analysis Batch: 34746

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 34801

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/19/22 10:02	09/19/22 11:26	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/19/22 10:02	09/19/22 11:26	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/19/22 10:02	09/19/22 11:26	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/19/22 10:02	09/19/22 11:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*09/19/22 10:02*	*09/19/22 11:26*	*1*
1,4-Difluorobenzene (Surr)	*84*		*70 - 130*	*09/19/22 10:02*	*09/19/22 11:26*	*1*

Lab Sample ID: LCS 880-34801/1-A
Matrix: Solid
Analysis Batch: 34746

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 34801

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.08639		mg/Kg		86	70 - 130		
Toluene			0.100	0.08783		mg/Kg		88	70 - 130		
Ethylbenzene			0.100	0.09574		mg/Kg		96	70 - 130		
m-Xylene & p-Xylene			0.200	0.2089		mg/Kg		104	70 - 130		
o-Xylene			0.100	0.1183		mg/Kg		118	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*131*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 880-34801/2-A
Matrix: Solid
Analysis Batch: 34746

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 34801

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.08424		mg/Kg		84	70 - 130	3	35
Toluene			0.100	0.08924		mg/Kg		89	70 - 130	2	35
Ethylbenzene			0.100	0.09986		mg/Kg		100	70 - 130	4	35
m-Xylene & p-Xylene			0.200	0.2198		mg/Kg		110	70 - 130	5	35
o-Xylene			0.100	0.1256		mg/Kg		126	70 - 130	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*128*		*70 - 130*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*

Lab Sample ID: 880-18965-A-1-G MS
Matrix: Solid
Analysis Batch: 34746

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 34801

Analyte		Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene		<0.00199	U	0.0998	0.09703		mg/Kg		97	70 - 130		
Toluene		<0.00199	U	0.0998	0.09095		mg/Kg		91	70 - 130		
Ethylbenzene		<0.00199	U	0.0998	0.09396		mg/Kg		94	70 - 130		
m-Xylene & p-Xylene		<0.00398	U	0.200	0.1947		mg/Kg		98	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

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

Lab Sample ID: 880-18965-A-1-G MS
Matrix: Solid
Analysis Batch: 34746

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 34801

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
o-Xylene	<0.00199	U	0.0998	0.1099		mg/Kg		110	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*

Lab Sample ID: 880-18965-A-1-H MSD
Matrix: Solid
Analysis Batch: 34746

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 34801

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	0.08949		mg/Kg		90	70 - 130	8	35
Toluene	<0.00199	U	0.0996	0.08282		mg/Kg		83	70 - 130	9	35
Ethylbenzene	<0.00199	U	0.0996	0.08351		mg/Kg		84	70 - 130	12	35
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1723		mg/Kg		86	70 - 130	12	35
o-Xylene	<0.00199	U	0.0996	0.09731		mg/Kg		98	70 - 130	12	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*

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

Lab Sample ID: MB 880-34143/1-A
Matrix: Solid
Analysis Batch: 34139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 34143

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		09/10/22 08:34	09/10/22 10:04	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/10/22 08:34	09/10/22 10:04	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/10/22 08:34	09/10/22 10:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*114*		*70 - 130*	*09/10/22 08:34*	*09/10/22 10:04*	*1*
o-Terphenyl	*111*		*70 - 130*	*09/10/22 08:34*	*09/10/22 10:04*	*1*

Lab Sample ID: LCS 880-34143/2-A
Matrix: Solid
Analysis Batch: 34139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 34143

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1026		mg/Kg		103	70 - 130
Diesel Range Organics (Over C10-C28)	1000	933.9		mg/Kg		93	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

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

Lab Sample ID: LCS 880-34143/2-A
Matrix: Solid
Analysis Batch: 34139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 34143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	116		70 - 130
o-Terphenyl	117		70 - 130

Lab Sample ID: LCSD 880-34143/3-A
Matrix: Solid
Analysis Batch: 34139

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 34143

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	902.3		mg/Kg		90	70 - 130	13	20
Diesel Range Organics (Over C10-C28)			1000	908.5		mg/Kg		91	70 - 130	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	117		70 - 130
o-Terphenyl	121		70 - 130

