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	NAPP2217546910
District RP	
Facility ID	
Application ID	

# **Release Notification**

# **Responsible Party**

Responsible Party	VTO Enorgy		OGRID 4	5290	
Responsible Party XTO Energy Contact Name Garrett Green				OGRID 5380 Contact Telephone 575-200-0729	
				(assigned by OCD)	
	.green@exxonmobil.c			(ussigned by OCD)	
Contact maning addi	ress 3104 E. Greene St	reet, Carlsbad, Ne	w Mexico, 88220		
		Location	of Release So	ource	
Latitude 32.10139			Longitude -	-103.87601	
Lantude		(NAD 83 in dec	cimal degrees to 5 decim	nal places)	
Site Name PLU 27	Brushy Draw 161H		Site Type <sub>I</sub>	Production Well	
Date Release Discove			API# (if app	licable)	
Unit Letter Section	on Township	Range	Coun	ity	
E 27	25S	30E	Eddy	<u>·</u>	
Surface Owner: St		Nature and	l Volume of F	Release justification for the volumes provided below)	
Crude Oil	Volume Release		careanations of specific	Volume Recovered (bbls)	
Produced Water	Volume Release	ed (bbls)		Volume Recovered (bbls)	
		tion of total dissolv water >10,000 mg	` '	☐ Yes ☐ No	
Condensate	Volume Release			Volume Recovered (bbls)	
☐ Natural Gas	Volume Release	ed (Mcf)		Volume Recovered (Mcf)	
▼ Other (describe) Volume/Weight Released (provide units)		e units)	Volume/Weight Recovered (provide units)		
Produced Water w/FR	11.00 BBLS			10.00 BBLS	
Cause of Release A h	igh pressure discharge re recovered. A third-	e hose on a frac pu party contractor ha	mp failed, releasing as been retained for	g fluids both to containment and pad. All free fluids remediation purposes.	

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Page 2 Oil Conservation Division

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Incident ID	NAPP2217546910
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Was this a major	If YES, for what reason(s) does the respon	ible party consider this a major release?	
release as defined by 19.15.29.7(A) NMAC?	N/A		
` ,			
Yes X No			
TOTAL I			
If YES, was immediate no N/A	otice given to the OCD? By whom? To wh	m? When and by what means (phone, email, etc)?	
N/A			
	Initial Re	sponse	
The responsible j	party must undertake the following actions immediately	unless they could create a safety hazard that would result in injury	
x The source of the rele	ease has been stopped.		
▼ The impacted area ha	as been secured to protect human health and	ne environment.	
Released materials ha	ave been contained via the use of berms or d	kes, absorbent pads, or other containment devices.	
★ All free liquids and re	ecoverable materials have been removed and	managed appropriately.	
If all the actions described	d above have <u>not</u> been undertaken, explain v	hy:	
NA			
has begun, please attach	a narrative of actions to date. If remedial of	nediation immediately after discovery of a release. If referring forts have been successfully completed or if the release ease attach all information needed for closure evaluation.	occurred
		est of my knowledge and understand that pursuant to OCD rules	
		cations and perform corrective actions for releases which may end does not relieve the operator of liability should their operation.	
		to groundwater, surface water, human health or the environme sponsibility for compliance with any other federal, state, or loc	
and/or regulations.	The Control of the Co	sponsionity for compitative with any other rederal, state, or foc	ai iaws
Printed Name: Garrett G	reen	Title: SSHE Coordinator	
Signature:	A Sun	Date: 06/24/2022	
email: garrett.green@exx	xonmobil.com	Telephone: 575-200-0729	
OCD Only			
Received by:Jocelyn	Harimon	Date: 06/24/2022	

Total Produced Water =

Total Produced Water =

Total Crude Oil =

11.00 bbls

0.00 bbls

10.00 bbls

Location:	PLU 27 Brushy Draw 161H		
Spill Date:	6/12/2022		
	Area 1		
Approximate A	rea =	44.92	cu.ft.
	VOLUME OF LEAK		
Total Crude Oil	=	0.00	bbls
Total Produced	Water =	8.00	bbls
	Area 2		
Approximate A	rea =	2241.00	sq. ft.
Average Satura	tion (or depth) of spill =	1.00	inches
Average Porosi	ty Factor =	0.03	
	VOLUME OF LEAK		
Total Crude Oil	=	0.00	bbls
Total Produced	Water =	3.00	bbls
	TOTAL VOLUME OF LEAK		
Total Crude Oil	=	0.00	bbls

**TOTAL VOLUME RECOVERED** 

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

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 120342

### **CONDITIONS**

Operator:	OGRID:
XTO ENERGY, INC	5380
6401 Holiday Hill Road	Action Number:
Midland, TX 79707	120342
	Action Type:
	[C-141] Release Corrective Action (C-141)

#### CONDITIONS

Created By		Condition Date
jharimon	None	6/24/2022

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State of New Mexico

Incident ID	NAPP2217546910
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## **Site Assessment/Characterization**

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

This information must be provided to the appropriate district office no later man 20 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 <b>not</b> 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 ver contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.	tical extents of soil
Characterization Report Checklist: Each of the following items must be included in the report.	
<ul> <li>Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wel</li> <li>☐ Field data</li> <li>☐ Data table of soil contaminant concentration data</li> <li>☐ Depth to water determination</li> </ul>	ls.

☑ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
 ☑ Boring or excavation logs
 ☑ Photographs including date and GIS information
 ☑ Topographic/Aerial maps
 ☑ Laboratory data including chain of custody

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

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1 1180	00		_

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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 egulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger ublic 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 ailed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In ddition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws nd/or regulations.
Printed Name: _Garrett Green Title: _Environmental Coordinator
Signature: Date:01/19/2023
mail: _garrett.green@exxonmobil.com Telephone:575-200-0729
OCD Only
Received by: Date: Date:

	Page 7 of 29	92
Incident ID	NAPP2217546910	
District RP		
Facility ID		
Application ID		

# **Remediation Plan**

Remediation Plan Checklist: Each of the following items must be inclu	ded in the plan.
<ul> <li>✓ Detailed description of proposed remediation technique</li> <li>✓ Scaled sitemap with GPS coordinates showing delineation points</li> <li>✓ Estimated volume of material to be remediated</li> <li>✓ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(a)</li> <li>✓ Proposed schedule for remediation (note if remediation plan timeline in the coordinates)</li> </ul>	
Deferral Requests Only: Each of the following items must be confirmed	d as most of any negrees for defended of new disting
Deterral Requests Only: Each of the following tiems must be confirmed	i as part of any request for deferral of remediation.
Contamination must be in areas immediately under or around producti deconstruction.	on equipment where remediation could cause a major facility
Extents of contamination must be fully delineated.	
Contamination does not cause an imminent risk to human health, the e	nvironment, or groundwater.
I hereby certify that the information given above is true and complete to the rules and regulations all operators are required to report and/or file certain which may endanger public health or the environment. The acceptance of liability should their operations have failed to adequately investigate and resurface water, human health or the environment. In addition, OCD accept responsibility for compliance with any other federal, state, or local laws are	release notifications and perform corrective actions for releases a C-141 report by the OCD does not relieve the operator of emediate contamination that pose a threat to groundwater, ance of a C-141 report does not relieve the operator of
Printed Name:Garrett Green Tit	le:Environmental Coordinator
f 1/- P	e: <u>1/19/2023</u>
email: <u>garrett.green@exxonmobil.com</u> Te	ephone:575-200-0729
OCD Only	
Received by: Date	:01/20/2023
☐ Approved ☐ Approved with Attached Conditions of Appro	val Denied Deferral Approved
Signature: Date:	

	Page 8 of 29	2
Incident ID	NAPP2217546910	
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.
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: Title: Title: Environmental Coordinator
Signature: Date: Date:
email:garrett.green@exxonmobil.com Telephone:575-200-0729
OCD Only
Received by:
Approved
Signature: Robert Hamlet Date: 5/19/2023



January 19, 2023

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

Re: Remediation Work Plan

PLU 27 Brushy Draw 161H

Incident Numbers NAPP2217546910 & NAPP2218236445

**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* to document the site assessment and soil sampling activities completed to date and propose a work plan to address elevated soil concentrations identified at the PLU 27 Brushy Draw 161H (Site). The purpose of the site assessment and soil sampling activities was to asssess for the presence or absence of impacted soil following two releases of produced water with friction reducer that occurred during hydraulic fracturing operations at the Site. The following Work Plan proposes to install a soil boring to investigate depth to water to confirm the Closure Criteria and to complete additional delineation soil sampling.

### SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit E, Section 27, Township 25 South, Range 30 East, in Eddy County, New Mexico (32.10139° N, 103.87601° W) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM).

On June 12, 2022, a high-pressure hose on a pump failed, resulting in the release of 11 barrels (bbls) of produced water with friction reducer into a temporary liner containment and onto the well pad. A vacuum truck was immediately dispatched to the Site to the recover the free-standing fluids; approximately 10 bbls of fluids were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Recovery Notification Form C-141 (Form C-141) on June 24, 2022. The release was assigned Incident Number NAPP2217546910.

On June 22, 2022, engine loss resulted in fluid discharge through a charger pump, resulting in the release of 104.52 bbls of produced water with friction reducer into a separate temporary liner containment and onto the well pad. Approximately 100 bbls of fluids were recovered. XTO reported the release to the NMOCD via email on June 22, 2022 and with a subsequent Form C-141 on July 1, 2022. The release was assigned Incident Number NAPP2218236445.

Each temporary liner containment was removed prior to beginning site assessment activities. As such, liner inspections could not be completed. The locations of each release extent and the temporary containment for Incident Number NAPP2217546910, was identified based on information provided on the Form C-141 and visual observations.

XTO Energy Inc Remediation Work Plan PLU 27 Brushy Draw 161H



#### SITE CHARACTERIZATION AND CLOSURE CRITERIA

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

Depth to groundwater at the Site is greater than 100 feet below ground surface (bgs) based on the nearest groundwater well data. The nearest permitted groundwater well with depth to groundwater data is United States Geological Survey (USGS) well 320628103533001, located approximately 1.0 mile northwest of the Site. The groundwater well has a reported depth to groundwater of 264 feet and a total depth of 288 feet bgs. Ground surface elevation at the groundwater well location is 3,207 feet above mean sea level (amsl), which is approximately 53 feet lower in elevation than the Site. All wells used for depth to water determination are depicted on Figure 1 and the included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a seasonal dry wash, located approximately 1,226 feet north 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). Potential Site receptors are identified on Figure 1.

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

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

#### SITE ASSESSMENT AND DELINEATION ACTIVITIES

On December 7, 2022, Ensolum personnel completed a site assessment to evaluate both release extents based on the information provided on the Form C-141's and visual observations. Eleven delineation soil samples (SS01 through SS11) were collected within and around each release extent from a depth of 0.5 feet bgs. Delineation soil samples SS01 through SS04 were collected within the release extent associated with Incident Number NAPP2218236445 (northern) and delineation soil samples SS05 and SS06 were collected within the release extent associated with Incident Number NAPP2217546910 (southern). Delineation soil samples SS07 through SS11 were collected around each release extent to determine lateral definition of the releases. The delineation soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. The release extents and soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico,

XTO Energy Inc Remediation Work Plan PLU 27 Brushy Draw 161H



for analysis of the following chemicals of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0. Soil samples delivered to the laboratory the same day they are collected may not have equilibrated to 6 degrees Celcius required for shipment and long term storage, but are considered by the laboratory to have been received in acceptable condition.

On December 12, 2022, Ensolum personnel returned to the Site to oversee additional delineation activities. Seven potholes (PH01 through PH07) were advanced by use of heavy equipment to depths ranging from 1-foot bgs to 8 feet bgs. Potholes PH01 through PH04 were advanced in the northern release extent in the vicinity of SS01 through SS04, respectively. Potholes PH05 and PH06 were advanced in the southern release extent in the vicinity of SS05 and SS06, respectively. Pothole PH07 was advanced in the area of the temporary containment of the southern release. Field screening results and observations for the potholes were logged on lithologic/soil sampling logs and are included in Appendix B. The delineation soil samples were handled and analyzed as described above and pothole locations are depicted on Figure 2. In order to remove surficial staining, surface scraping was conducted in the area of each release extent following delineation activities. Photographic documentation was conducted during the site visit and a photographic log is included in Appendix C.

### LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for delineation soil samples indicated all COC concentrations were compliant with the Site Closure Criteria. Elevated chloride concentrations existed in several delineation soil samples collected within both release extents, values ranging from 635 mg/kg to 4,220 mg/kg for the northern release and 795 mg/kg to 7,980 mg/kg for the southern release. In general, chloride concentrations decreased with depth throughout all potholes completed. All lateral delineation soil samples indicated chloride concentrations were compliant with the strictest Table I Closure Criteria, except for SS07 (4,980 mg/kg) and SS08 (987 mg/kg), located near the southern release. TPH concentrations indicated non-detectable limits in all soil samples collected except for SS06 (88.0 mg/kg) and SS11 (61.2 mg/kg). BTEX concentrations indicated non-detectable limits in all soil samples. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included in Appendix D.

### PROPOSED REMEDIATION WORK PLAN

In order to confirm depth to groundwater is greater than 100 feet bgs at the Site and validate assigned Closure Criteria, XTO proposes to advance a soil boring to a depth of 105 feet bgs. The soil boring will be located within a ½ mile of the Site and a field geologist will log and describe soils continuously. The soil boring will be left open for over 72 hours to allow for equilibration of groundwater levels within the temporary boring casing. After the 72-hour waiting period, depth to groundwater will be assessed and the soil boring will be backfilled following New Mexico Office of the State Engineer (NMOSE) approved procedures. A well record or soil boring log will be included in the follow up Closure Report.

Site assessment and delineation activities were conducted to assess for the presence or absence of impacted soil resulting from two releases of produced water with friction reducer. Based on laboratory analytical results for all delineation soil samples indicating COC concentrations were compliant with the Table I Closure Criteria, vertical and horizontal definition for remediation has been established for both releases. Due to the presence of elevated chloride concentrations detected in SS07 and SS08 near the southern release, XTO proposes to collect additional lateral delineation soil samples to confirm the southern release did not flow off pad by comparing delineation results to the reclamation requirement.

XTO Energy Inc Remediation Work Plan PLU 27 Brushy Draw 161H



NMOCD correspondence is provided in Appendix E and the safety data sheet (SDS) for friction reducer is provided in Appendix F.

The depth to water soil boring will be completed as soon as possible following approval from the surface landowner, receipt of the NMOSE drilling permit, and scheduling with a driller. Once depth to water is confirmed, XTO will proceed with additional delineation sampling and provide a Closure Request within 30 days of completion of the soil boring.

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

Sincerely,

**Ensolum, LLC** 

Meredith Roberts Field Geologist Ashley L. Ager, M.S., P.G.

Ashley L. Ager

Principal

cc: Garrett Green, XTO

Shelby Pennington, XTO

BLM

### Appendices:

Figure 1 Site Location Map

Figure 2 Delineation Soil Sample Locations
Table 1 Soil Sample Analytical Results
Appendix A Appendix B Lithologic / Soil Sampling Logs

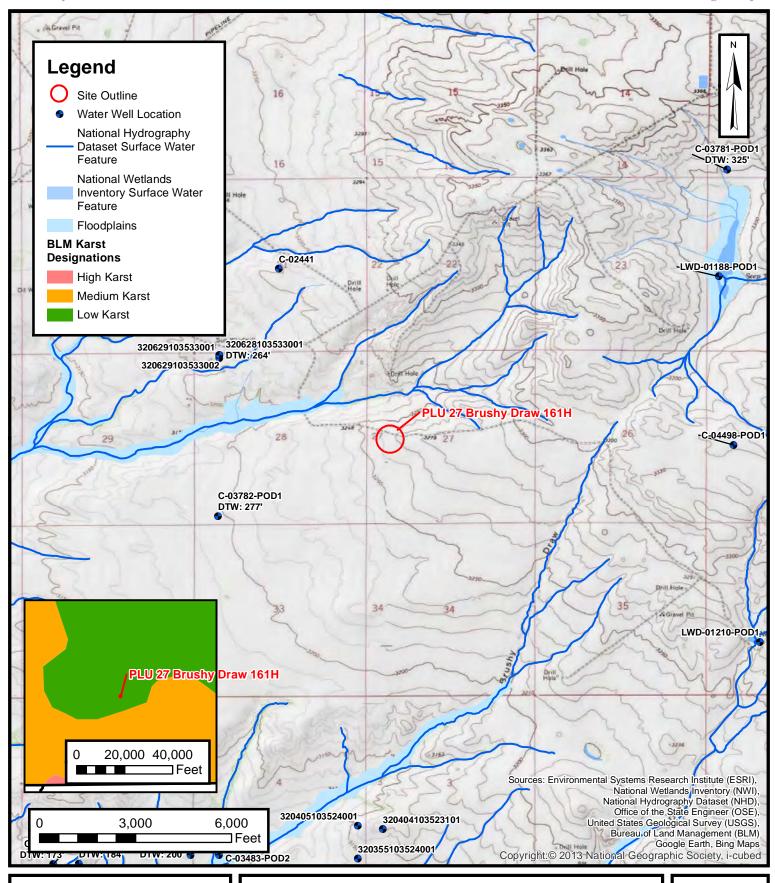
Appendix C Photographic Log

Appendix D Laboratory Analytical Reports & Chain-of-Custody Documentation

Appendix E NMOCD Sample Notifications
Appendix F SDS for Friction Reducer



**FIGURES** 

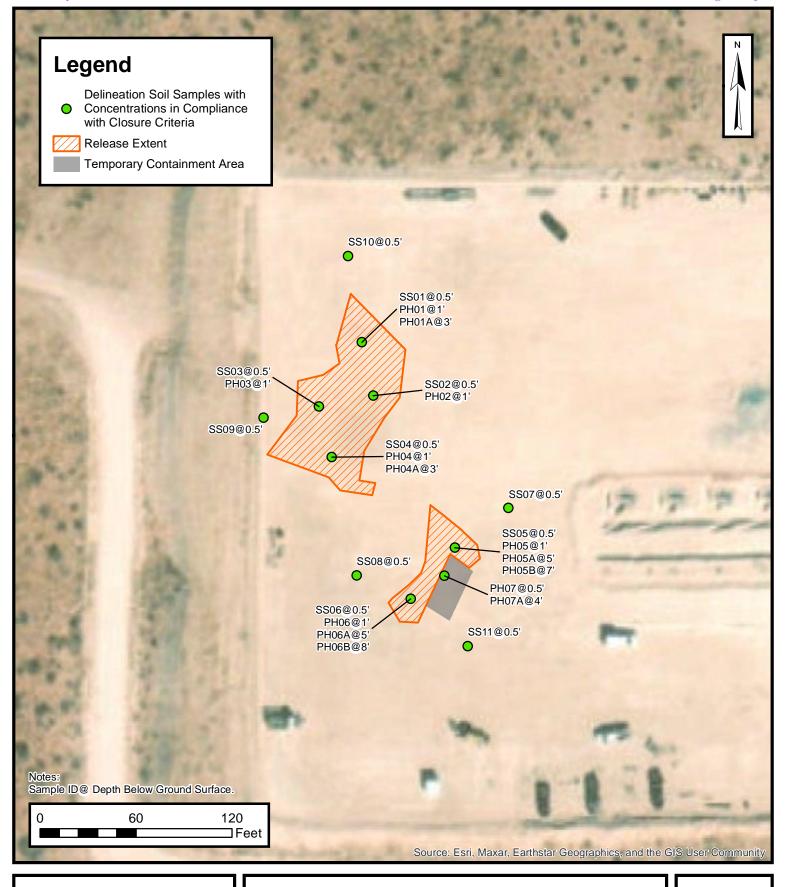




# **Site Receptor Map**

XTO Energy, Inc PLU 27 Brushy Draw 161H NAPP2217546910 & NAPP2218236445 Unit E, Sec 27, T25S, R30E Eddy County, New Mexico **FIGURE** 

1





# **Delineation Soil Sample Locations**

XTO Energy, Inc PLU 27 Brushy Draw 161H NAPP2217546910 & NAPP2218236445 Unit E, Sec 27, T25S, R30E Eddy County, New Mexico **FIGURE** 

2



**TABLES** 

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# TABLE 1 SOIL SAMPLE ANALYTICAL RESULTS PLU 27 BD 161H XTO Energy, Inc Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I C	Closure Criteria (	NMAC 19.15.29)	10	50	NE	NE	NE	1,000	2,500	20,000
				Del	ineation Soil San	nples				
SS01	12/07/2022	0.5	<0.00202	<0.00403	<49.9	<49.9	<49.9	<49.9	<49.9	65.4
PH01	12/12/2022	1	< 0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	1,250
PH01A	12/12/2022	3	< 0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	725
SS02	12/07/2022	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	62.4
PH02	12/12/2022	1	< 0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	812
SS03	12/07/2022	0.5	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	58.6
PH03	12/12/2022	1	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	714
SS04	12/07/2022	0.5	<0.00200	<0.00400	<49.9	<49.9	<49.9	<49.9	<49.9	497
PH04	12/12/2022	1	< 0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	4,220
PH04A	12/12/2022	3	< 0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	635
SS05	12/07/2022	0.5	< 0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	6,580
PH05	12/12/2022	1	< 0.00198	<0.00396	<49.9	<49.9	<49.9	<49.9	<49.9	5,380
PH05A	12/12/2022	5	< 0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	3,690
PH05B	12/12/2022	7	< 0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	795
SS06	12/07/2022	0.5	<0.00201	<0.00402	<49.9	88.0	<49.9	88.0	88.0	621
PH06	12/12/2022	1	< 0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	7,980
PH06A	12/12/2022	5	< 0.00200	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	1,560
PH06B	12/12/2022	8	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	9.26
PH07	12/12/2022	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	7,400
PH07A	12/12/2022	4	< 0.00200	<0.00399	<49.9	<49.9	<49.9	<50.0	<49.9	338
SS07	12/07/2022	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	4,980
SS08	12/07/2022	0.5	<0.00200	<0.00400	<49.9	<49.9	<49.9	<49.9	<49.9	987
SS09	12/07/2022	0.5	<0.00202	<0.00403	<49.9	<49.9	<49.9	<49.9	<49.9	43.0
SS10	12/07/2022	0.5	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	195
SS11	12/07/2022	0.5	< 0.00199	<0.00398	<50.0	61.2	<50.0	61.2	61.2	25.1

### 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

Ensolum 1 of 1



**APPENDIX A** 

Referenced Well Records



USGS Home Contact USGS Search USGS

**National Water Information System: Web Interface** 

**USGS** Water Resources

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

#### Click to hideNews Bulletins

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

Groundwater levels for the Nation

■ Important: <u>Next Generation Monitoring Location Page</u>

### Search Results -- 1 sites found

Agency code = usgs

site\_no list =

• 320628103533001

#### Minimum number of levels = 1

Save file of selected sites to local disk for future upload

### USGS 320628103533001 25S.30E.21.333424

Eddy County, New Mexico

Table of data

Tab-separated data

Latitude 32°06'28", Longitude 103°53'30" NAD27

Land-surface elevation 3,207 feet above NAVD88

The depth of the well is 288 feet below land surface.