Lab Sample ID: 890-2900-A-1-E MS
Matrix: Solid
Analysis Batch: 34139

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 34143

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	997	822.0		mg/Kg		81	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	997	897.4		mg/Kg		88	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	97		70 - 130
o-Terphenyl	88		70 - 130

Lab Sample ID: 890-2900-A-1-F MSD
Matrix: Solid
Analysis Batch: 34139

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 34143

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	849.1		mg/Kg		83	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	935.9		mg/Kg		92	70 - 130	4	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	99		70 - 130
o-Terphenyl	90		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-34103/1-A
Matrix: Solid
Analysis Batch: 34370

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			09/13/22 14:52	1

Lab Sample ID: LCS 880-34103/2-A
Matrix: Solid
Analysis Batch: 34370

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	241.8		mg/Kg		97	90 - 110		

Lab Sample ID: LCSD 880-34103/3-A
Matrix: Solid
Analysis Batch: 34370

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	242.1		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 890-2902-8 MS
Matrix: Solid
Analysis Batch: 34370

Client Sample ID: PH04A
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	739		250	968.5		mg/Kg		92	90 - 110		

Lab Sample ID: 890-2902-8 MSD
Matrix: Solid
Analysis Batch: 34370

Client Sample ID: PH04A
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	739		250	970.6		mg/Kg		93	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

GC VOA

Prep Batch: 34597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2902-1	PH01	Total/NA	Solid	5035	
890-2902-2	PH01A	Total/NA	Solid	5035	
890-2902-3	PH02	Total/NA	Solid	5035	
890-2902-4	PH02A	Total/NA	Solid	5035	
890-2902-5	PH03	Total/NA	Solid	5035	
890-2902-6	PH03A	Total/NA	Solid	5035	
890-2902-7	PH04	Total/NA	Solid	5035	
890-2902-8	PH04A	Total/NA	Solid	5035	
MB 880-34597/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-34597/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-34597/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 34746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2902-1	PH01	Total/NA	Solid	8021B	34597
890-2902-2	PH01A	Total/NA	Solid	8021B	34597
890-2902-3	PH02	Total/NA	Solid	8021B	34597
890-2902-4	PH02A	Total/NA	Solid	8021B	34597
890-2902-5	PH03	Total/NA	Solid	8021B	34597
890-2902-6	PH03A	Total/NA	Solid	8021B	34597
890-2902-7	PH04	Total/NA	Solid	8021B	34597
890-2902-8	PH04A	Total/NA	Solid	8021B	34597
MB 880-34597/5-A	Method Blank	Total/NA	Solid	8021B	34597
MB 880-34801/5-A	Method Blank	Total/NA	Solid	8021B	34801
LCS 880-34597/1-A	Lab Control Sample	Total/NA	Solid	8021B	34597
LCS 880-34801/1-A	Lab Control Sample	Total/NA	Solid	8021B	34801
LCSD 880-34597/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	34597
LCSD 880-34801/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	34801
880-18965-A-1-G MS	Matrix Spike	Total/NA	Solid	8021B	34801
880-18965-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	34801

Prep Batch: 34801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-34801/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-34801/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-34801/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-18965-A-1-G MS	Matrix Spike	Total/NA	Solid	5035	
880-18965-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 34901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2902-1	PH01	Total/NA	Solid	Total BTEX	
890-2902-2	PH01A	Total/NA	Solid	Total BTEX	
890-2902-3	PH02	Total/NA	Solid	Total BTEX	
890-2902-4	PH02A	Total/NA	Solid	Total BTEX	
890-2902-5	PH03	Total/NA	Solid	Total BTEX	
890-2902-6	PH03A	Total/NA	Solid	Total BTEX	
890-2902-7	PH04	Total/NA	Solid	Total BTEX	
890-2902-8	PH04A	Total/NA	Solid	Total BTEX	

QC Association Summary

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

GC Semi VOA

Analysis Batch: 34139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2902-1	PH01	Total/NA	Solid	8015B NM	34143
890-2902-2	PH01A	Total/NA	Solid	8015B NM	34143
890-2902-3	PH02	Total/NA	Solid	8015B NM	34143
890-2902-4	PH02A	Total/NA	Solid	8015B NM	34143
890-2902-5	PH03	Total/NA	Solid	8015B NM	34143
890-2902-6	PH03A	Total/NA	Solid	8015B NM	34143
890-2902-7	PH04	Total/NA	Solid	8015B NM	34143
890-2902-8	PH04A	Total/NA	Solid	8015B NM	34143
MB 880-34143/1-A	Method Blank	Total/NA	Solid	8015B NM	34143
LCS 880-34143/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	34143
LCSD 880-34143/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	34143
890-2900-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	34143
890-2900-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	34143

Prep Batch: 34143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2902-1	PH01	Total/NA	Solid	8015NM Prep	
890-2902-2	PH01A	Total/NA	Solid	8015NM Prep	
890-2902-3	PH02	Total/NA	Solid	8015NM Prep	
890-2902-4	PH02A	Total/NA	Solid	8015NM Prep	
890-2902-5	PH03	Total/NA	Solid	8015NM Prep	
890-2902-6	PH03A	Total/NA	Solid	8015NM Prep	
890-2902-7	PH04	Total/NA	Solid	8015NM Prep	
890-2902-8	PH04A	Total/NA	Solid	8015NM Prep	
MB 880-34143/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-34143/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-34143/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2900-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2900-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 34266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2902-1	PH01	Total/NA	Solid	8015 NM	
890-2902-2	PH01A	Total/NA	Solid	8015 NM	
890-2902-3	PH02	Total/NA	Solid	8015 NM	
890-2902-4	PH02A	Total/NA	Solid	8015 NM	
890-2902-5	PH03	Total/NA	Solid	8015 NM	
890-2902-6	PH03A	Total/NA	Solid	8015 NM	
890-2902-7	PH04	Total/NA	Solid	8015 NM	
890-2902-8	PH04A	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 34103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2902-1	PH01	Soluble	Solid	DI Leach	
890-2902-2	PH01A	Soluble	Solid	DI Leach	
890-2902-3	PH02	Soluble	Solid	DI Leach	
890-2902-4	PH02A	Soluble	Solid	DI Leach	
890-2902-5	PH03	Soluble	Solid	DI Leach	
890-2902-6	PH03A	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

HPLC/IC (Continued)

Leach Batch: 34103 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2902-7	PH04	Soluble	Solid	DI Leach	
890-2902-8	PH04A	Soluble	Solid	DI Leach	
MB 880-34103/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-34103/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-34103/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2902-8 MS	PH04A	Soluble	Solid	DI Leach	
890-2902-8 MSD	PH04A	Soluble	Solid	DI Leach	

Analysis Batch: 34370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2902-1	PH01	Soluble	Solid	300.0	34103
890-2902-2	PH01A	Soluble	Solid	300.0	34103
890-2902-3	PH02	Soluble	Solid	300.0	34103
890-2902-4	PH02A	Soluble	Solid	300.0	34103
890-2902-5	PH03	Soluble	Solid	300.0	34103
890-2902-6	PH03A	Soluble	Solid	300.0	34103
890-2902-7	PH04	Soluble	Solid	300.0	34103
890-2902-8	PH04A	Soluble	Solid	300.0	34103
MB 880-34103/1-A	Method Blank	Soluble	Solid	300.0	34103
LCS 880-34103/2-A	Lab Control Sample	Soluble	Solid	300.0	34103
LCSD 880-34103/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	34103
890-2902-8 MS	PH04A	Soluble	Solid	300.0	34103
890-2902-8 MSD	PH04A	Soluble	Solid	300.0	34103

Lab Chronicle

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Client Sample ID: PH01

Date Collected: 09/06/22 11:30
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2902-1
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	34597	09/15/22 14:33	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	34746	09/20/22 03:29	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			34901	09/20/22 09:23	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34266	09/12/22 10:21	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	34143	09/10/22 08:34	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34139	09/10/22 13:21	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	34103	09/09/22 12:30	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	34370	09/13/22 15:31	CH	EET MID