This well is completed in the Pecos River Basin alluvial aquifer (N100PCSRVR) national aquifer.

Code

This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

#### **Output formats**

Graph of dat	aph of data												
Reselect peri	<u>od</u>												
Date	Time	? Water- level date- time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source measu			
1958-08-21		D	62610		2972.36	NGVD29	1	Z					
1958-08-21		D	62611		2974.00	NAVD88	1	Z					
1958-08-21		D	72019	233.00			1	Z					
1959-02-05		D	62610		2939.26	NGVD29	Р	Z					
1959-02-05		D	62611		2940.90	NAVD88	Р	Z					
1959-02-05		D	72019	266.10			Р	Z					
1983-02-01		D	62610		2945.48	NGVD29	1	Z					
1983-02-01		D	62611		2947.12	NAVD88	1	Z					
1983-02-01		D	72019	259.88			1	Z					
1998-01-28		D	62610		2940.76	NGVD29	1	S					
1998-01-28		D	62611		2942.40	NAVD88	1	S					
1998-01-28		D	72019	264.60			1	S					

E	explanation			
Descrip	tion			

Section

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Status	Р	Pumping
Method of measurement	S	Steel-tape measurement.
Method of measurement	Z	Other.
Measuring agency		Not determined
Source of measurement		Not determined
Water-level approval status	А	Approved for publication Processing and review completed.

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

Accessibility FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey Title: Groundwater for USA: Water Levels

URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: <u>USGS Water Data Support Team</u> Page Last Modified: 2022-06-06 14:03:31 EDT 0.32 0.28 nadww01





**APPENDIX B** 

Lithologic Soil Sampling Logs

								Sample Name: PH01	Date: 12/12/2022
					0		NA	Site Name: PLU 27 Brushy Draw 1	
114			N	3	OL	_ U	V	Incident Number: NAPP22182364	
	100							Job #: 03E1558091	
		LITHOL	OGI	C / SOIL S	SAMPLING	LOG		Logged By: MR	Method: Trackhoe
Coordinates: 32.101658, -103.87622									Total Depth: 3'
								PID for chloride and vapor, respect actor is included in all chloride field	
Moisture Content	Moisture Content Chloride (ppm) Vapor (ppm) Staining Sample ID Debth (tt pds) USCS/Rock Symbol							Lithologic De	escriptions
					1	0	CCHE	0-0.5', CALICHE w/ fine san small sub-round gravel, st	d, dry, tan, some taining, no odor.
D	<156.8	0.2	N	SS01	0.5	0.5		0.5'-3', CALICHE w/ fine sar small sub-rounded gravel	nd, dry, tan, some , no staining, no odor.
D	1215	0	N	PH01	1	1			
D	946.4	0.0	N		- - -	<u> </u>			
D	414.4	0	N	PH01A	3 _	- - 3 -	TD	Total Depth at 3' bgs.	
					- -	<del>-</del> -			
						- -			
					- - -	- - -			
					-	- - -			
					- - -	- -			
					- - -	- - -			
					-	- - -			
					- - -	- - -			
					- -	- -			

								Sample Name: PH02	Dato: 12/12/2022
								·	Date: 12/12/2022
		E	N	5	OL			Site Name: PLU 27 Brushy Draw 16 Incident Number: NAPP221823644	
-	- 2					Job #: 03E1558091	;5		
		LITUO	loci	C / SOIL S	SAMPLING			NA other de Translatera	
Coor	dinator			-	SAIVIPLING	LOG		Logged By: MR	Method: Trackhoe Total Depth: 1'
		32.10165			uith HACH Ch	alarida Tast (	tring and	Hole Diameter: N/A PID for chloride and vapor, respect	
			_					actor is included in all chloride field	-
Moisture	Chloride (npm)	Vapor (nnm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Des	·
					1	0	CCHE	0-0.5', CALICHE w/ fine sand small sub-round gravel, sta	, dry, tan, some aining, no odor.
D	<156.	8 0.3	N	SS02	0.5	- - - - -		0.5'-1', CALICHE w/ fine sand small sub-rounded gravel,	d, dry, tan, some no staining, no odor.
D	526.	1 0.0	Ν	PH02	1 _	1			
					-	-	TD	Total Depth at 1' bgs.	
						<b>-</b> -			
					_	_			
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								C   N   BUO2	D	
							_	Sample Name: PH03	Date: 12/12/2022	
			N	S	OL		M	Site Name: PLU 27 Brushy Draw 16		
	- 00							Incident Number: NAPP221823644	5	
<b></b>							Job #: 03E1558091			
					SAMPLING	LOG		Logged By: MR Method: Trackhoe		
	inates: 32							Hole Diameter: N/A	Total Depth: 1'	
			_					PID for chloride and vapor, respect actor is included in all chloride field	-	
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Des	·	
					1	<u> </u>	CCHE	0-0.5', CALICHE w/ fine sand small sub-round gravel, sta	, dry, tan, some iining, no odor.	
D	<156.8	0.1	N	SS03	0.5	- _ 0.5 -		0.5'-1', CALICHE w/ fine sand small sub-rounded gravel,	l, dry, tan, some no staining, no odor.	
D	470.4	0.0	N	PH03	1 _	1				
					_	<u>-</u>	TD	Total Depth at 1' bgs.		
					-	-				
					_	<del>-</del>				
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								Sample Name: PH04	Date: 12/12/2022
	7				0 1		B.4	Site Name: PLU 27 Brushy Draw 1	
			N		OL		V	Incident Number: NAPP22182364	
								Job #: 03E1558091	
		LITHOL	OGI	C / SOIL S	SAMPLING	Logged By: MR	Method: Trackhoe		
Coordinates: 32.101658, -103.87622								Hole Diameter: N/A	Total Depth: 3'
Comments: Field screening conducted with HACH Chloride Test Strips and performed with 1:4 dilution factor of soil to distilled water. A 40% error									-
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic De	escriptions
					1	L 0	CCHE	0-0.5', CALICHE w/ fine san small sub-round gravel, s	d, dry, tan, some taining, no odor.
D	520.8	2.1	Ν	SS04	0.5	0.5 		0.5'-3', CALICHE w/ fine sar small sub-rounded gravel	nd, dry, tan, some , no staining, no odor.
D	>3205	0.0	N	PH04	1	1			
D	1215	0	N		- - -	2			
D	470.4	0	N	PH04A	3 _	<del>-</del> 3	TD	Total Depth at 3' bgs.	
					- -	- - -			
						- -			
					- - -	- - -			
					-	- -			
					-	- -			
					- - -	- -			
					- -	- - -			
					- - -	- - -			
					- -	- -			

								Sample Name: PH05	Date: 12/12/2022
					0			Site Name: PLU 27 Brushy Draw 16	•
			N	5	OL		M	Incident Number: NAPP221754691	
	-							Job #: 03E1558089	.0
<b> </b>		IITUOI	OGI	C / SOIL G	SAMDI ING	Logged By: MR	Method: Trackhoe		
LITHOLOGIC / SOIL SAMPLING LOG								Hole Diameter: N/A	Total Depth: 7'
Coordinates: 32.10139, -103.87601								·	
Comments: Field screening conducted with HACH Chloride Test Strips and performed with 1:4 dilution factor of soil to distilled water. A 40% error f									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Des	·
						<u> </u>	CCHE	0-0.5', CALICHE w/ fine sand small sub-round gravel, sta	, dry, tan, some nining, no odor.
D	>3544.8	1.7	N	SS05	0.5	- _ 0.5 -		0.5'-7', CALICHE w/ fine sand small sub-rounded gravel,	d, dry, med. brown, no staining, no odor.
D	3181	0.0	N	PH05	1 _	_ 1			
D	2100	0	N		- - - -	_ _ _ 2			
D	2100	0	N		- - -	- - 3			
D	3181	0	N		-	4			
D	1831	0	N	PH05A	5 _	- - 5 -			
D	772.8	0	N		- - -	- - 6			
D	515.2	0	Ζ	PH05B	7 - 7 - - - - - - -	- 7 - 7 	TD	Total Depth at 7' bgs.	

								<u> </u>	I
		_	_		-			Sample Name: PH06	Date: 12/12/2022
	-2	E	N	5	OL		M	Site Name: PLU 27 Brushy Draw 16	
	- 23		-					Incident Number: NAPP221754691	.0
							Job #: 03E1558089		
					SAMPLING	Logged By: MR	Method: Trackhoe		
Coordinates: 32.10139, -103.87601								Hole Diameter: N/A	Total Depth: 8'
Comments: Field screening conducted with HACH Chloride Test Strips and performed with 1:4 dilution factor of soil to distilled water. A 40% error factor of soil to distilled water.									•
								sercening results.	
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Des	·
					1	0	CCHE	0-0.5', CALICHE w/ fine sand small sub-round gravel, sta	, dry, tan, some aining, no odor.
D	929.6	1.8	N	SS06	0.5	- _ 0.5 -		0.5'-5', CALICHE w/ fine sand small sub-rounded gravel,	d, dry, tan, some no staining, no odor.
D	2873	0.0	N	PH06	1	1			
D	1423	0	N		- - -	- _ 2 -			
D	2679	0	N		-				
D	1422	0	N		- - -	- - 4 -			
D	946.4	0	N	PH06A	5 _	- - 5 -		5'-8', CALICHE w/ fine sand, small sub-rounded gravel,	dry, med. brown, no staining, no odor.
D	1647	0	N		- - -	- - 6			
D	716.8	0	N		- - - -	- - - 7			
D	ND	0	N	PH06B	8 _	- - - 8	TD	Total Depth at 8' bgs.	

								Sample Name: PH07	Date: 12/12/2022
					0 1			Site Name: PLU 27 Brushy Draw 16	
		E	N	5	OL			Incident Number: NAPP221754691	
_	- 23								U
<b> </b>		LITUOL	001	C / COII /	CARADI INIC	Job #: 03E1558089			
					SAMPLING	Logged By: MR	Method: Trackhoe		
Coordinates: 32.10139, -103.87601								Hole Diameter: N/A	Total Depth: 4'
Comments: Field screening conducted with HACH Chloride Test Strips and performed with 1:4 dilution factor of soil to distilled water. A 40% error f									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Des	·
					1	L 0	CCHE	0-0.5', CALICHE w/ fine sand small sub-round gravel, sta	, dry, tan, some iining, no odor.
D	12006.4	0	N	PH07	0.5	- _ 0.5 -		0.5'-4', CALICHE w/ fine sand small sub-rounded gravel,	d, dry, tan, some no staining, no odor.
D	10281.6	0.0	N		- -	1			
D	5499	0	N		- -	2 -			
D	2957	0	N		- - -	- 3 ]			
D	408.8	0	N	PH07A	4	- - 4	TD	Total Denth at 1' has	
							TD	Total Depth at 4' bgs.	



APPENDIX C

Photographic Log



### **Photographic Log**

XTO Energy, Inc.
PLU 27 Brushy Draw 161H
NAPP2217546910 & NAPP2218236445





Photograph 1 Date: 12/12/2022

Description: Site assessment, release areas.

View: North

Photograph 2 Date: 12/12/2022

Description: Delineation activities, PH01.

View: Northeast





Description: Delineation activities, PH05.

View: Southwest



Photograph 4 Date: 12/12/2022

Description: Surface scraping activities.

View: Northwest



APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Ben Belill Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 12/22/2022 12:58:24 PM

# **JOB DESCRIPTION**

PLU 27 BD 161H SDG NUMBER Eddy County NM

# **JOB NUMBER**

890-3637-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

# **Eurofins Carlsbad**

## **Job Notes**

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

# **Authorization**

Generated 12/22/2022 12:58:24 PM

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

Eurofins Carlsbad is a laboratory within Eurofins Environment Testing South Central, LLC, a company within Eurofins Environment Testing Group of

Client: Ensolum
Project/Site: PLU 27 BD 161H
Laboratory Job ID: 890-3637-1
SDG: Eddy County NM

# **Table of Contents**

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QC Sample Results	9
QC Association Summary	13
Lab Chronicle	15
Certification Summary	16
Method Summary	17
Sample Summary	18
Chain of Custody	19
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3

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### **Definitions/Glossary**

Job ID: 890-3637-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

### **Qualifiers**

### **GC VOA**

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

### **GC Semi VOA**

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.
HPLC/IC	

### Qualifier

**Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

### Gloccary

Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	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) Minimum Detectable Concentration (Radiochemistry) MDC MDL Method Detection Limit

Minimum Level (Dioxin) Most Probable Number MPN 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 Practical Quantitation Limit PQL

Presumptive **PRES** 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) Toxicity Equivalent Quotient (Dioxin) **TEQ** 

**TNTC** Too Numerous To Count

**Eurofins Carlsbad** 

### Case Narrative

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3637-1

SDG: Eddy County NM

Job ID: 890-3637-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3637-1

#### Receipt

The samples were received on 12/13/2022 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.6°C

### **Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: SS05 (890-3637-1) and SS06 (890-3637-2).

#### **GC VOA**

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-22528-A-1-E). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

#### GC Semi VOA

Method 8015MOD NM: Surrogate recovery for the following sample was outside control limits: (LCSD 880-41926/3-A). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-41926 and analytical batch 880-41982 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

Method 8015MOD NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-41926 and analytical batch 880-41982 was outside control limits. Sample non-homogeneity is suspected.

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.

Matrix: Solid

Lab Sample ID: 890-3637-1

# **Client Sample Results**

Client: Ensolum Job ID: 890-3637-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Client Sample ID: SS05

Date Collected: 12/07/22 12:45 Date Received: 12/13/22 13:30

Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 19:17	1
Toluene	0.00370		0.00199	mg/Kg		12/20/22 21:30	12/21/22 19:17	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 19:17	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/20/22 21:30	12/21/22 19:17	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 19:17	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/20/22 21:30	12/21/22 19:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130			12/20/22 21:30	12/21/22 19:17	1
1,4-Difluorobenzene (Surr)	118		70 - 130			12/20/22 21:30	12/21/22 19:17	1
Method: TAL SOP Total BTEX -			RI	Unit	D	Prenared	Analyzed	Dil Fac
Method: TAL SOP Total BTEX - Analyte Total BTEX		Qualifier	RL 0.00398	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 12/22/22 13:15	Dil Fac
Analyte Total BTEX  Method: SW846 8015 NM - Diese	Result <0.00398	Qualifier U	0.00398 GC)	mg/Kg			12/22/22 13:15	1
Analyte Total BTEX  Method: SW846 8015 NM - Diese Analyte	Result <0.00398 el Range Organ Result	Qualifier U ics (DRO) (Qualifier	0.00398 GC)	mg/Kg	<u>D</u>	Prepared Prepared	12/22/22 13:15  Analyzed	Dil Fac Dil Fac
Analyte Total BTEX  Method: SW846 8015 NM - Diese	Result <0.00398	Qualifier U ics (DRO) (Qualifier	0.00398 GC)	mg/Kg			12/22/22 13:15	1
Analyte Total BTEX  Method: SW846 8015 NM - Diese Analyte	Result <0.00398 el Range Organ Result <49.9	Qualifier U ics (DRO) ( Qualifier U	0.00398  GC)  RL  49.9	mg/Kg			12/22/22 13:15  Analyzed	1
Analyte Total BTEX  Method: SW846 8015 NM - Diese Analyte Total TPH	Result <0.00398  el Range Organ Result <49.9  sel Range Orga	Qualifier U ics (DRO) ( Qualifier U	0.00398  GC)  RL  49.9	mg/Kg			12/22/22 13:15  Analyzed	1
Analyte Total BTEX  Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Die	Result <0.00398  el Range Organ Result <49.9  sel Range Orga	Qualifier U  ics (DRO) ( Qualifier U  nics (DRO) Qualifier	0.00398  GC)  RL  49.9	mg/Kg  Unit  mg/Kg	<u>D</u>	Prepared	12/22/22 13:15  Analyzed  12/19/22 15:03	Dil Fac
Analyte Total BTEX  Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics	el Range Organ Result <49.9  sel Range Orga Result Result Result Result Result Result Result	Qualifier U  ics (DRO) ( Qualifier U  nics (DRO) Qualifier U	0.00398  GC)  RL  49.9  (GC)  RL	mg/Kg  Unit  mg/Kg  Unit	<u>D</u>	Prepared Prepared	12/22/22 13:15  Analyzed  12/19/22 15:03  Analyzed	Dil Fac Dil Fac

Method: MCAWW 300.0 - Anio	ns, Ion Chromatography - Sol	uble					
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6580	100	mg/Kg			12/19/22 21:18	20

Limits

70 - 130

70 - 130

%Recovery Qualifier

112

107

Client Sample ID: SS06
Date Collected: 12/07/22 13:00

Date Received: 12/13/22 13:30

Sample Depth: 0.5'

Surrogate

o-Terphenyl

1-Chlorooctane

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		12/20/22 21:30	12/21/22 19:37	1
Toluene	<0.00201	U	0.00201	mg/Kg		12/20/22 21:30	12/21/22 19:37	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		12/20/22 21:30	12/21/22 19:37	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		12/20/22 21:30	12/21/22 19:37	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		12/20/22 21:30	12/21/22 19:37	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		12/20/22 21:30	12/21/22 19:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130			12/20/22 21:30	12/21/22 19:37	1

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Dil Fac

**Matrix: Solid** 

Analyzed 12/16/22 16:35

12/16/22 16:35

Lab Sample ID: 890-3637-2

Prepared

12/15/22 14:18

12/15/22 14:18

iiilo Gallobaa

# **Client Sample Results**

Client: Ensolum Job ID: 890-3637-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Client Sample ID: SS06 Lab Sample ID: 890-3637-2