Client Sample ID: PH01A

Date Collected: 09/06/22 13:55
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2902-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	34597	09/15/22 14:33	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	34746	09/20/22 03:49	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			34901	09/20/22 09:23	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34266	09/12/22 10:21	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	34143	09/10/22 08:34	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34139	09/10/22 13:42	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	34103	09/09/22 12:30	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	34370	09/13/22 15:36	CH	EET MID

Client Sample ID: PH02

Date Collected: 09/06/22 11:35
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2902-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	34597	09/15/22 14:33	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	34746	09/20/22 04:10	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			34901	09/20/22 09:23	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34266	09/12/22 10:21	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	34143	09/10/22 08:34	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34139	09/10/22 14:04	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	34103	09/09/22 12:30	KS	EET MID
Soluble	Analysis	300.0		20	50 mL	50 mL	34370	09/13/22 15:51	CH	EET MID

Client Sample ID: PH02A

Date Collected: 09/06/22 14:00
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2902-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	34597	09/15/22 14:33	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	34746	09/20/22 04:30	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			34901	09/20/22 09:23	AJ	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Client Sample ID: PH02A
Date Collected: 09/06/22 14:00
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2902-4
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			34266	09/12/22 10:21	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	34143	09/10/22 08:34	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34139	09/10/22 14:26	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	34103	09/09/22 12:30	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	34370	09/13/22 15:55	CH	EET MID

Client Sample ID: PH03
Date Collected: 09/06/22 11:40
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2902-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	34597	09/15/22 14:33	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	34746	09/20/22 04:51	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			34901	09/20/22 09:23	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34266	09/12/22 10:21	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	34143	09/10/22 08:34	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34139	09/10/22 14:48	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	34103	09/09/22 12:30	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	34370	09/13/22 16:00	CH	EET MID

Client Sample ID: PH03A
Date Collected: 09/06/22 14:05
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2902-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	34597	09/15/22 14:33	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	34746	09/20/22 05:11	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			34901	09/20/22 09:23	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34266	09/12/22 10:21	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	34143	09/10/22 08:34	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34139	09/10/22 15:09	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	34103	09/09/22 12:30	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	34370	09/13/22 16:05	CH	EET MID

Client Sample ID: PH04
Date Collected: 09/06/22 11:45
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2902-7
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	34597	09/15/22 14:33	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	34746	09/20/22 05:32	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			34901	09/20/22 09:23	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34266	09/12/22 10:21	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	34143	09/10/22 08:34	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34139	09/10/22 15:53	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Client Sample ID: PH04

Date Collected: 09/06/22 11:45
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2902-7

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			4.95 g	50 mL	34103	09/09/22 12:30	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	34370	09/13/22 16:10	CH	EET MID

Client Sample ID: PH04A

Date Collected: 09/06/22 14:10
Date Received: 09/08/22 09:30

Lab Sample ID: 890-2902-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	34597	09/15/22 14:33	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	34746	09/20/22 05:52	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			34901	09/20/22 09:23	AJ	EET MID
Total/NA	Analysis	8015 NM		1			34266	09/12/22 10:21	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	34143	09/10/22 08:34	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34139	09/10/22 16:15	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	34103	09/09/22 12:30	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	34370	09/13/22 16:15	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: JRU DI 2 702H

Job ID: 890-2902-1
SDG: 03E1558049

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2902-1	PH01	Solid	09/06/22 11:30	09/08/22 09:30	0.5
890-2902-2	PH01A	Solid	09/06/22 13:55	09/08/22 09:30	1
890-2902-3	PH02	Solid	09/06/22 11:35	09/08/22 09:30	0.5
890-2902-4	PH02A	Solid	09/06/22 14:00	09/08/22 09:30	1
890-2902-5	PH03	Solid	09/06/22 11:40	09/08/22 09:30	0.5
890-2902-6	PH03A	Solid	09/06/22 14:05	09/08/22 09:30	1
890-2902-7	PH04	Solid	09/06/22 11:45	09/08/22 09:30	0.5
890-2902-8	PH04A	Solid	09/06/22 14:10	09/08/22 09:30	1

eurofins | Environment Testing Xenco

Chain of Custody

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

Work Order No: _____

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Project Manager:	Tacoma Morrissey	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:	Garret.Green@ExxonMobil.com