Date Collected: 12/07/22 13:00

Date Received: 12/13/22 13:30

Matrix: Solid

Sample Depth: 0.5'

Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	107		70 - 130			12/20/22 21:30	12/21/22 19:37	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			12/22/22 13:15	1
- Method: SW846 8015 NM - Diese	el Range Organ	ics (DRO) (	GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	88.0		49.9	mg/Kg			12/19/22 15:03	1
Analyte Gasoline Range Organics (GRO)-C6-C10	<49.9	Qualifier U	<b>RL</b> 49.9	Mg/Kg	D	Prepared 12/15/22 14:18	Analyzed 12/16/22 16:57	Dil Fa
Gasoline Range Organics					— <u> </u>			1
Diesel Range Organics (Over C10-C28)	88.0		49.9	mg/Kg		12/15/22 14:18	12/16/22 16:57	•
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/15/22 14:18	12/16/22 16:57	•
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
ourrogate			70 - 130			12/15/22 14:18	12/16/22 16:57	1
	101							
1-Chlorooctane o-Terphenyl	101 98		70 - 130			12/15/22 14:18	12/16/22 16:57	
1-Chlorooctane o-Terphenyl	98	ography - So				12/15/22 14:18	12/16/22 16:57	1
1-Chlorooctane	98 s, Ion Chromato	ography - So Qualifier		Unit	D	12/15/22 14:18  Prepared	12/16/22 16:57  Analyzed	Dil Fac

DFBZ = 1,4-Difluorobenzene (Surr)

# **Surrogate Summary**

Client: Ensolum Job ID: 890-3637-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

-				Percent Surrogate Re
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
880-22528-A-1-C MS	Matrix Spike	97	109	
880-22528-A-1-D MSD	Matrix Spike Duplicate	104	117	
890-3637-1	SS05	105	118	
890-3637-2	SS06	102	107	
LCS 880-42357/1-A	Lab Control Sample	109	113	
LCSD 880-42357/2-A	Lab Control Sample Dup	123	117	
MB 880-42357/5-A	Method Blank	85	102	
Surrogate Legend				
BFB = 4-Bromofluorober	zene (Surr)			

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

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

_			
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-3615-A-1-E MS	Matrix Spike	109	98
890-3615-A-1-F MSD	Matrix Spike Duplicate	105	86
890-3637-1	SS05	112	107
890-3637-2	SS06	101	98
LCS 880-41926/2-A	Lab Control Sample	98	111
LCSD 880-41926/3-A	Lab Control Sample Dup	128	134 S1+
MB 880-41926/1-A	Method Blank	112	115

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Client: Ensolum Job ID: 890-3637-1 SDG: Eddy County NM Project/Site: PLU 27 BD 161H

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-42357/5-A

Analysis Batch: 42409

**Matrix: Solid** 

MR MR

Cheffi Sample ID. Wethou Blank
Prep Type: Total/NA

Prep Batch: 42357

	IND	1410						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	1

MB MB

Surrogate	%Recovery Qua	ıalifier Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85	70 - 130	12/20/22 21:30	12/21/22 17:53	1
1,4-Difluorobenzene (Surr)	102	70 <sub>-</sub> 130	12/20/22 21:30	12/21/22 17:53	1

Lab Sample ID: LCS 880-42357/1-A

Matrix: Solid

Analysis Batch: 42409

Client	Sample	ID: La	ab Contro	ol Sample	
	-			-	

Prep Type: Total/NA

Prep Batch: 42357

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.09323		mg/Kg		93	70 - 130	
Toluene	0.100	0.09102		mg/Kg		91	70 - 130	
Ethylbenzene	0.100	0.09651		mg/Kg		97	70 - 130	
m-Xylene & p-Xylene	0.200	0.2008		mg/Kg		100	70 - 130	
o-Xylene	0.100	0.1003		mg/Kg		100	70 - 130	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits	
4-Bromofluorobenzene (Surr)	109		70 - 130	
1,4-Difluorobenzene (Surr)	113		70 - 130	

Lab Sample ID: LCSD 880-42357/2-A

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Lab Control Sample Dup	Client Sam	ple ID: Lab	<b>Control San</b>	nple Dup
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Prep Type: Total/NA

Prep Batch: 42357

	Spike	LCSD	LCSD				%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.09835		mg/Kg		98	70 - 130	5	35	
Toluene	0.100	0.1014		mg/Kg		101	70 - 130	11	35	
Ethylbenzene	0.100	0.1122		mg/Kg		112	70 - 130	15	35	
m-Xylene & p-Xylene	0.200	0.2388		mg/Kg		119	70 - 130	17	35	
o-Xylene	0.100	0.1195		mg/Kg		119	70 - 130	17	35	

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	123		70 - 130
1.4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: 880-22528-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Matrix Sp	ke
Prep Type: Total/	NA

Prep Batch: 42357

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00199	U	0.101	0.09286		mg/Kg		92	70 - 130	
Toluene	<0.00199	U	0.101	0.08719		mg/Kg		86	70 - 130	

# **QC Sample Results**

Job ID: 890-3637-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

Lab Sample ID: 880-22528-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 42357

	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Ethylbenzene	<0.00199	U	0.101	0.08338		mg/Kg		83	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.202	0.1725		mg/Kg		86	70 - 130
o-Xylene	< 0.00199	U	0.101	0.08628		mg/Kg		85	70 - 130

MS MS

Surrogate	%Recovery Qualifi	ier Limits
4-Bromofluorobenzene (Surr)	97	70 - 130
1,4-Difluorobenzene (Surr)	109	70 - 130

**Client Sample ID: Matrix Spike Duplicate** 

Prep Type: Total/NA

Prep Batch: 42357

Lab Sample ID: 880-22528-A-1-D MSD **Matrix: Solid** 

**Analysis Batch: 42409** 

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00199	U	0.0996	0.09619		mg/Kg		97	70 - 130	4	35
Toluene	<0.00199	U	0.0996	0.08829		mg/Kg		89	70 - 130	1	35
Ethylbenzene	< 0.00199	U	0.0996	0.08535		mg/Kg		86	70 - 130	2	35
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1807		mg/Kg		91	70 - 130	5	35
o-Xylene	< 0.00199	U	0.0996	0.09565		mg/Kg		95	70 - 130	10	35

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

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

Lab Sample ID: MB 880-41926/1-A

**Matrix: Solid** 

Analysis Batch: 41982

Client Sample ID: Method Blank
Prep Type: Total/NA
Duran Datala 44000

Prep Batch: 41926

	IVID	IAID						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1

MB MB

MR MR

Surrogate	%Recovery	Qualifier	Limits	Pro	epared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130	12/15	5/22 14:18	12/16/22 08:33	1
o-Terphenyl	115		70 - 130	12/15	5/22 14:18	12/16/22 08:33	1

Lab Sample ID: LCS 880-41926/2-A

**Matrix: Solid** 

Analysis Batch: 41982

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Prep Batch: 41926

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	1000	918.4		mg/Kg		92	70 - 130	 
(GRO)-C6-C10								
Diesel Range Organics (Over	1000	903.8		mg/Kg		90	70 - 130	
C10-C28)								

Lab Sample ID: LCSD 880-41926/3-A

Job ID: 890-3637-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

LCS LCS

Lab Sample ID: LCS 880-41926/2-A Client Sample ID: Lab Control Sample

Limits

**Matrix: Solid** 

Analysis Batch: 41982

Prep Type: Total/NA

Prep Batch: 41926

Surrogate %Recovery Qualifier 1-Chlorooctane 98 70 - 130 o-Terphenyl 111 70 - 130

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41926

**Matrix: Solid** Analysis Batch: 41982 Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit

1000 1055 105 70 - 13014 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 1147 \*1 mg/Kg 115 70 - 13024 20 C10-C28)

LCSD LCSD Surrogate %Recovery Qualifier Limits 70 - 130 1-Chlorooctane 128 134 S1+ 70 - 130 o-Terphenyl

Lab Sample ID: 890-3615-A-1-E MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

**Analysis Batch: 41982** 

Prep Type: Total/NA

Prep Batch: 41926

Sample Sample MS MS Spike Added Analyte Result Qualifier Result Qualifier Unit %Rec Limits D Gasoline Range Organics <50.0 U F2 999 1283 mg/Kg 128 70 - 130 (GRO)-C6-C10 <50.0 U \*1 Diesel Range Organics (Over 999 1096 mg/Kg 110 70 - 130

C10-C28)

MS MS %Recovery Qualifier Surrogate Limits 70 - 130 1-Chlorooctane 109 o-Terphenyl 98 70 - 130

Lab Sample ID: 890-3615-A-1-F MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Analysis Batch: 41982

Prep Type: Total/NA

Prep Batch: 41926

Sample Sample MSD MSD RPD Spike %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits **RPD** Limit U F2 997 988.5 F2 Gasoline Range Organics <50.0 99 70 - 130 26 20 mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U \*1 997 942.5 mg/Kg 95 70 - 130 15 20

C10-C28)

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	105		70 - 130
o-Terphenyl	86		70 - 130

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Client Sample ID: SS05** 

Client Sample ID: SS05 **Prep Type: Soluble** 

**Prep Type: Soluble** 

# QC Sample Results

Client: Ensolum Job ID: 890-3637-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41923/1-A

**Matrix: Solid** 

Analysis Batch: 42049

MB MB

Dil Fac Analyte Result Qualifier RL Unit D Prepared Analyzed Chloride <5.00 U 5.00 mg/Kg 12/19/22 21:05

Lab Sample ID: LCS 880-41923/2-A

**Matrix: Solid** 

**Analysis Batch: 42049** 

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 235.6 mg/Kg 94 90 - 110

Lab Sample ID: LCSD 880-41923/3-A

**Matrix: Solid** 

Analysis Batch: 42049

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 237.1 90 - 110 mg/Kg

Lab Sample ID: 890-3637-1 MS

**Matrix: Solid** 

Analysis Batch: 42049

MS MS Sample Sample Spike %Rec Analyte Result Qualifier Added Qualifier Unit %Rec Result Limits 6580 5020 Chloride 11410 96 90 - 110 mg/Kg

Lab Sample ID: 890-3637-1 MSD

**Matrix: Solid** 

Analysis Batch: 42049

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 5020 6580 11440 mg/Kg 97 90 - 110 0 20

# **QC Association Summary**

Client: Ensolum Job ID: 890-3637-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

**GC VOA** 

Prep Batch: 42357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-1	SS05	Total/NA	Solid	5035	
890-3637-2	SS06	Total/NA	Solid	5035	
MB 880-42357/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 42409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-1	SS05	Total/NA	Solid	8021B	42357
890-3637-2	SS06	Total/NA	Solid	8021B	42357
MB 880-42357/5-A	Method Blank	Total/NA	Solid	8021B	42357
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	8021B	42357
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	42357
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	42357
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	42357

Analysis Batch: 42520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-1	SS05	Total/NA	Solid	Total BTEX	
890-3637-2	SS06	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 41926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-1	SS05	Total/NA	Solid	8015NM Prep	
890-3637-2	SS06	Total/NA	Solid	8015NM Prep	
MB 880-41926/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41926/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41926/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3615-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3615-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 41982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-1	SS05	Total/NA	Solid	8015B NM	41926
890-3637-2	SS06	Total/NA	Solid	8015B NM	41926
MB 880-41926/1-A	Method Blank	Total/NA	Solid	8015B NM	41926
LCS 880-41926/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41926
LCSD 880-41926/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41926
890-3615-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	41926
890-3615-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41926

Analysis Batch: 42185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-1	SS05	Total/NA	Solid	8015 NM	
890-3637-2	SS06	Total/NA	Solid	8015 NM	

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# **QC Association Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

SDG: Eddy County NM

#### HPLC/IC

#### Leach Batch: 41923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-1	SS05	Soluble	Solid	DI Leach	
890-3637-2	SS06	Soluble	Solid	DI Leach	
MB 880-41923/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3637-1 MS	SS05	Soluble	Solid	DI Leach	
890-3637-1 MSD	SS05	Soluble	Solid	DI Leach	

#### Analysis Batch: 42049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-1	SS05	Soluble	Solid	300.0	41923
890-3637-2	SS06	Soluble	Solid	300.0	41923
MB 880-41923/1-A	Method Blank	Soluble	Solid	300.0	41923
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	300.0	41923
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41923
890-3637-1 MS	SS05	Soluble	Solid	300.0	41923
890-3637-1 MSD	SS05	Soluble	Solid	300.0	41923

Job ID: 890-3637-1

SDG: Eddy County NM

**Client Sample ID: SS05** 

Project/Site: PLU 27 BD 161H

Client: Ensolum

Lab Sample ID: 890-3637-1

Matrix: Solid

Date Collected: 12/07/22 12:45 Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	42357	12/20/22 21:30	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42409	12/21/22 19:17	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42520	12/22/22 13:15	SM	EET MID
Total/NA	Analysis	8015 NM		1			42185	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	41926	12/15/22 14:18	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 16:35	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		20	50 mL	50 mL	42049	12/19/22 21:18	CH	EET MID

**Client Sample ID: SS06** Lab Sample ID: 890-3637-2

Date Collected: 12/07/22 13:00 Matrix: Solid

Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	42357	12/20/22 21:30	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42409	12/21/22 19:37	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42520	12/22/22 13:15	SM	EET MID
Total/NA	Analysis	8015 NM		1			42185	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	41926	12/15/22 14:18	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 16:57	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	42049	12/19/22 21:32	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: PLU 27 BD 161H

SDG: Eddy County NM

**Laboratory: Eurofins Midland** 

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

Authority Texas		ogram	Identification Number	Expiration Date
		ELAP	T104704400-22-25	06-30-23
The following analytes	are included in this report, bu	it the laboratory is not certific	ed by the governing authority. This list ma	av include analytes for w
the agency does not of	fer certification.	,,	ou by the generaling duriently.	ay molado analytoo for w
the agency does not of Analysis Method	fer certification.  Prep Method	Matrix	Analyte	ay molade analytee for the
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# **Method Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3637-1

SDG: Eddy County NM

Protocol	Laboratory
SW846	EET MID
TAL SOP	EET MID
SW846	EET MID
SW846	EET MID
MCAWW	EET MID

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: PLU 27 BD 161H

Job ID: 890-3637-1

SDG: Eddy County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	De
890-3637-1	SS05	Solid	12/07/22 12:45	12/13/22 13:30	0.5'
890-3637-2	SS06	Solid	12/07/22 13:00	12/13/22 13:30	0.5'

Circle Method(s) and Metal(s) to be analyzed

Total 200.7 / 6010

200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb

As Ba

Ве

0 Cd Ca

Cr Co Cu Fe Pb Mg Mn Mo Ni K Se

Ag SiO<sub>2</sub> Na Sr Tl Sn U V Zn Hg: 1631 / 245.1 / 7470 / 7471

NAPP2217546910 Incident Number

TCLP / SPLP 6010: 8RCRA

Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U

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eurofins

**Environment Testing** Xenco

# Chain of Custody

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. Carlebed, NM (575) 988-3189 Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300

Work Order No:

www.xenco.com Fage
Work Order Comments
Program: UST/PST   PRP   Brownfields   RRC   Superfund
State of Project:
Reporting Level II DLevel III DPST/UST TRRP Level IV
Deliverables: EDD

Cn.	w	-		0 0
	(	1 62	Relinquished by: (Signature)	service. Eurofins Xenco will be liable only Eurofins Xenco. A minimum charge of \$85
		Anos wa Stor 18/13/00 18/30	Received by: (Signature)	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 \$55,000 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 negotiate.
		19/13/92/	Date/Time	lity for any losses or expenses a sample submitted to Eurofins
G)	۵	<b>\$</b> 30	Relinquished by: (Signature)	incurred by the client if such losses are due to cli Xenco, but not analyzed. These terms will be enfo
			Received by: (Signature)	due to circumstances beyond the control III be enforced unless previously negotiated.
			Date/Time	

NaOH+Ascorbic Acid: SAPC Zn Acetate+NaOH: Zn Na2S2O3 NaSO3 NaHSO, NABIS

Sample Comments

Cost Center: 1666961001

SAMPLE RECEIPT

Temp Blank

Thermometer ID Correction Factor Temperature Reading Corrected Temperature

Wet Ice

13 Yes No

**Parameters** 

Samples Received Intact

Cooler Custody Seals

imple Custody Seals

Yes No Yes No

N/A NA

Sample Identification SS05 SS06

Matrix

Sampled

Time

Depth

Comp Grab/

Cont # 0

TPH (8015)

BTEX (8021

50

CHLORIDES (EPA: 300.0)

890-3637 Chain of Custody

တ တ

12/7/2022 12/7/2022

1300

0.5 0.5

×

 $\times$ ×

1245 Sampled

Grab/ Grab/

Sampler's Name Project Location Project Number

EDDY COUNTY, NM

Due Date:

TAT starts the day received by the lab, if received by 4:30pm

☑ Routine

Rush

Code

Cool: Cool

MeOH: Me HNO<sub>3</sub> HN NaOH: Na

None NO

DI Water H2O

H3PO4 HP H.SO4: H2 Turn Around

Chris Brown

City. State ZIP Address

9898540852

Email: bbelil@ensolum.com

roject Name

PLU 27 BD 161H 03E1558089

Company Name Project Manager

Ensolum, LLC Ben Belill

3122 National parks Hwy

Address

City State ZIP

Carlsbad, NM 88220 3104 E. Green Street XTO Energy, Inc. Garrett Green

Bill to (# different)

Company Name

Carlsbad, NM 88220

Carlsbad NM 88220

Eurofins Carlsbad 1089 N Canal St

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# Chain of Custody Record

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Environment Testing

State Zip. TX, 79701 Project Name: PLU 27 BD 161H Empty Kit Relinquished by Note 'Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central. LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central. LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central. LLC SS06 (890-3637-2) SS05 (890-3637-1) Sample Identification - Client ID (Lab ID) 432-704-5440(Tel) Deliverable Requested I II III, IV, Other (specify) Possible Hazard Identification Phone: 575-988-3199 Fax: 575-988-3199 Midland Client Information 211 W Florida Ave, elinquished by: linquished by urofins Environment Testing South Centr confirmed inquished by nipping/Receiving 6 (Sub Contract Lab) Custody Seal No ₩0# Phone Primary Deliverable Rank. Due Date Requested 12/19/2022 Date/Time TAT Requested (days) 89000093 12/7/22 12/7/22 Mountain 13 00 Mountain Sample Time 12 45 (C=comp, Sample Type Preservation Code Company Company Matrix Solid Solid E-Mail Kramer Jessica Jessica Kramer@et.eurofinsus.com Time: Field Filtered Sample (Yes or No) NELAP - Texas Accreditations Required (See note) Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mon Perform MS/MSD (Yes or No) Special Instructions/QC Requirements Cooler Temperature(s) °C and Other Remarks × × 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH Received by × × 8015MOD\_Calc × 300\_ORGFM\_28D/DI\_LEACH Chloride × × 8021B/5035FP\_Calc (MOD) BTEX Analysis Requested × × Total\_BTEX\_GCV New Mexico State of Origin: arrier Tracking No(s). Method of Shipment Date/Time Date/Time Total Number of containers A HCL
B - NaOH
C Zn Acetale
C Zn Acetale
C - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid COC No: 890-1064 1 J DI Water K EDTA L-EDA Page 1 of 1 Preservation Codes 890-3637-1 M Hexane
N None
N None
N None
N None
N None
N None
N Nacoca
Acid Q Nazoo3
A R NazS203
A R NazS203
A T TSP Dodecahydrate
U - Acetone
V MCAA
W pH 4.5
/ Tripro---Special Instructions/Note: Company Ver: 06/08/2021 Company company other (specify)

**Eurofins Carlsbad** 1089 N Canal St.

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Chain of Custody Record

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eurofins :

**Environment Testing** 

State Zip: TX 79701 Note: Since laboratory accreditations are subject to change Eurofins Environment Testing South Central, LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody if the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC. Sample Identification - Client ID (Lab ID PLU 27 BD 161H SS06 (890-3637-2) Midland Deliverable Requested 1 II III IV, Other (specify) SS05 (890-3637-1) 432-704-5440(Tel) 1211 W Florida Ave Eurofins Environment Testing South Cente Client Information (Sub Contract Lab) Carlsbad, NM 88220 Phone. 575-988-3199 Fax. 575-988-3199 Empty Kit Relinquished by ossible Hazard Identification elinquished by elinquished by hipping/Receiving Custody Seals Intact: linquished by Υes 8 6 Custody Seal No Project #: 89000093 Sampler Primary Deliverable Rank 2 Date/Time PO# Due Date Requested 12/19/2022 Phone: Jate/Ilme SOW#: FAT Requested (days) 12/7/22 12/7/22 Date Mountain Mountain 13 00 Sample 12 45 (C=comp, G=grab) Sample Type Preservation Code: Company Company Company Matrix Solid Solid Lab PM Kramer, Jessica Jessica Kramer@et.eurofinsus com Accreditations Required (See note)
NELAP - Texas Time: Perform MS/MSD (Yes or No) Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal Ret Lab Archive For Month Special Instructions/QC Requirements 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH Cooler Temperature(s) °C and Other Remarks Received by: × × Return To Client × × 8015MOD\_Calc 300\_ORGFM\_28D/DI\_LEACH Chloride × × × × 8021B/5035FP\_Calc (MOD) BTEX Analysis Requested × Total\_BTEX\_GCV × Disposal By Lab State of Origin: New Mexico Camer Tracking No(s) Method of Shipment Date/Time Date/Time Date/Time Total Number of containers A HCL
B NaOH
C-Zn Acetate
D Nitric Acid
F-NaHSO4
F-NahSO4
H-Ascorbic Acid
I-loe
J DI Water
K-EDTA
L EDA Page Page 1 of 1 COC No 890-1064 1 890-3637-1 Special Instructions/Note: M - Hexane
N None
O - AsNac/2
P Na2O4S
Q - Na2SO3
R Na2SO3
R Na2SO3
R Na2SO3
V - H4-5
V MCAA
W - H4-5
Y Tizma
Z - other (specify) Company Ver: 06/08/2021 Months

# **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3637-1

SDG Number: Eddy County NM

Login Number: 3637 List Source: Eurofins Carlsbad List Number: 1

Creator: Stutzman, Amanda

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

# **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3637-1

SDG Number: Eddy County NM

List Source: Eurofins Midland

List Creation: 12/15/22 11:29 AM

List Number: 2 Creator: Teel, Brianna

Login Number: 3637

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

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**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Ben Belill Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 12/22/2022 12:58:24 PM

# **JOB DESCRIPTION**

PLU 27 BD 161H SDG NUMBER Eddy County NM

# **JOB NUMBER**

890-3638-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

# **Eurofins Carlsbad**

# **Job Notes**

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

# **Authorization**

Generated 12/22/2022 12:58:24 PM

Authorized for release by Jessica Kramer, Project Manager Jessica.Kramer@et.eurofinsus.com (432)704-5440 1

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Client: Ensolum
Project/Site: PLU 27 BD 161H
Laboratory Job ID: 890-3638-1
SDG: Eddy County NM

# **Table of Contents**

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#### **Definitions/Glossary**

Job ID: 890-3638-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

#### **Qualifiers**

#### **GC VOA**

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

#### **GC Semi VOA**

#### Qualifier **Qualifier Description**

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

#### **HPLC/IC**

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

#### **Glossary**

Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	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

Dil Fac Dilution Factor

Detection Limit (DoD/DOE) DL

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) Most Probable Number MPN MQL Method Quantitation Limit

Not Calculated NC

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)

Relative Percent Difference, a measure of the relative difference between two points RPD

Toxicity Equivalent Factor (Dioxin) TEF TEQ Toxicity Equivalent Quotient (Dioxin)

**TNTC** Too Numerous To Count

#### **Case Narrative**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3638-1

SDG: Eddy County NM

Job ID: 890-3638-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3638-1

#### Receipt

The sample was received on 12/13/2022 1:30 PM. 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 5.6°C

#### **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: SS07 (890-3638-1).

#### **GC VOA**

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-22528-A-1-E). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

#### GC Semi VOA

Method 8015MOD NM: The surrogate recovery for the blank associated with preparation batch 880-42002 and analytical batch 880-42108 was outside the upper control limits.

Method 8015MOD\_NM: The method blank for preparation batch 880-42002 and analytical batch 880-42108 contained Gasoline Range Organics (GRO)-C6-C10 above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

#### HPLC/IC

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

# **Client Sample Results**

Client: Ensolum Job ID: 890-3638-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Client Sample ID: SS07

Date Collected: 12/07/22 13:15

Lab Sample ID: 890-3638-1

Matrix: Solid

Date Received: 12/13/22 13:30 Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 19:58	1
Toluene	<0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 19:58	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 19:58	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/20/22 21:30	12/21/22 19:58	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 19:58	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/20/22 21:30	12/21/22 19:58	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130			12/20/22 21:30	12/21/22 19:58	1
1,4-Difluorobenzene (Surr)	102		70 - 130			12/20/22 21:30	12/21/22 19:58	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	•	0.00398	mg/Kg			12/22/22 13:15	
•								
Method: SW846 8015 NM - Diese	al Pango Organ	ice (DRO) ((	SC)					
Method: SW846 8015 NM - Diese Analyte		ics (DRO) ((	GC)	Unit	D	Prepared	Analyzed	Dil Fac
		Qualifier	•	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 12/19/22 15:23	Dil Fac
Analyte Total TPH	Result < 50.0	Qualifier U	50.0		<u>D</u>	Prepared		
Analyte Total TPH  Method: SW846 8015B NM - Dies	Result  <50.0 sel Range Organia	Qualifier U	50.0		<u>D</u>	Prepared Prepared		1
Analyte Total TPH Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	Result  <50.0 sel Range Organia	Qualifier Unics (DRO) Qualifier	RL 50.0	mg/Kg			12/19/22 15:23	
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result  <50.0 sel Range Orga Result	Qualifier U  nics (DRO) Qualifier U	RL	mg/Kg		Prepared	12/19/22 15:23  Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result <50.0  sel Range Orga Result <50.0	Qualifier U  nics (DRO) Qualifier U	(GC) RL 50.0	mg/Kg  Unit  mg/Kg		Prepared 12/16/22 09:37	12/19/22 15:23  Analyzed  12/18/22 12:27	Dil Fac
Analyte	Result   <50.0	Qualifier U  nics (DRO) Qualifier U  U	RL 50.0  (GC)  RL 50.0  50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37	12/19/22 15:23  Analyzed 12/18/22 12:27 12/18/22 12:27	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result   <50.0	Qualifier U  nics (DRO) Qualifier U  U	RL 50.0  (GC)  RL 50.0  50.0  50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37	12/19/22 15:23  Analyzed 12/18/22 12:27 12/18/22 12:27 12/18/22 12:27	Dil Face 1 1 1 Dil Face
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result	Qualifier U  nics (DRO) Qualifier U  U	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37 Prepared	12/19/22 15:23  Analyzed  12/18/22 12:27  12/18/22 12:27  12/18/22 12:27  Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <50.0	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits  70 - 130  70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37  Prepared 12/16/22 09:37	12/19/22 15:23  Analyzed  12/18/22 12:27  12/18/22 12:27  12/18/22 12:27  Analyzed  12/18/22 12:27	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result   <50.0	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits  70 - 130  70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37  Prepared 12/16/22 09:37	12/19/22 15:23  Analyzed  12/18/22 12:27  12/18/22 12:27  12/18/22 12:27  Analyzed  12/18/22 12:27	Dil Fac

# **Surrogate Summary**

Job ID: 890-3638-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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)	
880-22528-A-1-C MS	Matrix Spike	97	109	
880-22528-A-1-D MSD	Matrix Spike Duplicate	104	117	
890-3638-1	SS07	120	102	
LCS 880-42357/1-A	Lab Control Sample	109	113	
LCSD 880-42357/2-A	Lab Control Sample Dup	123	117	
MB 880-42357/5-A	Method Blank	85	102	
Surrogate Legend				

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

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		1001	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
390-3638-1	SS07	112	105	
890-3638-1 MS	SS07	92	72	
890-3638-1 MSD	SS07	106	81	
LCS 880-42002/2-A	Lab Control Sample	82	91	
LCSD 880-42002/3-A	Lab Control Sample Dup	108	99	
MB 880-42002/1-A	Method Blank	139 S1+	131 S1+	

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Job ID: 890-3638-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-42357/5-A

Lab Sample ID: LCS 880-42357/1-A

**Matrix: Solid** 

**Matrix: Solid** Analysis Batch: 42409

Project/Site: PLU 27 BD 161H

Client: Ensolum

Client Sample ID: Method Blank

Prep Type: Total/NA

SDG: Eddy County NM

Prep Batch: 42357

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Pr	epared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 130	12/20	)/22 21:30	12/21/22 17:53	1
1,4-Difluorobenzene (Surr)	102		70 - 130	12/20	)/22 21:30	12/21/22 17:53	1

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 42357

Analysis Batch: 42409 LCS LCS Spike Analyte Added Result Qualifier Unit %Rec Limits Benzene 0.100 0.09323 mg/Kg 93 70 - 130 Toluene 0.100 0.09102 mg/Kg 91 70 - 130 0.100 0.09651 Ethylbenzene mg/Kg 97 70 - 130 0.200 0.2008 100 70 - 130 m-Xylene & p-Xylene mg/Kg 0.100 0.1003 70 - 130 o-Xylene mg/Kg 100

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,4-Difluorobenzene (Surr)	113		70 - 130

Client Sample ID: Lab Control Sample Dup

**Matrix: Solid** 

Analysis Batch: 42409

Lab Sample ID: LCSD 880-42357/2-A

Prep Type: Total/NA Prep Batch: 42357

	<b>Spike</b>	LCSD	LCSD				%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.09835		mg/Kg		98	70 - 130	5	35	
Toluene	0.100	0.1014		mg/Kg		101	70 - 130	11	35	
Ethylbenzene	0.100	0.1122		mg/Kg		112	70 - 130	15	35	
m-Xylene & p-Xylene	0.200	0.2388		mg/Kg		119	70 - 130	17	35	
o-Xylene	0.100	0.1195		mg/Kg		119	70 - 130	17	35	

LCSD LCSD

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	123	70 - 130
1,4-Difluorobenzene (Surr)	117	70 - 130

Lab Sample ID: 880-22528-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 42409

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

Prep Batch: 42357

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00199	U	0.101	0.09286		mg/Kg		92	70 - 130	
Toluene	<0.00199	U	0.101	0.08719		mg/Kg		86	70 - 130	

# QC Sample Results

Client: Ensolum Job ID: 890-3638-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

Lab Sample ID: 880-22528-A-1-C MS

Lab Sample ID: 880-22528-A-1-D MSD

**Matrix: Solid** 

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 42357

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Ethylbenzene	<0.00199	U	0.101	0.08338		mg/Kg		83	70 - 130	
m-Xylene & p-Xylene	<0.00398	U	0.202	0.1725		mg/Kg		86	70 - 130	
o-Xylene	< 0.00199	U	0.101	0.08628		mg/Kg		85	70 - 130	

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	97	70 - 130
1,4-Difluorobenzene (Surr)	109	70 - 130

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 42357

RPD

Analysis Batch: 42409 Sample Sample Spike MSD MSD Result Qualifier Added Result Qualifier RPD Limit Analyte Unit %Rec Limits 0.0996 Benzene <0.00199 U 0.09619 mg/Kg 97 70 - 130 4 35 Toluene <0.00199 U 0.08829 0.0996 mg/Kg 89 70 - 130 35 Ethylbenzene <0.00199 U 0.0996 0.08535 mg/Kg 86 70 - 130 2 35 <0.00398 U 0.199 0.1807 91 70 - 130 35 m-Xylene & p-Xylene mg/Kg 5 <0.00199 U 0.0996 0.09565 95 70 - 130 o-Xylene mg/Kg 10

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

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

Lab Sample ID: MB 880-42002/1-A

**Matrix: Solid** 

Analysis Batch: 42108

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42002

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/16/22 09:37	12/18/22 09:55	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/16/22 09:37	12/18/22 09:55	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/16/22 09:37	12/18/22 09:55	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	ı	Prepared	Analyzed	Dil Fac
1-Chlorooctane	139	S1+	70 - 130	12/	16/22 09:37	12/18/22 09:55	1
o-Terphenyl	131	S1+	70 - 130	12/	16/22 09:37	12/18/22 09:55	1

Lab Sample ID: LCS 880-42002/2-A

**Matrix: Solid** 

**Analysis Batch: 42108** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Prep Batch: 42002

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	1000	843.1		mg/Kg		84	70 - 130	
(GRO)-C6-C10								
Diesel Range Organics (Over	1000	745.4		mg/Kg		75	70 - 130	
C10-C28)								

Job ID: 890-3638-1

Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

LCS LCS

Lab Sample ID: LCS 880-42002/2-A Client Sample ID: Lab Control Sample

**Matrix: Solid** 

Analysis Batch: 42108

Prep Type: Total/NA

Prep Batch: 42002

Surrogate %Recovery Qualifier Limits 1-Chlorooctane 82 70 - 130 o-Terphenyl 91 70 - 130

Lab Sample ID: LCSD 880-42002/3-A Client Sample ID: Lab Control Sample Dup

**Matrix: Solid** 

**Analysis Batch: 42108** 

Prep Type: Total/NA

Prep Batch: 42002

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit 1000 871.7 87 70 - 1303 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 818.2 mg/Kg 82 70 - 1309 20

C10-C28)

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	108		70 - 130
o-Terphenyl	99		70 - 130

Lab Sample ID: 890-3638-1 MS **Client Sample ID: SS07 Matrix: Solid** Prep Type: Total/NA

**Analysis Batch: 42108** 

Prep Batch: 42002

Sample Sample Spike MS MS Added Result Qualifier Analyte Result Qualifier Unit D %Rec Limits Gasoline Range Organics <50.0 U 999 774.5 mg/Kg 74 70 - 130 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 999 908.6 mg/Kg 91 70 - 130 C10-C28)

MS MS %Recovery Qualifier Limits Surrogate 70 - 130 1-Chlorooctane 92 o-Terphenyl 72 70 - 130

Lab Sample ID: 890-3638-1 MSD **Client Sample ID: SS07** 

**Matrix: Solid** 

**Analysis Batch: 42108** 

Prep Type: Total/NA Prep Batch: 42002

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	885.1		mg/Kg		86	70 - 130	13	20	
Diesel Range Organics (Over	<50.0	U	997	1027		mg/Kg		103	70 - 130	12	20	

C10-C28)

MSD MSD

Surrogate	%Recovery Qualifier	Limits
1-Chlorooctane	106	70 - 130
o-Terphenyl	81	70 - 130

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

**Prep Type: Soluble** 

Client Sample ID: Matrix Spike

Client Sample ID: Matrix Spike Duplicate

# QC Sample Results

Client: Ensolum Job ID: 890-3638-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41923/1-A

**Matrix: Solid** 

Analysis Batch: 42049

MB MB

Dil Fac Analyte Result Qualifier RL Unit D Prepared Analyzed Chloride <5.00 U 5.00 mg/Kg 12/19/22 21:05

Lab Sample ID: LCS 880-41923/2-A

**Matrix: Solid** 

**Analysis Batch: 42049** 

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 235.6 mg/Kg 94 90 - 110

Lab Sample ID: LCSD 880-41923/3-A

**Matrix: Solid** 

Analysis Batch: 42049

LCSD LCSD RPD Spike %Rec Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 237.1 mg/Kg 90 - 110

Lab Sample ID: 890-3637-A-1-B MS

**Matrix: Solid** 

Analysis Batch: 42049

MS MS Sample Sample Spike %Rec Analyte Qualifier Added %Rec Result Result Qualifier Unit Limits 6580 5020 Chloride 11410 90 - 110 mg/Kg

Lab Sample ID: 890-3637-A-1-C MSD

**Matrix: Solid** 

Analysis Batch: 42049

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit 5020 Chloride 6580 11440 mg/Kg 97 90 - 110 0 20

# **QC Association Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3638-1 SDG: Eddy County NM

#### **GC VOA**

#### Prep Batch: 42357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3638-1	SS07	Total/NA	Solid	5035	
MB 880-42357/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

# Analysis Batch: 42409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3638-1	SS07	Total/NA	Solid	8021B	42357
MB 880-42357/5-A	Method Blank	Total/NA	Solid	8021B	42357
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	8021B	42357
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	42357
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	42357
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	42357

#### Analysis Batch: 42521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3638-1	SS07	Total/NA	Solid	Total BTEX	

#### **GC Semi VOA**

#### Prep Batch: 42002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3638-1	SS07	Total/NA	Solid	8015NM Prep	
MB 880-42002/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-42002/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-42002/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3638-1 MS	SS07	Total/NA	Solid	8015NM Prep	
890-3638-1 MSD	SS07	Total/NA	Solid	8015NM Prep	

#### Analysis Batch: 42108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3638-1	SS07	Total/NA	Solid	8015B NM	42002
MB 880-42002/1-A	Method Blank	Total/NA	Solid	8015B NM	42002
LCS 880-42002/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	42002
LCSD 880-42002/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	42002
890-3638-1 MS	SS07	Total/NA	Solid	8015B NM	42002
890-3638-1 MSD	SS07	Total/NA	Solid	8015B NM	42002

#### Analysis Batch: 42204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3638-1	SS07	Total/NA	Solid	8015 NM	

#### HPLC/IC

#### Leach Batch: 41923

Released to Imaging: 5/19/2023 8:53:13 AM

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3638-1	SS07	Soluble	Solid	DI Leach	
MB 880-41923/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

# **QC Association Summary**

Client: Ensolum Job ID: 890-3638-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

# **HPLC/IC** (Continued)

#### Leach Batch: 41923 (Continued)

Released to Imaging: 5/19/2023 8:53:13 AM

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3637-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

#### **Analysis Batch: 42049**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3638-1	SS07	Soluble	Solid	300.0	41923
MB 880-41923/1-A	Method Blank	Soluble	Solid	300.0	41923
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	300.0	41923
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41923
890-3637-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	41923
890-3637-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41923

#### Lab Chronicle

Client: Ensolum

Project/Site: PLU 27 BD 161H

SDG: Eddy County NM

Client Sample ID: SS07 Lab Sample ID: 890-3638-1

Matrix: Solid

Date Collected: 12/07/22 13:15 Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	42357	12/20/22 21:30	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42409	12/21/22 19:58	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42521	12/22/22 13:15	SM	EET MID
Total/NA	Analysis	8015 NM		1			42204	12/19/22 15:23	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	42002	12/16/22 09:37	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	42108	12/18/22 12:27	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		20	50 mL	50 mL	42049	12/19/22 21:36	CH	EET MID

#### Laboratory References:

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

**Eurofins Carlsbad** 

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# **Accreditation/Certification Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

SDG: Eddy County NM

#### **Laboratory: Eurofins Midland**

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

Authority	Pr	ogram	Identification Number	Expiration Date
Texas	NE	ELAP	T104704400-22-25	06-30-23
The following analytes	are included in this report, bu	it the laboratory is not certifi	ied by the governing authority. This list ma	ιy include analytes for ι
the agency does not of	fer certification.			
the agency does not of Analysis Method	fer certification. Prep Method	Matrix	Analyte	

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# **Method Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3638-1

SDG: Eddy County NM

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: PLU 27 BD 161H

Job ID: 890-3638-1

SDG: Eddy County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3638-1	SS07	Solid	12/07/22 13:15	12/13/22 13:30	0.5'