Work Order Comments

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

Project Name:	JRU DI 2 702H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558049	Due Date:	
Project Location:		TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Connor Whitman		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM-007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	5.0
Total Containers:		Corrected Temperature:	4.8

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
PH01	S	9/6/2022	11:30	0.5	G	1		x	x	x
PH01A	S	9/6/2022	13:55	1	G	1		x	x	x
PH02	S	9/6/2022	11:35	0.5	G	1		x	x	x
PH02A	S	9/6/2022	14:00	1	G	1		x	x	x
PH03	S	9/6/2022	11:40	0.5	G	1		x	x	x
PH03A	S	9/6/2022	14:05	2	G	1		x	x	x
PH04	S	9/6/2022	1415	0.5	G	1		x	x	x
PH04A	S	9/6/2022	14:10	1	G	1		x	x	x

Parameters

ANALYSIS REQUEST

890-2902 Chain of Custody

Preservative Codes

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

Sample Comments

Incident ID:
nAPP2211654411
Cost Center:
~~1632561001~~ 163257 1001
AFE:

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

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Connor Whitman	Amanda Estep	9/8/22 929			
3				4		
5				6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2902-1
SDG Number: 03E1558049

Login Number: 2902
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2902-1
SDG Number: 03E1558049

Login Number: 2902
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 09/09/22 11:04 AM

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

ENSOLUM

APPENDIX E

NMOCD Notifications

From: Green, Garrett J
To: ocd.enviro@state.nm.us; Bratcher, Mike, EMNRD; Hamlet, Robert, EMNRD; Nobui, Jennifer, EMNRD
Cc: DelawareSpills /SM; Tacoma Morrissey; Aimee Cole
Subject: XTO-Extension Request - James Ranch Unit 2 702H / NAPP2211654411
Date: Wednesday, June 29, 2022 11:18:51 AM

[**EXTERNAL EMAIL**]

Extension Request - James Ranch Unit 2 702H / NAPP2211654411

XTO is requesting an extension for the current deadline of July 12, 2022 for submitting a remediation work plan or closure request required in 19.15.29.12.B.(1) NMAC at the James Ranch Unit 2 702H (Incident Number NAPP2211654411). The release occurred on April 13, 2022 during frac operations. Initial assessment of the release has been completed, however; remediation activities could not be completed until frac operations were complete. XTO operations has been providing status updates and has indicated the Site is clear as of June 23, 2022. In order to complete remediation activities and submit a remediation work plan or closure request, XTO is requesting an extension until September 5, 2022.

Thank you,

Garrett Green
Environmental Coordinator
Delaware Business Unit
(575) 200-0729
Garrett.Green@ExxonMobil.com

XTO Energy, Inc.
3104 E. Greene Street | Carlsbad, NM 88220 | M: (575)200-0729

From:	Hamlet, Robert, EMNRD
To:	Collins, Melanie
Cc:	DelawareSpills /SM; Tacoma Morrissey; Green, Garrett J; Pennington, Shelby G; Bratcher, Mike, EMNRD; Nobui, Jennifer, EMNRD; Nobui, Jennifer, EMNRD
Subject:	(Final Extension) - James Ranch Unit DI 2 707H & 702H - Incident Numbers NAPP2208349430 & NAPP2211654411
Date:	Thursday, September 1, 2022 2:15:35 PM
Attachments:	image003.png

[**EXTERNAL EMAIL**]

RE: Incident **#NAPP2208349430 and #NAPP2211654411**

Melanie,

Your request for an extension to **October 5th, 2022** is approved. This will be the **final extension** for these releases. Please include this e-mail correspondence in the remediation and/or closure report.