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Chain of Custody

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				Hobb	a, NM (67	5) 392-75	50, Carlsb	Hobbs, NM (675) 392-7550, Carlsbad, NM (575) 986-3199	988-3199			W.WW.Xe	www.xenco.com	Page 1 of 1
Project Manager Be	Ben Belili			Bill to (if different)		Garrett Green	een					Wor	Work Order Comments	mments
	Ensolum, LLC			Company Name:		XTO Energy, Inc	gy, Inc.			Pr	ogram: UST	PST   PR	P   Brownfi	Program: UST/PST $\square$ PRP $\square$ Brownfields $\square$ RRC $\square$ Superfund $\square$
	3122 National parks Hwy	ks Hwy		Address		104 E. G	3104 E. Green Street	et		St	State of Project:	H		
City. State ZIP. Ca	Carlsbad, NM 88220	20		City. State ZIP:	C	arisbad,	Carlsbad, NM 88220	0		R	porting Leve	III Leve	III PST/U	Reporting Level III Level III PST/UST TRRP Level IV
	9898540852		Email	bbelii@ensolum.com	um.com					Do	Deliverables: EDD	000	ADaPT 🗆	☐ Other:
Name	PLU 27 BD 161H	D 161H	Turn	Turn Around					ANALYSIS REQ	IS REQUE	UEST			Preservative Codes
Project Number	03E1558089	58089	☑ Routine	Rush	Code								Z	None: NO DI Water: H <sub>2</sub> O
Project Location	EDDY COUNTY, NM	JUTY, NM	Due Date:										C	Cool Cool MeOH: Me
Sampler's Name	Chris Brown	Brown	TAT starts the	TAT starts the day received by					_				I	
PO#		)	the lab, if rece	eived by 4 30pm	rs			_						H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na
SAMPLE RECEIPT	Temp Blank	K T BES NO	Wet Ice:	(Pes) No	nete	.0)							I	H <sub>3</sub> PO <sub>4</sub> HP
Samples Received Intact		Thermometer ID	r ID	So with	arar	: 300							. z	NaHSO4: NABIS
Cooler Custody Seals	Yes No A	NUA Correction Factor	actor	2.0	P	PA:							- 2	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> . NaSO <sub>3</sub>
Sample Custody Seals	Yes No	N/A Temperature Reading	Reading	N N			1	8	890-3638 Chain of C		ustody		Z	Zn Acetate+NaOH: Zn
Total Containers		Corrected Temperature	emperature	0.5			(802	_	_	_	-		2	Machine Acid Con C
Sample Identification		Matrix Date Sampled	Time Sampled	Depth Comp	# of	CHLOF	BTEX (							Sample Comments
SS07	S	12/7/2022	13/5	0.5' Grab/	_	×	×							Cost Center: 1666961001
														Incident Numbers: NAPP2217546810, NAPP2218236445
Total 200.7 / 6010 200.8 / 6020: Circle Method(s) and Metal(s) to be analyzed	0 200.8 / 6020: Metal(s) to be an		BRCRA 13PPM	RA 13PPM Texas 11 AI S	Al Sb As	As Ba	Be B o	Cd Ca Cr	Cu Pb N	Fe Pb Mg Vin Mo Ni S	Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	K Se A	Ag SiO <sub>2</sub> Na Sr T Hg: 1631 / 245.1	Sr TI Sn U V Zn 45.1/7470/7471
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from cilent 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 \$5.00 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	cument and relinquish: will be liable only for th um charge of \$85,00 w	ment of samples cons he cost of samples an /II be applied to each	stitutes a valid pui d shall not assum project and a cha	rchase order from le any responsibili rge of \$5 for each	client comp ty for any le sample sub	pany to Eu osses or e omitted to I	rofins Xenc kpenses in Eurofins Xe	o, its affiliat curred by the nco, but not	es and subcon collent if such analyzed. The	tractors. It ass losses are due se terms will b	igns standard to circumstance enforced unle	terms and con es beyond the ss previously	ditions control negotiated.	
Relinquished by: (Signature)	Signature)	Receive	Received by: (Signature)	ure)		Date/Time	Ō	Reling	uished by:	Relinquished by: (Signature)	ZD.	eceived by	Received by: (Signature)	Date/Time
2	2	De mary	da S	trif	12/13	eck	(3	80						
				,			-,	•						

Phone. 575-988-3199 Fax: 575-988-3199

Carlsbad NM 88220

1089 N Canal St.

**Eurofins Carlsbad** 

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Chain of Custody Record

: eurofins

**Environment Testing** 

State Zip: Note Since laboratory accreditations are subject to change Eurofins Environment Testing South Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC aboratory or other instructions will be provided. Any changes the samples must be shipped back to the Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC. Sample Identification - Client ID (Lab ID) SS07 (890-3638-1) Project Name: OKU 27 BD 161H Deliverable Requested TIT III IV Other (specify) Possible Hazard Identification 432-704-5440(Tel) Email Midland 1211 W Florida Ave Client Information (Sub Contract Lab) mpty Kit Relinquished by linquished by linquished by urofins Environment Testing South Centre hipping/Receiving Custody Seals Intact: linquished by: Yes S Z Custody Seal No Project # 89000093 Primary Deliverable Rank 2 WO# Due Date Requested 12/19/2022 Phone: FAT Requested (days): Date/Time ate/Time ate/Time 12/7/22 Mountain Sample 13 15 (C=comp, G=grab) Sample Type Preservation Code Company Company Matrix Solid Kramer, Jessica Jessica Kramer@et.eurofinsus com lime: NELAP - Texas Accreditations Required (See note) Perform MS/MSD (Yes or No) Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Month Special Instructions/QC Requirements 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH Cooler Temperature(s) °C and Other Remarks: Received by × 8015MOD\_Calc 300\_ORGFM\_28D/DI\_LEACH Chioride 8021B/5035FP\_Calc (MOD) BTEX × Analysis Requested Total\_BTEX\_GCV × State of Origin: New Mexico Carrier Tracking No(s) Date/Time Date/Time Total Number of containers A-HCL B NaOH C Zn Acetate D-Nitric Acid F MeOH G Amchlor H-Ascorbic Acid I Ice J DI Water K EDTA Page: Page 1 of 1 COC No: 890-1064 1 890-3638-1 Preservation ( Special Instructions/Note: M - Hexane
N None
O - As NaO2
P Na2O4S
Q - Na2SO3
R Na2SC3
R Na2SC3
S - H2SO4
T TSP Dodecarlydrate
U - Acetone
V MCAA
W - pH 4-5
Y Tizma
Z - other (specify) Company Ver: 06/08/2021 Months

Carlsbad, NM 88220 Phone. 575-988-3199 Fax: 575-988-3199

Midland

**Eurofins Carlsbad** 

1089 N Canal St.

# Chain of Custody Record

|--|

eurofins

Environment Testing

State, Zip: TX, 79701 Note: Since laboratory accreditations are subject to change Eurofins Environment Testing South Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody if the laboratory does not currently maintain accreditation in the State of Origin isted above for analysis/fests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central LLC. Project Name: OKU 27 BD 161H 432-704-5440(Tel) Deliverable Requested | II, III IV Other (specify) Sample Identification - Client ID (Lab ID) Client Information (Sub Contract Lab) Empty Kit Relinquished by Possible Hazard Identification SS07 (890-3638-1) 1211 W Florida Ave Eurofins Environment Testing South Centr Shipping/Receiving elinquished by elinquished by linquished by Custody Seals Intact: Δ Yes Δ No E Custody Seal No Due Date Requested 12/19/2022 Sampler Date/Time Date/Time Primary Deliverable Rank 89000093 WO# TAT Requested (days): Date/Time SOW# roject # Sample Date 12/7/22 Date Mountain Sample 13 15 N (C=comp, G=grab) Sample Preservation Code Type Company Company Company Matrix Solid Jessica Kramer@et.eurofinsus com E-Mail Kramer Jessica Time: NELAP - Texas Accreditations Required (See note): Perform MS/MSD (Yes or No) Special Instructions/QC Requirements Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client

Disposal Return To Client

Most 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH Received by: × Cooler Temperature(s) °C and Other Remarks: Return To Client × 8015MOD\_Calc 300\_ORGFM\_28D/DI\_LEACH Chloride × × 8021B/6036FP Calc (MOD) BTEX Analysis Requested × Total\_BTEX\_GCV Disposal By Lab State of Origin
New Mexico Method of Shipment: Tracking No(s) Date/Time Archive For **Total Number of containers** A HCL
B-NaOH
C Zn Acetale
D-Nitric Acid
F NaHSO4
F MeOH
G Amchlor
H-Ascorbic Acid
I Ice
J DI Water
K EDTA
L EDA COC No: 890-1064 1 Preservation Codes 890-3638-1 Page 1 of 1 Special Instructions/Note M Hexane
N None
O AsNaO2
P Na2O4S
Q Na2SO3
R Na2SO3
R Na2SO3
S H2SO4
T TSP Dodecahydrate
U Acetone
V MCAA
W - DH 4-5
Y Trizma
Z other (specify) Company Company Ver: 06/08/2021 Months

#### **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3638-1

SDG Number: Eddy County NM

List Source: Eurofins Carlsbad

Login Number: 3638 List Number: 1

Creator: Stutzman, Amanda

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 True tampered with. Samples were received on ice. True True Cooler Temperature is acceptable. 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 True HTs) True Sample containers have legible labels. Containers are not broken or leaking. True Sample collection date/times are provided. True Appropriate sample containers are used. N/A Refer to Job Narrative for details. Sample bottles are completely filled. True N/A Sample Preservation Verified. There is sufficient vol. for all requested analyses, incl. any requested True MS/MSDs Containers requiring zero headspace have no headspace or bubble is N/A <6mm (1/4").

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#### **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3638-1 SDG Number: Eddy County NM

List Source: Eurofins Midland

List Creation: 12/15/22 11:29 AM

Login Number: 3638 List Number: 2 Creator: Teel, Brianna

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

Released to Imaging: 5/19/2023 8:53:13 AM

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Ben Belill Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 12/22/2022 12:59:19 PM

# **JOB DESCRIPTION**

PLU 27 BD 161H SDG NUMBER Eddy County NM

# **JOB NUMBER**

890-3639-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

# **Eurofins Carlsbad**

#### **Job Notes**

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

## **Authorization**

Generated 12/22/2022 12:59:19 PM

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

Client: Ensolum
Project/Site: PLU 27 BD 161H
Laboratory Job ID: 890-3639-1
SDG: Eddy County NM

# **Table of Contents**

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#### **Definitions/Glossary**

Job ID: 890-3639-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

#### **Qualifiers**

#### **GC VOA**

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

#### **GC Semi VOA**

#### Qualifier **Qualifier Description**

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

#### **HPLC/IC**

Qualifier **Qualifier Description** 

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 MLMinimum Level (Dioxin) Most Probable Number MPN MQL Method Quantitation Limit

Not Calculated NC

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)

Relative Percent Difference, a measure of the relative difference between two points RPD

Toxicity Equivalent Factor (Dioxin) TEF TEQ Toxicity Equivalent Quotient (Dioxin)

**TNTC** Too Numerous To Count

#### **Case Narrative**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3639-1

SDG: Eddy County NM

Job ID: 890-3639-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3639-1

#### Receipt

The sample was received on 12/13/2022 1:30 PM. 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 5.6°C

#### **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: SS08 (890-3639-1).

#### **GC VOA**

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-22528-A-1-E). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

#### GC Semi VOA

Method 8015MOD NM: The surrogate recovery for the blank associated with preparation batch 880-42002 and analytical batch 880-42108 was outside the upper control limits.

Method 8015MOD\_NM: The method blank for preparation batch 880-42002 and analytical batch 880-42108 contained Gasoline Range Organics (GRO)-C6-C10 above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

#### HPLC/IC

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

#### **Client Sample Results**

Client: Ensolum Job ID: 890-3639-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Lab Sample ID: 890-3639-1 **Client Sample ID: SS08** Date Collected: 12/07/22 13:30

Date Received: 12/13/22 13:30

Matrix: Solid

Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 20:18	
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 20:18	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 20:18	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 20:18	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 20:18	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 20:18	•
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	100		70 - 130			12/20/22 21:30	12/21/22 20:18	1
1,4-Difluorobenzene (Surr)	106		70 - 130			12/20/22 21:30	12/21/22 20:18	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			12/22/22 13:15	1
Method: SW846 8015 NM - Diese	el Range Organ	ics (DRO) (0	GC)					
Method: SW846 8015 NM - Diese Analyte	el Range Organ Result	ics (DRO) (0 Qualifier	GC)	Unit	<u>D</u>	Prepared	Analyzed	Dil Fac
Method: SW846 8015 NM - Diese Analyte	el Range Organ	ics (DRO) (0 Qualifier	GC)		<u>D</u>	Prepared		Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH	Range Organ Result <a href="#">&lt;49.9</a>	ics (DRO) (0 Qualifier	RL 49.9	Unit	<u>D</u>	Prepared	Analyzed	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH Method: SW846 8015B NM - Dies	el Range Organ Result <a href="#">&lt;49.9</a> sel Range Organ	ics (DRO) (0 Qualifier	RL 49.9	Unit	<u>D</u>	Prepared Prepared	Analyzed	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	el Range Organ Result <a href="#">&lt;49.9</a> sel Range Organ	Qualifier U nics (DRO) Qualifier	RL 49.9 (GC)	Unit mg/Kg		<u> </u>	Analyzed 12/19/22 15:23	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	el Range Organ Result <a href="#">&lt;49.9</a> <a href="#">sel Range Orga</a> Result	Qualifier U nics (DRO) Qualifier U u U U U U U U U U U U U U U U U U U	RL 49.9 (GC)	Unit mg/Kg		Prepared	Analyzed 12/19/22 15:23 Analyzed	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	el Range Organ Result 49.9 sel Range Orga Result  49.9	cics (DRO) (On Qualifier Unics (DRO) Qualifier Unics (DRO) Qualifier Unics Unics (DRO) Qualifier Unics (DRO)	(GC)  RL  49.9  (GC)  RL  49.9	Unit mg/Kg  Unit mg/Kg		Prepared 12/16/22 09:37	Analyzed  12/19/22 15:23  Analyzed  12/18/22 13:32	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte  Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)  Oll Range Organics (Over C28-C36)	el Range Organ Result 49.9 sel Range Orga Result  49.9 49.9	cics (DRO) (Control of the property of the pro	(GC)  RL  49.9  (GC)  RL  49.9  49.9	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37	Analyzed 12/19/22 15:23  Analyzed 12/18/22 13:32 12/18/22 13:32	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate	el Range Organ Result <49.9 sel Range Orga Result <49.9 <49.9 <49.9	cics (DRO) (Control of the property of the pro	GC)  RL  49.9  (GC)  RL  49.9  49.9  49.9	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37	Analyzed 12/19/22 15:23  Analyzed 12/18/22 13:32 12/18/22 13:32 12/18/22 13:32	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	sel Range Organ Result <49.9 sel Range Orga Result <49.9 <49.9 <49.9 %Recovery	cics (DRO) (Control of the property of the pro	GC)  RL 49.9  (GC)  RL 49.9  49.9  49.9  Limits	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37 Prepared	Analyzed 12/19/22 15:23  Analyzed 12/18/22 13:32 12/18/22 13:32 12/18/22 13:32 Analyzed	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	sel Range Organ Result <49.9  sel Range Orga Result <49.9  <49.9  <49.9  %Recovery  100 96	ics (DRO) (Control of the control of	GC)  RL 49.9  (GC)  RL 49.9  49.9  49.9  Limits 70 - 130 70 - 130	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37  Prepared 12/16/22 09:37	Analyzed 12/19/22 15:23  Analyzed 12/18/22 13:32 12/18/22 13:32  Analyzed 12/18/22 13:32	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl  Method: MCAWW 300.0 - Anions Analyte	el Range Organ Result <49.9 sel Range Orga Result <49.9 <49.9 <49.9  **Recovery 100 96 s, Ion Chromato	ics (DRO) (Control of the control of	GC)  RL 49.9  (GC)  RL 49.9  49.9  49.9  Limits 70 - 130 70 - 130	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37  Prepared 12/16/22 09:37	Analyzed 12/19/22 15:23  Analyzed 12/18/22 13:32 12/18/22 13:32  Analyzed 12/18/22 13:32	Dil Fac

#### **Surrogate Summary**

Client: Ensolum Job ID: 890-3639-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

•				Percent Surrogate Rec
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
880-22528-A-1-C MS	Matrix Spike	97	109	
880-22528-A-1-D MSD	Matrix Spike Duplicate	104	117	
890-3639-1	SS08	100	106	
LCS 880-42357/1-A	Lab Control Sample	109	113	
LCSD 880-42357/2-A	Lab Control Sample Dup	123	117	
MB 880-42357/5-A	Method Blank	85	102	
Surrogate Legend				
BFB = 4-Bromofluoroben	zene (Surr)			
DFBZ = 1,4-Difluorobenz	ene (Surr)			

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

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Li
		1001	OTPH1	
ab Sample ID	Client Sample ID	(70-130)	(70-130)	
90-3638-A-1-D MS	Matrix Spike	92	72	
90-3638-A-1-E MSD	Matrix Spike Duplicate	106	81	
90-3639-1	SS08	100	96	
CS 880-42002/2-A	Lab Control Sample	82	91	
CSD 880-42002/3-A	Lab Control Sample Dup	108	99	
B 880-42002/1-A	Method Blank	139 S1+	131 S1+	

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Client: Ensolum Job ID: 890-3639-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

Lab Sample ID: MB 880-42357/5-A

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42357

	INID	IVID						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	1

MB MB

MD MD

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 130	12/20/22 21:	30 12/21/22 17:53	1
1,4-Difluorobenzene (Surr)	102		70 - 130	12/20/22 21:	30 12/21/22 17:53	1

Lab Sample ID: LCS 880-42357/1-A

**Matrix: Solid** 

Analysis Batch: 42409

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 42357

LCS LCS Spike Analyte Added Result Qualifier Unit %Rec Limits Benzene 0.100 0.09323 mg/Kg 93 70 - 130 Toluene 0.100 0.09102 mg/Kg 91 70 - 130 0.100 0.09651 Ethylbenzene mg/Kg 97 70 - 130 0.200 0.2008 100 70 - 130 m-Xylene & p-Xylene mg/Kg 0.100 0.1003 70 - 130 o-Xylene mg/Kg 100

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	109	70 - 130
1,4-Difluorobenzene (Surr)	113	70 - 130

Lab Sample ID: LCSD 880-42357/2-A

**Matrix: Solid** 

Analysis Batch: 42409

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA Prep Batch: 42357

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.09835		mg/Kg		98	70 - 130	5	35
Toluene	0.100	0.1014		mg/Kg		101	70 - 130	11	35
Ethylbenzene	0.100	0.1122		mg/Kg		112	70 - 130	15	35
m-Xylene & p-Xylene	0.200	0.2388		mg/Kg		119	70 - 130	17	35
o-Xylene	0.100	0.1195		mg/Kg		119	70 - 130	17	35

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	123		70 - 130
1.4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: 880-22528-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 42409

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

Prep Batch: 42357

_	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00199	U	0.101	0.09286		mg/Kg		92	70 - 130	 
Toluene	<0.00199	U	0.101	0.08719		mg/Kg		86	70 - 130	

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 42357

Client: Ensolum

Job ID: 890-3639-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

Lab Sample ID: 880-22528-A-1-C MS

Analysis Batch: 42409

**Matrix: Solid** 

Sample Sample Spike MS MS %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits D Ethylbenzene < 0.00199 U 0.101 0.08338 83 70 - 130 mg/Kg m-Xylene & p-Xylene <0.00398 0.202 0.1725 mg/Kg 86 70 - 130 0.08628 <0.00199 U 0.101 85 70 - 130 o-Xylene mg/Kg

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	97	70 - 130
1,4-Difluorobenzene (Surr)	109	70 - 130

Lab Sample ID: 880-22528-A-1-D MSD

Analysis Batch: 42409

Client Sample ID: Matrix Spike Duplicate **Matrix: Solid** Prep Type: Total/NA Prep Batch: 42357

Sample Sample Spike MSD MSD RPD Result Qualifier %Rec RPD Limit Analyte babbA Result Qualifier Limits Unit Benzene <0.00199 U 0.0996 0.09619 mg/Kg 97 70 - 130 4 35 Toluene <0.00199 0.0996 0.08829 mg/Kg 89 70 - 130 35 Ethylbenzene <0.00199 0.0996 0.08535 86 70 - 130 2 35 U mg/Kg m-Xylene & p-Xylene <0.00398 U 0.199 0.1807 mg/Kg 91 70 - 130 5 35

0.09565

0.0996

MSD MSD

<0.00199 U

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

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

Lab Sample ID: MB 880-42002/1-A

**Matrix: Solid** 

o-Xylene

**Analysis Batch: 42108** 

Client Sample ID: Method Blank Prep Type: Total/NA Prep Batch: 42002 мв мв

mg/Kg

95

70 - 130

Client Sample ID: Lab Control Sample

10

Result Qualifier RL Unit D Prepared Analyzed Dil Fac Analyte 50.0 12/16/22 09:37 <50.0 U 12/18/22 09:55 Gasoline Range Organics mg/Kg (GRO)-C6-C10 12/16/22 09:37 12/18/22 09:55 Diesel Range Organics (Over <50.0 U 50.0 mg/Kg C10-C28) OII Range Organics (Over C28-C36) <50.0 U 50.0 12/16/22 09:37 12/18/22 09:55 mg/Kg

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	139	S1+	70 - 130	12/16/22 09:37	12/18/22 09:55	1
o-Terphenyl	131	S1+	70 - 130	12/16/22 09:37	12/18/22 09:55	1

Lab Sample ID: LCS 880-42002/2-A

**Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 42108** Prep Batch: 42002 Spike LCS LCS %Rec Added Limits

Analyte Result Qualifier Unit %Rec 1000 84 70 - 130 843 1 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 745.4 mg/Kg 75 70 - 130 C10-C28)

Job ID: 890-3639-1

Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

Lab Sample ID: LCS 880-42002/2-A

**Matrix: Solid** 

Analysis Batch: 42108

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 42002

Surrogate %Recovery Qualifier Limits 1-Chlorooctane 82 70 - 130 o-Terphenyl 91 70 - 130

Lab Sample ID: LCSD 880-42002/3-A Client Sample ID: Lab Control Sample Dup

**Matrix: Solid** 

**Analysis Batch: 42108** 

Prep Type: Total/NA

Prep Batch: 42002

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit 1000 871.7 87 70 - 1303 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 818.2 82 mg/Kg 70 - 1309 20

C10-C28)

LCSD LCSD

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	108		70 - 130
o-Terphenyl	99		70 - 130

Lab Sample ID: 890-3638-A-1-D MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

**Analysis Batch: 42108** 

Prep Type: Total/NA

Prep Batch: 42002

Sample Sample MS MS Spike Added Analyte Result Qualifier Result Qualifier Unit D %Rec Limits Gasoline Range Organics <50.0 U 999 774.5 mg/Kg 74 70 - 130 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 999 908.6 mg/Kg 91 70 - 130 C10-C28)

MS MS %Recovery Qualifier Surrogate Limits 70 - 130 1-Chlorooctane 92 o-Terphenyl 72 70 - 130

Lab Sample ID: 890-3638-A-1-E MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Surrogate

o-Terphenyl

1-Chlorooctane

Analysis Batch: 42108

Prep Type: Total/NA

Prep Batch: 42002

Sample Sample MSD MSD RPD Spike %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits **RPD** Limit Gasoline Range Organics U 997 885.1 <50.0 mg/Kg 86 70 - 130 13 20 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 997 1027 mg/Kg 103 70 - 130 12 20 C10-C28)

MSD MSD %Recovery Qualifier Limits 106 70 - 130 81 70 - 130

Job ID: 890-3639-1

**Prep Type: Soluble** 

Client Sample ID: Matrix Spike

Client Sample ID: Matrix Spike Duplicate

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41923/1-A

**Matrix: Solid** 

Analysis Batch: 42049

MB MB

Dil Fac Analyte Result Qualifier RL Unit D Prepared Analyzed Chloride <5.00 U 5.00 mg/Kg 12/19/22 21:05

Lab Sample ID: LCS 880-41923/2-A

**Matrix: Solid** 

**Analysis Batch: 42049** 

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 235.6 mg/Kg 94 90 - 110

Lab Sample ID: LCSD 880-41923/3-A

**Matrix: Solid** 

Analysis Batch: 42049

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit Limits RPD Limit Chloride 250 237.1 mg/Kg 90 - 110

Lab Sample ID: 890-3643-A-4-B MS

**Matrix: Solid** 

Analysis Batch: 42049

MS MS Sample Sample Spike %Rec Analyte Result Qualifier Added Qualifier %Rec Result Unit Limits 1620 Chloride 497 1240 90 - 110 mg/Kg

Lab Sample ID: 890-3643-A-4-C MSD

**Matrix: Solid** 

Analysis Batch: 42049

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	497		1240	1621		mg/Kg		91	90 - 110	0	20

#### **QC Association Summary**

Client: Ensolum

Job ID: 890-3639-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

#### **GC VOA**

#### Prep Batch: 42357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3639-1	SS08	Total/NA	Solid	5035	
MB 880-42357/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

#### Analysis Batch: 42409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3639-1	SS08	Total/NA	Solid	8021B	42357
MB 880-42357/5-A	Method Blank	Total/NA	Solid	8021B	42357
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	8021B	42357
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	42357
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	42357
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	42357

#### **Analysis Batch: 42522**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3639-1	SS08	Total/NA	Solid	Total BTEX	

#### **GC Semi VOA**

#### Prep Batch: 42002

<b>Lab Sample ID</b> 890-3639-1	Client Sample ID SS08	Prep Type Total/NA	Matrix Solid	Method 8015NM Prep	Prep Batch
MB 880-42002/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-42002/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-42002/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3638-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3638-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

#### Analysis Batch: 42108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3639-1	SS08	Total/NA	Solid	8015B NM	42002
MB 880-42002/1-A	Method Blank	Total/NA	Solid	8015B NM	42002
LCS 880-42002/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	42002
LCSD 880-42002/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	42002
890-3638-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	42002
890-3638-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	42002

#### Analysis Batch: 42205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3639-1	SS08	Total/NA	Solid	8015 NM	

#### HPLC/IC

#### Leach Batch: 41923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3639-1	SS08	Soluble	Solid	DI Leach	
MB 880-41923/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

# **QC Association Summary**

Client: Ensolum Job ID: 890-3639-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

#### **HPLC/IC** (Continued)

#### Leach Batch: 41923 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3643-A-4-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3643-A-4-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

#### **Analysis Batch: 42049**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3639-1	SS08	Soluble	Solid	300.0	41923
MB 880-41923/1-A	Method Blank	Soluble	Solid	300.0	41923
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	300.0	41923
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41923
890-3643-A-4-B MS	Matrix Spike	Soluble	Solid	300.0	41923
890-3643-A-4-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41923

#### **Lab Chronicle**

Client: Ensolum Job ID: 890-3639-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

**Client Sample ID: SS08** Lab Sample ID: 890-3639-1

Matrix: Solid

Date Collected: 12/07/22 13:30 Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	42357	12/20/22 21:30	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42409	12/21/22 20:18	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42522	12/22/22 13:15	SM	EET MID
Total/NA	Analysis	8015 NM		1			42205	12/19/22 15:23	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	42002	12/16/22 09:37	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	42108	12/18/22 13:32	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	42049	12/19/22 21:41	CH	EET MID

#### **Laboratory References:**

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

#### **Accreditation/Certification Summary**

Client: Ensolum
Project/Site: PLU 27 BD 161H
SDG: Eddy County NM

#### **Laboratory: Eurofins Midland**

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

Authority	Pr	ogram	Identification Number	Expiration Date	
Texas	NE	ELAP	T104704400-22-25	06-30-23	
The following analytes	are included in this report by	it the laboratory is not certifi	ied by the governing authority. This list ma	av include analytes for t	
• ,	•	ut the laboratory is not certifi	ied by the governing authority. This list ma	ay include analytes for	
the agency does not o	•	ut the laboratory is not certifi	ied by the governing authority. This list ma	ay include analytes for	
• ,	•	ut the laboratory is not certifi  Matrix	ied by the governing authority. This list ma Analyte	ay include analytes for t	

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#### **Method Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3639-1

SDG: Eddy County NM

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

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#### **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

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112

#### **Sample Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3639-1

SDG: Eddy County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3639-1	SS08	Solid	12/07/22 13:30	12/13/22 13:30	0.5'

eurofins **Environment Testing** 

Project Name

PLU 27 BD 161H 03E1558089

☑ Routine

Turn Around

ANALYSIS REQUEST

None NO

DI Water: H<sub>2</sub>O

Project Number

City, State ZIP

9898540852 Carlsbad, NM 88220 3122 National parks Hwy

Email bbelill@ensolum.com

City, State ZIP

Address Company Name Bill to (if different)

ddress ompany Name Project Manager

Ensolum, LLC Ben Belill

# Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300 Chain of Custody

Midland, TX (432) 704-5440, San Antonio, TX (210) 508-3334 EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296 Hobbs, NM (675) 38

Work Order No:

Preservative Codes	EQUEST	ANALYSIS REQUEST
ADaPT Other:	Deliverables EDD	
Reporting: Level II   Level III   PST/UST   TRRP   Level IV	Reporting: Level II   Level	Carlsbad, NM 88220
	State of Project:	3104 E. Green Street
Program: UST/PST   PRP   Brownfields   RRC   Superfund	Program: UST/PST   PRF	XTO Energy, Inc.
Work Order Comments	Work	Garrett Green
www.xenco.com Page 1_of 1_	ex.www.xe	(675) 392-7550, Carlsbad. NM (575) 988-3199

1		6	10						
		350	13122 13	2112	7	Sto	De rata	Anna	h
Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Dat	re)	Received by: (Signature	Received	ature)	Relinquished by: (Signature)
	ssigns standard terms and conditions as to circumstances beyond the control be enforced unless previously negotiated.	lotica: 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 \$5.00 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 negotiat	y to Eurofins Xenc as or expenses inc ted to Eurofins Xe	ent compan for any loss mple submit	hase order from cil any responsibility i e of \$5 for each sa	utes a valid purc shall not assume oject and a charg	of samples constit it of samples and s applied to each pr	t and relinquishment liable only for the cos arge of \$85.00 will be	tice: Signature of this document service, Eurofins Xenco will be Eurofins Xenco. A minimum ch
Sn U V Zn 7470 / 7471	y Mn Mo Ni K Se Ag SiO <sub>2</sub> Na Sr Tl Sn U V Zn Se Ag Tl U Hg: 1631/245.1/7470/7471	RA 13PPM Texas 11 AISb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K TCLP/SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag TI U	s Ba Be B C	Al Sh As	M Texas 11 LP 6010: 8RC	8RCRA 13PPM TCLP / SPLP		200.8 / 6020: tal(s) to be analy	Total 200.7 / 6010 200.8 / 6020: Dircle Method(s) and Metal(s) to be analyzed
NAPP2218236445	2								
Incident Numbers:	<b>4</b> 5								
Cost Center: 1666961001	Cost		×	×	0.5' Grab/	0 0055/	12/7/2022	S	SS08
Sample Comments	Sa		TPH (8	CHLOI	Depth Grab/	Time Sampled	Date Sampled	on Matrix	Sample Identification
NaOH+Ascorbic Acid: SAPC	4			RIDE	2.5	perature	Corrected Temperature		Total Containers
Zn Acetate+NaOH. Zn		890-3639 Chain of Custody	-	S (E	2,2	leading	N/A Temperature Reading	Yes No NIA	Sample Custody Seals
Nasco	Na <sub>2</sub> V <sub>2</sub> O <sub>3</sub> : Na <sub>3</sub> C <sub>2</sub>				0		Correction Factor	Yes NO NIA	Cooler Custody Seals:
NABIS	NaHSO NABIS				TON SOL	-	Thermometer ID	(yes) No	Samples Received Intact
₽ ₽	H <sub>3</sub> PO <sub>4</sub> . HP			nete	West No	Wet Ice	(Yes No	Temp Blank	SAMPLE RECEIPT
NaOH: Na	H <sub>2</sub> SO <sub>4</sub> . H <sub>2</sub>			Prs	ved by 4:30pm	the lab, if received by 4:30pm			*0
	нсгнс				lay received by	TAT starts the day received by		Chris Brown	Sampler's Name
9	Coof: Cool					Due Date:		EDDY COUNTY, NM	Project Location:

**Eurofins Carlsbad** 

Chain of Custody Record

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eurofins :

Environment Testing

State Zip: TX, 79701 Midland Empty Kit Relinguished by Note Since laboratory accreditations are subject to change Eurofins Environment Testing South Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody if the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central LLC. SS08 (890-3639-1) Project Name PLU 27 BD 161H Carlsbad, NM 88220 Phone 575-988-3199 Fax: 575-988-3199 Deliverable Requested I II, III IV Other (specify) Possible Hazard Identification Sample Identification - Client ID (Lab ID) 432-704-5440(Tel) 1211 W Florida Ave Eurofins Environment Testing South Centr Shipping/Receiving Custody Seals II

∆ Yes ∆ N elinquished by elinquished by linquished by nconfirmed lient Information (Sub Contract Lab) ∆ No Intact: E Custody Seal No #OW Due Date Requested 12/19/2022 89000093 PO#: Phone Sampler Date/Time Primary Deliverable Rank. TAT Requested (days) Sample Date 12/7/22 Mountain Sample 13 30 Time (C=comp, Type Sample Preservation Code: Company Company Company Matrix Solid Kramer Jessica Jessica Kramer@et.eurofinsus.com Field Filtered Sample (Yes or No) I Ime NELAP - Texas Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mon Perform MS/MSD (Yes or No) Special Instructions/QC Requirements 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH Cooler Temperature(s) °C and Other Remarks Received by × × 8015MOD\_Calc 300\_ORGFM\_28D/DI\_LEACH Chloride × 8021B/5035FP\_Calc (MOD) BTEX × Analysis Requested × Total\_BTEX\_GCV State of Origin New Mexico Carrier Tracking No(s) Method of Shipment: Date/Time Date/Time Date/Time J DI Water K EDTA L-EDA ▼ Total Number of containers A HCL
B-NaOH
C Zn Acetate
D-Nitric Acid
E NaHSO4
F MaOH
G Amchlor
H-Ascorbic Acid COC No. 890-1064 1 Preservation Codes: Page 1 of 1 890-3639-1 Hexane
I Hexane
I None
J None
AsNao2
P Na204S
P Na2503
R Na2503
R Na25203
S H2S04
I TSP Dodecahydrate
U Acetone
V MCAA
W pH 4-5
Y Trizma
Trizmanify) Company Ver: 06/08/2021 other (specify) Months

**Eurofins Carlsbad** 

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1089 N Canal St. Carlsbad NM 88220	C	<b>Chain of Custody Record</b>	f Custo	ody Re	cord							4						💸 eurofins 📗	Environment Tecting
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Client Information (Sub Contract Lab)	Sampler			Lab PM Krame	Lab PM Kramer Jessica	w.					Can	Carrier Tracking No(s)	cking	No(s)				COC No 890-1064 1	
Client Contact Shipping/Receiving	Phone:			E-Mail Jessic	E-Mail Jessica Kramer@et.eurofinsus com	@et.e	urofin	sus c	Ä		Stat	State of Origin New Mexico	ngin Xico					Page: Page 1 of 1	
Company Eurofins Environment Testing South Centr				ΖÞ	Accreditations Required (See note) NELAP - Texas	s Requi	red (Se	e note	÷		l			l	I			Job #: 890-3639-1	
Address. 1211 W Flonda Ave,	Due Date Requested 12/19/2022	o.						Ana	llvsis		Requested	stec	-			1		ation Code	- 1
City Midland	TAT Requested (days):	/s)·						_	<b></b>		-				$\neg$	$\exists$	7	A - HCL N B NaOH N	N - None O AsNaO2
State Zip: TX, 79701	. 1																		P - Na2O4S Q Na2SO3 B Na2SO3
Phone: 432-704-5440(TeI)	PO #:			W G S S			ie										g respectively.	ź	S - H2SO4 T TSP Dodecahydrate
Email	WO#			or No	lo)			EX									<b>5</b>	ice Di Water	U - Acetone V MCAA
Project Name: PLU 27 BD 161H	Project #: 89000093				s or			OD) B.									ainer	K-EDTA Y	Y Trizma  Z - other (specify)
Site	SSOW#:			Samo	ISD (Y												of cor	Other:	
Sample Identification - Client ID (Lab ID)	Sample Date	Sample ((	Sample Type (C=comp,   C=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Perform MS/N 8016MOD_NM/	8015MOD_Calc	300_ORGFM_2	8021B/5035FP_	Total_BTEX_G								Total Number	Special Instr	Special Instructions/Note:
		LA		كميدة	X			فنصية		(L.,)	200-04		0.05				X		and the second s
SS08 (890-3639-1)	12/7/22	13 30 Mountain		Solid	×	×	×	×	×								ه.		
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											+	<del>                                     </del>	<u> </u>						
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Note: Since laboratory accreditations are subject to charge, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/maritx being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.	t Testing South Centra ove for analysis/tests/ ntral, LLC attention im	nt, LLC places the matrix being ana mediately If all r	e ownership of lyzed the samp requested accre	method, analyt ples must be sh editations are c	e & accredi iipped back urrent to da	tation co to the B ite, retur	omplian Eurofin	nce upo s Envir signed	on our onme Chain	subcor it Testi of Cus	ntract I	aborat uth Ce ttestiny	tories. Intral g to sa	This LC la	sampl borati nplian	e ship ory or ce to	ment other Eurofi	t is forwarded under chair instructions will be provided instructions to the instructions will be provided in the instruction of the instruction o	n-of-custody If the ded Any changes to South Central LLC.
Possible Hazard Identification Unconfirmed					Sampl	le Disposal ( A fo	osal	A fe	e ma	□ be	Disc	assessed if san Disposal By Lah	RITS	du	es a		tain	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  Return To Client	nonth)
Deliverable Requested I II III IV Other (specify)	Primary Deliverable Rank 2	ble Rank 2			Special Instructions/QC	Instru	ction	s/QC		Requirements	ents					l			
Empty Kit Relinquished by		Date			Time.				<b>.</b>		>	Met	Method of Shipment:	Shipr	nent:				
Relinquished by ((U)	Date/Time <sup>-</sup>		S	Company	F e	eiked by	`_	<u> </u>	$\searrow$			1		Date	Date/Time <sup>.</sup>	,		C	Company
Relinquished by	Date/Time:		S	Company	- A	<b>poetved</b> by	,							Date	Date/Time.	,,,		C	Company
1	Date/Time:		S	Company	Rec	Received by	,							Date	Date/Time	ų,		2	Company
Custody Seals Intact: Custody Seal No					Coc	Cooler Temperature(s) °C	peratu	re(s) °(		and Other Remarks	Remar	ŝ.							

Ver 06/08/2021

#### **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3639-1

SDG Number: Eddy County NM

ODO Nambor. Lady County Nin

Login Number: 3639
List Source: Eurofins Carlsbad
List Number: 1

Creator: Stutzman, Amanda

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

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#### **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3639-1

SDG Number: Eddy County NM

List Source: Eurofins Midland

List Creation: 12/15/22 11:29 AM

Login Number: 3639 List Number: 2 Creator: Teel, Brianna

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

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<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Ben Belill Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 12/22/2022 12:59:25 PM

# **JOB DESCRIPTION**

PLU 27 BD 161H SDG NUMBER Eddy County NM

# **JOB NUMBER**

890-3640-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

Released to Imaging: 5/19/2023 8:53:13 AM

# **Eurofins Carlsbad**

#### **Job Notes**

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

## **Authorization**

Generated 12/22/2022 12:59:25 PM

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

Client: Ensolum
Project/Site: PLU 27 BD 161H
Laboratory Job ID: 890-3640-1
SDG: Eddy County NM

# **Table of Contents**

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#### **Definitions/Glossary**

Client: Ensolum Job ID: 890-3640-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Qualifiers

**GC VOA** 

Qualifier Description

U Indicates the analyte was analyzed for but not detected.

**GC Semi VOA** 

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

**Eurofins Carlsbad** 

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#### **Case Narrative**

Client: Ensolum

Job ID: 890-3640-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Job ID: 890-3640-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3640-1

#### Receipt

The sample was received on 12/13/2022 1:30 PM. 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 5.6°C

#### **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: SS09 (890-3640-1).

#### **GC VOA**

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-22528-A-1-E). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

#### GC Semi VOA

Method 8015MOD NM: The surrogate recovery for the blank associated with preparation batch 880-42002 and analytical batch 880-42108 was outside the upper control limits.