Robert Hamlet ● Environmental Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
811 S. First Street | Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Collins, Melanie <melanie.collins@exxonmobil.com>
Sent: Thursday, September 1, 2022 10:56 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>
Cc: DelawareSpills /SM <DelawareSpills@exxonmobil.com>; Tacoma Morrissey <tmorrissey@ensolum.com>; Green, Garrett J <garrett.green@exxonmobil.com>; Pennington, Shelby G <shelby.g.pennington@exxonmobil.com>
Subject: [EXTERNAL] XTO-Extension Request- James Ranch Unit DI 2 707H & 702H - Incident Numbers NAPP2208349430 & NAPP2211654411

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

All,

XTO is requesting an extension for the current deadline of September 5, 2022 for submitting a remediation work plan or closure request required in 19.15.29.12.B.(1) NMAC at the sites James

Ranch Unit DI 2 707H & 702H (Incident Numbers NAPP2208349430 & NAPP2211654411). The releases occurred on March 9, 2022 and April 13, 2022, respectively, during pressure testing and frac operations. Initial assessment of the releases has been completed, however; no additional remediation work has been completed due to ongoing frac and flowback operations. NMOCD approved a 90-day extension for each release with a new due date of September 5, 2022. XTO operations has been providing status updates weekly. The Site was scheduled to be clear in June; however, the timeline for the fracing operations was extended, which delayed the start of remediation. The Site is clear and delineation and excavation work is scheduled to begin September 6, 2022. In order to complete the remediation activities and submit a remediation work plan or closure request, XTO is requesting a second 30-day extension for both releases until October 5, 2022.

Thank you,

Melanie Collins

XTO ENERGY

Environmental Technician

melanie.collins@exxonmobil.com

432-556-3756

From: Green, Garrett J
To: ocd.enviro@state.nm.us; mike.bratcher@state.nm.us; Hamlet, Robert, EMNRD
Cc: Tacoma Morrissey
Subject: XTO - Sampling Notification (Week of 8/29/22 - 9/2/22)
Date: Friday, August 26, 2022 3:15:37 PM

[**EXTERNAL EMAIL**]

All,

XTO plans to complete final sampling activities at the following sites the week of August 29, 2022.

Monday
- Brushy Draw West 25 / nAPP2216138431
- Big Sinks 2-24-30 / nAPP2219644709 & nAPP2220224382

Tuesday
- Brushy Draw West 25 / nAPP2216138431
- PLU 21 BD 123-124 & 104 / nAPP2211651017, nAPP2211151438, nAPP2210942764, & nAPP2209736479
- ADU 816/ NAB1435334641

Wednesday
- Brushy Draw West 25 / nAPP2216138431
- PLU 21 BD 123-124 & 104 / nAPP2211651017, nAPP2211151438, nAPP2210942764, & nAPP2209736479
- ADU 816/ NAB1435334641
- PLU Pierce Canyon 12 / nAPP2222044186

Thursday
- PLU 21 BD 123-124 & 104 / nAPP2211651017, nAPP2211151438, nAPP2210942764, & nAPP2209736479
- JRU DI2/ nAPP2211654411 & nAPP2208349430

Friday
- PLU 21 BD 123-124 & 104 / nAPP2211651017, nAPP2211151438, nAPP2210942764, & nAPP2209736479
- PLU S Frac Pond / nAPP2211150068

Thank you!

Garrett Green
Environmental Coordinator
Delaware Business Unit
(575) 200-0729
Garrett.Green@ExxonMobil.com

ENSOLUM

APPENDIX F

Friction Reducer SDS

PFP INDUSTRIES

SAFETY DATA SHEET

Issuing Date 01-Aug-2019 **Revision Date** 01-Aug-2019 **Revision Number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name POLYglide Xcel-200

Other means of identification

Product Code(s) 10497

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use No information available

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address
PfP Industries
29738 Goynes Rd.
Katy, TX 77493