Method 8015MOD\_NM: The method blank for preparation batch 880-42002 and analytical batch 880-42108 contained Gasoline Range Organics (GRO)-C6-C10 above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

#### HPLC/IC

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

#### **Client Sample Results**

Client: Ensolum Job ID: 890-3640-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Lab Sample ID: 890-3640-1 **Client Sample ID: SS09** 

Date Collected: 12/07/22 13:45 Matrix: Solid Date Received: 12/13/22 13:30

Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		12/20/22 21:30	12/21/22 20:39	1
Toluene	<0.00202	U	0.00202	mg/Kg		12/20/22 21:30	12/21/22 20:39	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		12/20/22 21:30	12/21/22 20:39	1
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		12/20/22 21:30	12/21/22 20:39	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		12/20/22 21:30	12/21/22 20:39	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		12/20/22 21:30	12/21/22 20:39	,
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	81		70 - 130			12/20/22 21:30	12/21/22 20:39	1
1,4-Difluorobenzene (Surr)	90		70 - 130			12/20/22 21:30	12/21/22 20:39	1
Method: TAL SOP Total BTEX -	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	< 0.00403	U	0.00403	mg/Kg			12/22/22 13:15	1
Method: SW846 8015 NM - Dies	el Range Organ	ics (DRO) (	GC)					
	•	ics (DRO) ( Qualifier	GC)	Unit	D	Prepared	Analyzed	Dil Fac
Analyte	•	Qualifier	•	<mark>Unit</mark> mg/Kg	<u>D</u>	Prepared	Analyzed 12/19/22 15:23	
Method: SW846 8015 NM - Diese Analyte Total TPH Method: SW846 8015B NM - Die	<b>Result</b> <49.9	Qualifier U	RL 49.9		<u>D</u>	Prepared		
Analyte Total TPH Method: SW846 8015B NM - Die	Result <49.9 seel Range Organical Range Organica Range O	Qualifier U	RL 49.9		<u>D</u>	Prepared Prepared		Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics	Result <49.9 seel Range Organical Range Organica Range O	Qualifier Unics (DRO) Qualifier	RL 49.9 (GC)	mg/Kg		<u> </u>	12/19/22 15:23	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <49.9 sel Range Orga Result	Qualifier U  nics (DRO) Qualifier U	RL 49.9 (GC)	mg/Kg		Prepared	12/19/22 15:23  Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result <49.9  See Range Orga Result <49.9	Qualifier U  nics (DRO) Qualifier U	(GC) RL 49.9	mg/Kg  Unit  mg/Kg		Prepared 12/16/22 09:37	12/19/22 15:23  Analyzed  12/18/22 13:55	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result <49.9  See Range Orga Result <49.9  <49.9	Qualifier U  nics (DRO) Qualifier U  U	RL 49.9  (GC)  RL 49.9  49.9	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37	12/19/22 15:23  Analyzed  12/18/22 13:55  12/18/22 13:55	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result	Qualifier U  nics (DRO) Qualifier U  U	RL 49.9 (GC) RL 49.9 49.9	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37	12/19/22 15:23  Analyzed 12/18/22 13:55 12/18/22 13:55 12/18/22 13:55	Dil Fac
Analyte Total TPH	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U	RL 49.9 (GC) RL 49.9 49.9 Limits	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37 Prepared	Analyzed 12/18/22 13:55 12/18/22 13:55 12/18/22 13:55 Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 49.9 (GC) RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37  Prepared 12/16/22 09:37	Analyzed 12/18/22 13:55 12/18/22 13:55 12/18/22 13:55 Analyzed 12/18/22 13:55	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 49.9 (GC) RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/16/22 09:37 12/16/22 09:37 12/16/22 09:37  Prepared 12/16/22 09:37	Analyzed 12/18/22 13:55 12/18/22 13:55 12/18/22 13:55 Analyzed 12/18/22 13:55	1

#### **Surrogate Summary**

Client: Ensolum Job ID: 890-3640-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

nt Sample ID x Spike x Spike Duplicate	97 104	<b>OFBZ1</b> (70-130) 109 117					
x Spike x Spike Duplicate	97	109					
x Spike Duplicate							
	104	117					
		117					
)	81	90					
Control Sample	109	113					
Control Sample Dup	123	117					
od Blank	85	102					
(	Control Sample Dup	Control Sample Dup 123 od Blank 85	Control Sample Dup 123 117 od Blank 85 102	Control Sample Dup 123 117 od Blank 85 102	Control Sample Dup 123 117 od Blank 85 102	Control Sample Dup 123 117 od Blank 85 102	Control Sample Dup 123 117 od Blank 85 102

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

Matrix: Solid Prep Type: Total/NA

Client Sample ID   Client Sample ID   (70-130)   (70-130)
390-3638-A-1-D MS Matrix Spike 92 72 390-3638-A-1-E MSD Matrix Spike Duplicate 106 81
390-3638-A-1-E MSD Matrix Spike Duplicate 106 81
1 1
390-3640-1 SS09 113 102
LCS 880-42002/2-A Lab Control Sample 82 91
LCSD 880-42002/3-A Lab Control Sample Dup 108 99
MB 880-42002/1-A Method Blank 139 S1+ 131 S1+

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Job ID: 890-3640-1

Client: Ensolum SDG: Eddy County NM Project/Site: PLU 27 BD 161H

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

Lab Sample ID: MB 880-42357/5-A

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42357

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	1

мв мв

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 130	 12/20/22 21:30	12/21/22 17:53	1
1.4-Difluorobenzene (Surr)	102		70 - 130	12/20/22 21:30	12/21/22 17:53	1

Lab Sample ID: LCS 880-42357/1-A

Matrix: Solid

Analysis Batch: 42409

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 42357

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.09323		mg/Kg		93	70 - 130	
Toluene	0.100	0.09102		mg/Kg		91	70 - 130	
Ethylbenzene	0.100	0.09651		mg/Kg		97	70 - 130	
m-Xylene & p-Xylene	0.200	0.2008		mg/Kg		100	70 - 130	
o-Xylene	0.100	0.1003		mg/Kg		100	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	109	70 - 130
1,4-Difluorobenzene (Surr)	113	70 - 130

Lab Sample ID: LCSD 880-42357/2-A

**Matrix: Solid** 

**Analysis Batch: 42409** 

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA

Prep Batch: 42357

	Spike	LCSD	LCSD				%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.09835		mg/Kg		98	70 - 130	5	35	
Toluene	0.100	0.1014		mg/Kg		101	70 - 130	11	35	
Ethylbenzene	0.100	0.1122		mg/Kg		112	70 - 130	15	35	
m-Xylene & p-Xylene	0.200	0.2388		mg/Kg		119	70 - 130	17	35	
o-Xylene	0.100	0.1195		mg/Kg		119	70 - 130	17	35	

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	123		70 - 130
1.4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: 880-22528-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 42409

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

Prep Batch: 42357

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00199	U	0.101	0.09286		mg/Kg		92	70 - 130	
Toluene	<0.00199	U	0.101	0.08719		mg/Kg		86	70 - 130	

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3640-1

SDG: Eddy County NM

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

Lab Sample ID: 880-22528-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Matrix Spike

Prep Type: Total/NA Prep Batch: 42357

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Ethylbenzene	<0.00199	U	0.101	0.08338		mg/Kg		83	70 - 130	
m-Xylene & p-Xylene	<0.00398	U	0.202	0.1725		mg/Kg		86	70 - 130	
o-Xylene	<0.00199	U	0.101	0.08628		mg/Kg		85	70 - 130	

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	97	70 - 130
1,4-Difluorobenzene (Surr)	109	70 - 130

**Client Sample ID: Matrix Spike Duplicate** 

Prep Type: Total/NA

Prep Batch: 42357

Lab Sample ID: 880-22528-A-1-D MSD **Matrix: Solid** 

**Analysis Batch: 42409** 

-	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00199	U	0.0996	0.09619		mg/Kg		97	70 - 130	4	35
Toluene	< 0.00199	U	0.0996	0.08829		mg/Kg		89	70 - 130	1	35
Ethylbenzene	< 0.00199	U	0.0996	0.08535		mg/Kg		86	70 - 130	2	35
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1807		mg/Kg		91	70 - 130	5	35
o-Xylene	< 0.00199	U	0.0996	0.09565		mg/Kg		95	70 - 130	10	35

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

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

Lab Sample ID: MB 880-42002/1-A

**Matrix: Solid** 

Analysis Batch: 42108

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

Prep Batch: 42002

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/16/22 09:37	12/18/22 09:55	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/16/22 09:37	12/18/22 09:55	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/16/22 09:37	12/18/22 09:55	1
	Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Analyte Result Gasoline Range Organics <50.0 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 C10-C28)	Gasoline Range Organics <50.0 U  (GRO)-C6-C10  Diesel Range Organics (Over <50.0 U  C10-C28)	Analyte         Result         Qualifier         RL           Gasoline Range Organics         <50.0	Analyte         Result         Qualifier         RL         Unit           Gasoline Range Organics         <50.0	Analyte         Result         Qualifier         RL         Unit         D           Gasoline Range Organics         <50.0	Analyte         Result         Qualifier         RL         Unit         D         Prepared           Gasoline Range Organics         <50.0	Analyte         Result         Qualifier         RL         Unit         D         Prepared         Analyzed           Gasoline Range Organics         <50.0

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	139	S1+	70 - 130	12/16/22 09:37	12/18/22 09:55	1
o-Terphenyl	131	S1+	70 - 130	12/16/22 09:37	12/18/22 09:55	1

Lab Sample ID: LCS 880-42002/2-A

Matrix: Solid

**Analysis Batch: 42108** 

C10-C28)

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

Prep Batch: 42002

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	1000	843.1		mg/Kg		84	70 - 130	
(GRO)-C6-C10								
Diesel Range Organics (Over	1000	745.4		mg/Kg		75	70 - 130	

Job ID: 890-3640-1

Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

LCS LCS

Sample Sample

Lab Sample ID: LCS 880-42002/2-A **Client Sample ID: Lab Control Sample** 

**Matrix: Solid** 

Analysis Batch: 42108

Prep Type: Total/NA

Prep Batch: 42002

Surrogate %Recovery Qualifier Limits 1-Chlorooctane 82 70 - 130 o-Terphenyl 91 70 - 130

Lab Sample ID: LCSD 880-42002/3-A Client Sample ID: Lab Control Sample Dup

**Matrix: Solid** 

**Analysis Batch: 42108** 

Prep Type: Total/NA

Prep Batch: 42002

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit 1000 871.7 87 70 - 1303 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 818.2 82 mg/Kg 70 - 1309 20 C10-C28)

LCSD LCSD

Surrogate %Recovery Qualifier Limits 108 70 - 130 1-Chlorooctane o-Terphenyl 99 70 - 130

Lab Sample ID: 890-3638-A-1-D MS Client Sample ID: Matrix Spike

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**Matrix: Solid** 

**Analysis Batch: 42108** 

Prep Type: Total/NA

Prep Batch: 42002

	Sample	Sample	Spike	IVIO	IVIO				70 KeC	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	<50.0	U	999	774.5		mg/Kg		74	70 - 130	
(GRO)-C6-C10										
Diesel Range Organics (Over	<50.0	U	999	908.6		mg/Kg		91	70 - 130	
C10 C28)										

Snika

C10-C28)

MS MS %Recovery Qualifier Surrogate Limits 70 - 130 1-Chlorooctane 92 o-Terphenyl 72 70 - 130

Lab Sample ID: 890-3638-A-1-E MSD Client Sample ID: Matrix Spike Duplicate **Matrix: Solid** 

**Analysis Batch: 42108** 

Prep Type: Total/NA Prep Batch: 42002

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	885.1		mg/Kg		86	70 - 130	13	20	
Diesel Range Organics (Over C10-C28)	<50.0	U	997	1027		mg/Kg		103	70 - 130	12	20	

MSD MSD %Recovery Qualifier Surrogate Limits 1-Chlorooctane 106 70 - 130 81 70 - 130 o-Terphenyl

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

**Prep Type: Soluble** 

Client Sample ID: Matrix Spike

Client Sample ID: Matrix Spike Duplicate

### **QC Sample Results**

Client: Ensolum Job ID: 890-3640-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41923/1-A

Matrix: Solid

Analysis Batch: 42049

MB MB

 Analyte
 Result Chloride
 Qualifier
 RL Vinit
 Unit Mark
 D Prepared Manalyzed
 Analyzed Dil Fac Manalyzed
 Dil Fac Manalyzed

 Chloride
 <5.00</td>
 U
 5.00
 mg/Kg
 12/19/22 21:05
 1

Lab Sample ID: LCS 880-41923/2-A

Matrix: Solid

**Analysis Batch: 42049** 

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 235.6 mg/Kg 94 90 - 110

Lab Sample ID: LCSD 880-41923/3-A

Matrix: Solid

Analysis Batch: 42049

LCSD LCSD RPD Spike %Rec Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 237.1 mg/Kg 90 - 110

Lab Sample ID: 890-3643-A-4-B MS

Matrix: Solid

Analysis Batch: 42049

MS MS Sample Sample Spike %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Chloride 497 1240 1620 90 - 110 mg/Kg

Lab Sample ID: 890-3643-A-4-C MSD

Matrix: Solid

Analysis Batch: 42049

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 1240 497 1621 mg/Kg 91 90 - 110 0 20

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### **QC Association Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3640-1 SDG: Eddy County NM

### GC VOA

### Prep Batch: 42357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3640-1	SS09	Total/NA	Solid	5035	
MB 880-42357/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

### Analysis Batch: 42409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3640-1	SS09	Total/NA	Solid	8021B	42357
MB 880-42357/5-A	Method Blank	Total/NA	Solid	8021B	42357
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	8021B	42357
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	42357
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	42357
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	42357

### **Analysis Batch: 42523**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3640-1	SS09	Total/NA	Solid	Total BTEX	

### **GC Semi VOA**

### Prep Batch: 42002

Lab Sample ID 890-3640-1	Client Sample ID SS09	Prep Type Total/NA	Matrix Solid	Method 8015NM Prep	Prep Batch
MB 880-42002/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-42002/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-42002/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3638-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3638-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

### Analysis Batch: 42108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3640-1	SS09	Total/NA	Solid	8015B NM	42002
MB 880-42002/1-A	Method Blank	Total/NA	Solid	8015B NM	42002
LCS 880-42002/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	42002
LCSD 880-42002/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	42002
890-3638-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	42002
890-3638-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	42002

### Analysis Batch: 42206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3640-1	SS09	Total/NA	Solid	8015 NM	

### HPLC/IC

### Leach Batch: 41923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3640-1	SS09	Soluble	Solid	DI Leach	
MB 880-41923/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

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### **QC Association Summary**

Client: Ensolum
Project/Site: PLU 27 BD 161H
SDG: Eddy County NM

### **HPLC/IC** (Continued)

### Leach Batch: 41923 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3643-A-4-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3643-A-4-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

### Analysis Batch: 42049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3640-1	SS09	Soluble	Solid	300.0	41923
MB 880-41923/1-A	Method Blank	Soluble	Solid	300.0	41923
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	300.0	41923
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41923
890-3643-A-4-B MS	Matrix Spike	Soluble	Solid	300.0	41923
890-3643-A-4-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41923

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### **Lab Chronicle**

Client: Ensolum Job ID: 890-3640-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

**Client Sample ID: SS09** Lab Sample ID: 890-3640-1 Date Collected: 12/07/22 13:45

Matrix: Solid

Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	42357	12/20/22 21:30	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42409	12/21/22 20:39	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42523	12/22/22 13:15	SM	EET MID
Total/NA	Analysis	8015 NM		1			42206	12/19/22 15:23	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	42002	12/16/22 09:37	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	42108	12/18/22 13:55	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	42049	12/20/22 14:06	CH	EET MID

### **Laboratory References:**

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

### **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3640-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

### **Laboratory: Eurofins Midland**

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

Authority Texas		ogram	Identification Number	Expiration Date
		ELAP	T104704400-22-25	06-30-23
The following analytes	are included in this report, but	it the laboratory is not certific	ed by the governing authority. This list ma	av include analytes fo
the agency does not of	• •	ic and laboratory to flot corum	bu by the governing authority. This list his	ay include analytes to
,	• •	Matrix	Analyte	ay molude analytes to
the agency does not of	fer certification.	,	, , ,	

### **Method Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3640-1

SDG: Eddy County NM

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: PLU 27 BD 161H

Job ID: 890-3640-1

SDG: Eddy County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3640-1	SS09	Solid	12/07/22 13:45	12/13/22 13:30	0.5'

eurofins: Xenco **Environment Testing** 

### Houston, TX (281) 240-4200, Dalles, TX (214) 902-0300 Chain of Custody

Work Order No:

Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334 EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296 Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

www.xenco.com Page1_of1_
Work Order Comments
Program: UST/PST 🗌 PRP 🗍 Brownfields 🗌 RRC 📗 Superfund 🗍
State of Project:
Reporting Level III  Level III  PST/UST TRRP  Level IV
Dalwarshies EDD ADAPT Other

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ure) Date/Time	Received by: (Signature)	Relinquished by: (Signature)	ime	Date/Time		ure)	Received by: (Signature)	Received	ature)	Relinquished by: (Signature)
	tandard terms and conditions :umstances beyond the control ced unless previously negotiated.	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 \$55,00 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 praviously negotiated	Eurofins Xei	y losses of submitted	rom client co ibility for an ach sample	rchase order f ne any respons arge of \$5 for e	tutes a valid pu shall not assun roject and a cha	of samples const it of samples and applied to each p	and relinquishment lable only for the coa rge of \$85.00 will be	totice: Signature of this document of service. Eurofins Xenco will be of Eurofins Xenco. A minimum cha
Hg: 1631 / 245.1 / 7470 / 7471	Se Ag TI U Hg: 1631.	TCLP / SPLP 6010: BRCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se A	Ва Ве	Sb As	8RCRA	PLP 6010	TCLP / S	zed	il(s) to be analy.	Circle Method(s) and Metal(s) to be analyzed
la Sr Tl Sn U V Zn	Mo Ni K Se Ag SiO <sub>2</sub> Ni	RRCRA 13PPM Texas 11 ALS bAs Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO <sub>2</sub> Na Sr Ti Sn U V Zn	За Ве В	b As	11 A S	PM Texas	CRA 13P	8	200 8 / 6020	Total 200 7 / 6010
			+							
NAPP2218236445			-							
Incident Number:										
			+							
					+					
Cost Center: 1666961001			×	×	Grab/ 1	0.5' G	1242	12/7/2022	S	SS09
Sample Comments			TPH (8	CHLO	Grab/ # of Comp Cont	Depth Co	Time Sampled	Date Sampled	n Matrix	Sample Identification
NaUH+Ascorbic Acid. SAFC	The second secon			RIDE	0	5.1	nperature:	Corrected Temperature		Total Containers
Zn Acetate+NaOH: Zn		890-3640 Chain of Custody		S (E		Six	Reading	Temperature Reading	Yes No WA	Sample Custody Seals
Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> . NaSO <sub>3</sub>				PA:	Pa	10-	ctor	Correction Factor	Yes No Jun	Cooler Custody Seals
NaHSO. NABIS				300	rear A	Thim &	ID	Thermometer ID	Tes No	Samples Received Intact
173FQ4. 11F				1.0)	L	CYOS NO	Wet Ice	CYes No	Temp Blank	SAMPLE RECEIPT

SAMPLE RECEIPT

Sampler's Name

roject Location:

EDDY COUNTY, NM

Due Date: Routine

TAT starts the day received by the lab. If received by 4:30pm

Chris Brown

roject Number

oject Name

PLU 27 BD 161H 03E1558089

Address

ity. State ZIP

9898540852 Carlsbad, NM 88220 3122 National parks Hwy

Email bbeiii@ensolum.com

City. State ZIP Address Company Name

Carlsbad, NM 88220 3104 E. Green Street XTO Energy, Inc. Garrett Green

Bill to (if different)

Turn Around

Rush

Code

**ANALYSIS REQUEST** 

HCL HC

MeOH Me HNO<sub>3</sub> HN NaOH: Na

Cool: Cool None: NO

Preservative Codes

DI Water: H20

H3PO4. HP H2SO4: H2

Project Manager ompany Name

Ensolum, LLC Ben Belili

Wet Ice

No

**Parameters** 

**Eurofins Carlsbad** 

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	Custody Seals Intact: Custody Seal No	Relinquished by	Relinquished by	M	Empty Kit Relinquished by:	Deliverable Requested Fill III IV, Other (specify)	Possible Hazard Identification Unconfirmed	route: Since aboratory accreditations are subject to charge, Lutoinites Environment lesting South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody if the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately.								SS09 (890-3640-1)		Sample Identification - Client ID (Lab ID)		Site:	PLU 27 BD 161H	Email	Phone: 432-704-5440(Tel)	State, Zip: TX 79701	City: Midland	1211 W Florida Ave,	Eurofins Environment Testing South Centr	Shipping/Receiving	Client Information (Sub Contract Lab)	Carlsbad, NM 88220 Phone. 575-988-3199 Fax: 575-988-3199
		Date/Time	Date/Time	Date/I ime		Primary Deliverable Rank		ent Testing South Centrabove for analysis/tests Central, LLC attention in								12/7/22	X	Sample Date		SSOW#:	Project #: 89000093	WO#	PO #		TAT Requested (days):	12/19/2022		rnone	Sampler	
					Date	able Rank 2		al, LLC places /matrix being a nmediately If a								13 45 Mountain	X	Sample Time							ıys):	ģ				hain
						2		the ownership nalyzed, the sa all requested ac									300	E 3	Sample Type											of Cus
		Company	Company	Company				of method, and amples must be ccreditations ar								Solid	Preservation Code:	S=solid, O=waste/oil, BT=Tissue, A=Air	Matrix (w=water									Jessic	Lab PM Kramer	Chain of Custody Record
	8	Re	R.	-	Time:	Specia	Samp	lyte & accreo shipped bace e current to c								×	X	Perfor	iltered m MS/N OD_NM/	ISD (Y	es or	No)	(7.	I TPH			Accreditations Required (See note): NELAP - Texas	E-Mail: Jessica Kramer@et.eurofinsus.com	mer Jessica	ecord
	Cooler Temperature(s) °C	Received by:	Received by			Special Instructions/QC	le Disposal ( A f Return To Client	itation cok to the I								×			OD_Calc								ns Requi	r@et.e	go.	
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							Sample Disposal ( A fee may be assessed if samples are retained longer than Return To Client Disposal By Lab Archive For	nt is forwarded under instructions will be fins Environment Te	in an alle.	State Good	1	shifts	i de constituir	<u>&gt; 80668</u>		e a company		S		Other:	L EDA	(2)53))))190002	G Amchlor H - Ascorbic Acid		B - NaOH C Zn Acetate	Preservation Codes	Job #: 890-3640-1	Page. Page 1 of 1	COC No 890-1064 1	eurofins
Ver	-	Company	Company	Company			1 mor	er chain-of-a e provided. esting Souti									1	Instruct			Z Y		: ⊣ ģ	πρτ Na Na Na	O-As	odes M He				
Ver: 06/08/2021		bany	oany	oany			<b>nth)</b> Months	custody If the Any changes to h Central LLC										Special Instructions/Note:			Trizma other (specify)	MCAA pH 4-5	H2SO4 TSP Dodecahydrate	P Na2O4S Q - Na2SO3 R Na2S2O3	one ;NaO2	»xane				Environment Testing

**Eurofins Carlsbad** 

# **Chain of Custody Record**

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<b>1977</b> )	
KXM.	