Manufacturer Address
PfP Industries
29738 Goynes Rd.
Katy, TX 77493

Emergency telephone number

Company Phone Number 281-371-2000

Emergency Telephone Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 4

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Warning

Combustible liquid

Appearance Opaque	**Physical state** Liquid	**Odor** Mineral Oil

Precautionary Statements - Prevention
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

In case of fire: Use CO2, dry chemical, or foam for extinction

Precautionary Statements - Storage
Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Other Information
May be harmful in contact with skin
Harmful to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Chemical name	CAS No	Weight-%	Trade secret
Petroleum distillates, hydrotreated light	64742-47-8	40 - 70	

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

Inhalation Remove to fresh air.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Self-protection of the first aider Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Dry chemical. Carbon dioxide (CO2). Water spray. Alcohol resistant foam.

Unsuitable extinguishing media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray.

Explosion data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Take precautionary measures against static discharges. Do not touch or walk through spilled material.

Environmental precautions

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Do not touch or walk through spilled material. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use personal protection equipment. Do not breathe vapor or mist. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Use with local exhaust ventilation.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Store in accordance with the particular national regulations. Store in accordance with local regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Tight sealing safety goggles.

Skin and body protection No special protective equipment required.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Opaque
Color	Milky white to yellow
Odor	Mineral Oil
Odor threshold	No information available

Property	Values	Remarks • Method
pH	No data available	None known
Melting point / freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash point	>= 67 °C / 153 °F	
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Relative density	0.97 - 1.03	
Water solubility	Miscible in water	
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	≥150 mm²/s	
Dynamic viscosity	No data available	None known
Explosive properties	No information available	
Oxidizing properties	No information available	

Other Information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Liquid Density	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	None known based on information supplied.
Hazardous decomposition products	None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available.
Ingestion	Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document.

ATEmix (oral)	5,005.00 mg/kg
ATEmix (dermal)	2,002.00 mg/kg
ATEmix (inhalation-dust/mist)	5.20 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Petroleum distillates, hydrotreated light 64742-47-8	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Petroleum distillates, hydrotreated light 64742-47-8	-	2.4: 96 h Oncorhynchus mykiss mg/L LC50 static 45: 96 h Pimephales promelas mg/L LC50 flow-through 2.2: 96 h Lepomis macrochirus mg/L LC50 static	-	4720: 96 h Den-dronereides heteropoda mg/L LC50

Persistence and degradability No information available.

Bioaccumulation There is no data for this product.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

14. TRANSPORT INFORMATION

DOT Not regulated. Product does not sustain combustion (49 CFR 173.120(b)(3))

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Does not comply
IECSC	Complies
KECL	Complies

PICCS	Complies
AICS	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	Yes
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

US State Regulations This product does not contain any substances regulated by state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

NFPA	Health hazards	2	Flammability	2	Instability	0	Physical and chemical properties -
HMIS	Health hazards	2	Flammability	2	Physical hazards	0	Personal protection X

Issuing Date 01-Aug-2019

Revision Date 01-Aug-2019

Revision Note No information available.

Disclaimer

The data supplied herein is for use only in connection with occupational safety and health. The information provided in this Safety Data Sheet is believed to be correct as of the date issued. Updates to this information may be obtained by contacting (either reference contact location or website). PfP Industries MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. This information is not meant to be an all-inclusive document on worldwide hazard communication regulations. Each user of the material described herein must evaluate the conditions of use and design, many of which will be solely within the user's knowledge and control, and the appropriate protective actions, including proper notification and training of employees, necessary to prevent employee exposures, property damage or release to the environment.

End of Safety Data Sheet

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District IV
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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 148555

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 148555
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	Workplan/Remediation Plan is approved with the following conditions: • When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided. If evidence of depth to ground water within a ½ mile radius of the site cannot be provided, impacted soils will need to meet Table 1 Closure Criteria for ground water at a depth of 50 feet or less. • Workplan/Remediation Plan is approved with the following conditions: Please make sure the floor confirmation samples are delineated/excavated to meet closure criteria standards for proven depth to water determination. Sidewall samples should be delineated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release.	12/28/2022