1089 N Canal St. Carlsbad NM 88220 Phone. 575-988-3199 Fax 575-988-3199  Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving Company Eurofins Environment Testing South Centr Address 1211 W Florida Ave	Sampler Phone: Phone: Due Date Requested 12/19/2022	Shain c	Chain of Custody Record  Lab PM Kramer Jessica E-Maii. Jessica Kramer Accreditation NELAP - T	Lab PM Kramer E-Mail. Jessica	Lab PM Kramer Jessica E-Mail Jessica Kramer@et.eurofinsus com Accreditations Required (See note). NELAP - Texas Analys	ins Require	eurofir	sus co	om		Carrier Tra	Carrier Tracking No(s) Carrier Tracking No(s) State of Origin. New Mexico	8 king N	) (s)			<u> </u>	ofins 641 of 1 ation Code	-     m
City Midland State, Zip: TX, 79701	TAT Requested (days):	iys):			ТРН											,,,,,,,,,,,,,	m o c œ >	HCL NaOH Zn Acetate Nitric Acid NaHSO4	, , ,
Phone: 432-704-5440(Tel) Email	PO#				o)	· (	hloride	EX						· · · · · · · · · · · · · · · · · · ·		<del>, y y y y y y y y y y y y y y y y y y y</del>		F - MeOH G Amchlor H - Ascorbic Acid I Ice	S - H2SO4 T TSP Dodecahydrate U - Acetone V MCAA
Project Name: PLU 27 BD 161H	Project #: 89000093				s or N		EACH C	OD) BTI								23. Asi. 15.		EDTA EDA	W - pH 4-5 Y Trizma Z - other (specify)
Site:	SSOW#:				SD (Y		D/DI_L		<u> </u>							WE 7558	dragst delle	Other:	
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab) <sub>B1</sub>	ا ا	Field Filtered S Perform MS/MS 8015MOD_NM/80	8015MOD_Calc	300_ORGFM_280	8021B/5035FP_C	Total_BTEX_GC\								Total Number o	Special Ins	Special Instructions/Note:
	V	X	DO L	de de de	X	anting		200			ethani		hade	-	a Real	31.00 M	4	opecial ins	a decionamote.
SS09 (890-3640-1)	12/7/22	13 45 Mountain		Solid	×	×	×	×	×								4		
																Sanderal Service	Lacabush		
										+++-									
Note Since laboratory accreditations are subject to change Eurofins Environment Testing South Central, LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody if the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central LLC.	It Testing South Centrove for analysis/tests	al, LLC places t /matrix being ar nmediately If a	the ownership of nalyzed the sam	f method analy ples must be serious are	rte & accreshipped base	ditation c	omplia Eurofin	nce upo s Envir	onmen Chain c	subcon t Testir	g Sout	porator h Cent	ies. T	his sa	mple	shipm or of	ent is ner in	forwarded under cha structions will be prov	in-of-custody if the vided Any changes to g South Central LLC
Possible Hazard Identification Unconfirmed					Samp	le Disposal ( A fo	oosal 1 To C	(A fe	e ma	□be	assessed if san Disposal By Lab	sed I	f sar y Lat	nple	_s	⊢ era	chiv	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 r	1 month)  Months
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					-	Cooler Temperature(s)	nperatu	re(s)		and Other Remarks	emark			1					Ver 06/08/2021

### **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3640-1

SDG Number: Eddy County NM

List Source: Eurofins Carlsbad

Login Number: 3640 List Number: 1

Creator: Stutzman, Amanda

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

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### **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3640-1

SDG Number: Eddy County NM

List Source: Eurofins Midland

List Creation: 12/15/22 11:29 AM

Login Number: 3640 List Number: 2 Creator: Teel, Brianna

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

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<6mm (1/4").

**Environment Testing** 

### **ANALYTICAL REPORT**

### PREPARED FOR

Attn: Ben Belill Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 12/22/2022 12:59:25 PM

### **JOB DESCRIPTION**

PLU 27 BD 161H SDG NUMBER Eddy County NM

### **JOB NUMBER**

890-3641-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

Released to Imaging: 5/19/2023 8:53:13 AM

### **Eurofins Carlsbad**

### **Job Notes**

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

### **Authorization**

Generated 12/22/2022 12:59:25 PM

Authorized for release by Jessica Kramer, Project Manager <u>Jessica.Kramer@et.eurofinsus.com</u> (432)704-5440

Eurofins Carlsbad is a laboratory within Eurofins Environment Testing South Central, LLC, a company within Eurofins Environment Testing Group of Companies

Client: Ensolum

Project/Site: PLU 27 BD 161H

Laboratory Job ID: 890-3641-1 SDG: Eddy County NM

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### **Definitions/Glossary**

Job ID: 890-3641-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

### **Qualifiers**

**GC VOA** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

### **GC Semi VOA**

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected

### **HPLC/IC**

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

### **Glossary**

DL, RA, RE, IN

LOQ

Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	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)

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)

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 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

Presumptive **PRES** QC **Quality Control** 

**RER** Relative Error Ratio (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) Toxicity Equivalent Quotient (Dioxin) TEQ

**TNTC** Too Numerous To Count

### Case Narrative

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3641-1

SDG: Eddy County NM

Job ID: 890-3641-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3641-1

### Receipt

The sample was received on 12/13/2022 1:30 PM. 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 5.6°C

### **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: SS11 (890-3641-1).

### **GC VOA**

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-22528-A-1-E). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

### GC Semi VOA

Method 8015MOD NM: Surrogate recovery for the following sample was outside control limits: (LCSD 880-41926/3-A). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-41926 and analytical batch 880-41982 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

Method 8015MOD NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-41926 and analytical batch 880-41982 was outside control limits. Sample non-homogeneity is suspected.

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 Job ID: 890-3641-1

Project/Site: PLU 27 BD 161H SDG: Eddy County NM

**Client Sample ID: SS11** Lab Sample ID: 890-3641-1 Date Collected: 12/07/22 14:15 Matrix: Solid

Date Received: 12/13/22 13:30 Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 20:59	1
Toluene	< 0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 20:59	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 20:59	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/20/22 21:30	12/21/22 20:59	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		12/20/22 21:30	12/21/22 20:59	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/20/22 21:30	12/21/22 20:59	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130			12/20/22 21:30	12/21/22 20:59	1
1,4-Difluorobenzene (Surr)	105		70 - 130			12/20/22 21:30	12/21/22 20:59	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/22/22 13:15	1
Method: SW846 8015 NM - Diese	el Range Organ	ics (DRO) ((	GC)					
Method: SW846 8015 NM - Diese Analyte	•	ics (DRO) ( Qualifier	GC)	Unit	D	Prepared	Analyzed	Dil Fac
	•		•	<mark>Unit</mark> mg/Kg	<u>D</u>	Prepared	Analyzed 12/19/22 15:03	Dil Fac
Analyte	Result 61.2	Qualifier	50.0		<u>D</u>	Prepared		Dil Fac
Analyte Total TPH	Result 61.2	Qualifier	50.0		<u>D</u>	Prepared Prepared		Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	Result 61.2	Qualifier  nics (DRO) Qualifier	RL 50.0	mg/Kg	_ =		12/19/22 15:03	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result 61.2 sel Range Orga Result	Qualifier  unics (DRO) Qualifier U	RL 50.0 (GC)	mg/Kg	_ =	Prepared	12/19/22 15:03  Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10	Result 61.2 sel Range Orga Result <50.0	Qualifier  unics (DRO) Qualifier U	(GC) RL 50.0	mg/Kg  Unit  mg/Kg	_ =	Prepared 12/15/22 14:18	12/19/22 15:03  Analyzed  12/16/22 17:19	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result 61.2 sel Range Orga Result <50.0 61.2	Qualifier  unics (DRO) Qualifier U  *1	RL 50.0 (GC) RL 50.0 50.0	mg/Kg  Unit  mg/Kg  mg/Kg	_ =	Prepared 12/15/22 14:18 12/15/22 14:18	12/19/22 15:03  Analyzed 12/16/22 17:19 12/16/22 17:19	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result	Qualifier  unics (DRO) Qualifier U  *1	RL 50.0  (GC)  RL 50.0  50.0  50.0	mg/Kg  Unit  mg/Kg  mg/Kg	_ =	Prepared 12/15/22 14:18 12/15/22 14:18 12/15/22 14:18	12/19/22 15:03  Analyzed 12/16/22 17:19 12/16/22 17:19 12/16/22 17:19	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result	Qualifier  unics (DRO) Qualifier U  *1	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits	mg/Kg  Unit  mg/Kg  mg/Kg	_ =	Prepared 12/15/22 14:18 12/15/22 14:18 12/15/22 14:18 Prepared	12/19/22 15:03  Analyzed  12/16/22 17:19  12/16/22 17:19  12/16/22 17:19  Analyzed	1
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result	Qualifier  Inics (DRO) Qualifier  U  *1  U  Qualifier	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits  70 - 130  70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg	_ =	Prepared 12/15/22 14:18 12/15/22 14:18 12/15/22 14:18  Prepared 12/15/22 14:18	Analyzed 12/16/22 17:19 12/16/22 17:19 12/16/22 17:19 Analyzed 12/16/22 17:19	Dil Fac

5.00

mg/Kg

25.1

12/19/22 21:59

Chloride

### **Surrogate Summary**

Client: Ensolum Job ID: 890-3641-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

_				Percent Surrogate R
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
880-22528-A-1-C MS	Matrix Spike	97	109	
880-22528-A-1-D MSD	Matrix Spike Duplicate	104	117	
890-3641-1	SS11	98	105	
LCS 880-42357/1-A	Lab Control Sample	109	113	
LCSD 880-42357/2-A	Lab Control Sample Dup	123	117	
MB 880-42357/5-A	Method Blank	85	102	
Surrogate Legend				
BFB = 4-Bromofluoroben	zene (Surr)			
DFBZ = 1,4-Difluorobenz	ene (Surr)			

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

Matrix: Solid Prep Type: Total/NA

		1001	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-3615-A-1-E MS	Matrix Spike	109	98
890-3615-A-1-F MSD	Matrix Spike Duplicate	105	86
890-3641-1	SS11	103	102
LCS 880-41926/2-A	Lab Control Sample	98	111
LCSD 880-41926/3-A	Lab Control Sample Dup	128	134 S1+
MB 880-41926/1-A	Method Blank	112	115

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

**Eurofins Carlsbad** 

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Job ID: 890-3641-1

Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

Lab Sample ID: MB 880-42357/5-A

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42357

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	

MB MB

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 130	_	12/20/22 21:30	12/21/22 17:53	1
1,4-Difluorobenzene (Surr)	102		70 - 130		12/20/22 21:30	12/21/22 17:53	1

Lab Sample ID: LCS 880-42357/1-A

**Matrix: Solid** 

**Analysis Batch: 42409** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Prep Batch: 42357

LCS LCS Spike Analyte Added Result Qualifier Unit %Rec Limits Benzene 0.100 0.09323 mg/Kg 93 70 - 130 Toluene 0.100 0.09102 mg/Kg 91 70 - 130 0.100 0.09651 Ethylbenzene mg/Kg 97 70 - 130 0.200 0.2008 100 70 - 130 m-Xylene & p-Xylene mg/Kg 0.100 0.1003 o-Xylene mg/Kg 100 70 - 130

LCS LCS

Surrogate	%Recovery Quali	fier Limits
4-Bromofluorobenzene (Surr)	109	70 - 130
1,4-Difluorobenzene (Surr)	113	70 - 130

Lab Sample ID: LCSD 880-42357/2-A

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 42357

LCSD LCSD RPD Spike %Rec Analyte Added Result Qualifier Unit %Rec Limits Limit Benzene 0.100 0.09835 mg/Kg 98 70 - 130 5 35 Toluene 0.100 0.1014 mg/Kg 101 70 - 130 11 35 Ethylbenzene 0.100 0.1122 mg/Kg 112 70 - 130 15 35 0.200 m-Xylene & p-Xylene 0.2388 mg/Kg 119 70 - 130 17 35 0.100 0.1195 o-Xylene mg/Kg 119 70 - 130 35

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	123		70 - 130
1.4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: 880-22528-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 42409

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

Prep Batch: 42357

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00199	U	0.101	0.09286		mg/Kg	_	92	70 - 130	 
Toluene	< 0.00199	U	0.101	0.08719		mg/Kg		86	70 - 130	

**Eurofins Carlsbad** 

### QC Sample Results

Client: Ensolum Job ID: 890-3641-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

Lab Sample ID: 880-22528-A-1-C MS

Lab Sample ID: 880-22528-A-1-D MSD

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 42357

	Sample	Sample	<b>Бріке</b>	IVIS	IVIS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Ethylbenzene	<0.00199	U	0.101	0.08338		mg/Kg		83	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.202	0.1725		mg/Kg		86	70 - 130
o-Xylene	<0.00199	U	0.101	0.08628		mg/Kg		85	70 - 130

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	97	70 - 130
1,4-Difluorobenzene (Surr)	109	70 - 130

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 42357

**Matrix: Solid** Analysis Batch: 42409

Sample Sample Spike MSD MSD RPD Result Qualifier Added Result Qualifier RPD Limit Analyte Unit %Rec Limits 0.0996 Benzene <0.00199 U 0.09619 mg/Kg 97 70 - 130 4 35 Toluene 0.08829 <0.00199 U 0.0996 mg/Kg 89 70 - 130 35 Ethylbenzene <0.00199 U 0.0996 0.08535 mg/Kg 86 70 - 130 2 35 <0.00398 U 0.199 0.1807 91 70 - 130 35 m-Xylene & p-Xylene mg/Kg 5 0.0996 <0.00199 U 0.09565 95 70 - 130 o-Xylene mg/Kg 10

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

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

Lab Sample ID: MB 880-41926/1-A

**Matrix: Solid** 

Analysis Batch: 41982

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

Prep Batch: 41926

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130	12/15/22 14:18	12/16/22 08:33	1
o-Terphenyl	115		70 - 130	12/15/22 14:18	12/16/22 08:33	1

Lab Sample ID: LCS 880-41926/2-A

**Matrix: Solid** 

Analysis Batch: 41982

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

Prep Batch: 41926

	Spike	LCS	LCS				%Rec
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Gasoline Range Organics	1000	918.4		mg/Kg		92	70 - 130
(GRO)-C6-C10							
Diesel Range Organics (Over	1000	903.8		mg/Kg		90	70 - 130
C10-C28)							

Job ID: 890-3641-1

Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

LCS LCS

Lab Sample ID: LCS 880-41926/2-A

**Matrix: Solid** 

Analysis Batch: 41982

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41926

Surrogate %Recovery Qualifier

1-Chlorooctane 98 70 - 130 o-Terphenyl 111 70 - 130

Lab Sample ID: LCSD 880-41926/3-A Client Sample ID: Lab Control Sample Dup

Limits

**Matrix: Solid** 

Analysis Batch: 41982

Prep Type: Total/NA

Prep Batch: 41926

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit 1000 1055 105 70 - 13014 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 1147 \*1 mg/Kg 115 70 - 13024 20 C10-C28)

LCSD LCSD

Surrogate %Recovery Qualifier Limits 70 - 130 1-Chlorooctane 128 134 S1+ 70 - 130 o-Terphenyl

Lab Sample ID: 890-3615-A-1-E MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

**Analysis Batch: 41982** 

Prep Type: Total/NA

Prep Batch: 41926

Sample Sample MS MS Spike Added Analyte Result Qualifier Result Qualifier Unit %Rec Limits D Gasoline Range Organics <50.0 U F2 999 1283 mg/Kg 128 70 - 130 (GRO)-C6-C10 <50.0 U \*1 Diesel Range Organics (Over 999 1096 mg/Kg 110 70 - 130

C10-C28)

MS MS %Recovery Qualifier Surrogate Limits 70 - 130 1-Chlorooctane 109 o-Terphenyl 98 70 - 130

Lab Sample ID: 890-3615-A-1-F MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Analysis Batch: 41982

Prep Type: Total/NA

Prep Batch: 41926

Sample Sample MSD MSD RPD Spike %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits **RPD** Limit Gasoline Range Organics U F2 997 988.5 F2 <50.0 99 70 - 130 26 20 mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U \*1 997 942.5 mg/Kg 95 70 - 130 15 20

C10-C28)

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	105		70 - 130
o-Terphenyl	86		70 - 130

Job ID: 890-3641-1

mg/Kg

SDG: Eddy County NM

94

90 - 110

Client Sample ID: Method Blank

**Prep Type: Soluble** 

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41923/1-A

**Matrix: Solid** 

Analysis Batch: 42049

Client: Ensolum

Project/Site: PLU 27 BD 161H

	МВ	MB
Analyte	Result	Qual

Analyte	Result Q	ualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00 U		5.00	mg/Kg			12/19/22 21:05	1

Lab Sample ID: LCS 880-41923/2-A **Client Sample ID: Lab Control Sample Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 42049

Chloride

Spike LCS LCS %Rec Added Result Qualifier Analyte Unit D %Rec Limits

250

Lab Sample ID: LCSD 880-41923/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid Prep Type: Soluble** 

235.6

Analysis Batch: 42049

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit Limits Limit Chloride 250 237.1 90 - 110 mg/Kg

Lab Sample ID: 890-3637-A-1-B MS Client Sample ID: Matrix Spike **Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 42049

_	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	6580		5020	11410		mg/Kg		96	90 - 110	

Lab Sample ID: 890-3637-A-1-C MSD Client Sample ID: Matrix Spike Duplicate **Prep Type: Soluble** 

**Matrix: Solid** 

Analysis Batch: 42049

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	6580		5020	11440		mg/Kg		97	90 - 110	0	20

### **QC Association Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3641-1 SDG: Eddy County NM

### **GC VOA**

### Prep Batch: 42357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3641-1	SS11	Total/NA	Solid	5035	
MB 880-42357/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

### Analysis Batch: 42409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3641-1	SS11	Total/NA	Solid	8021B	42357
MB 880-42357/5-A	Method Blank	Total/NA	Solid	8021B	42357
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	8021B	42357
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	42357
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	42357
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	42357

### Analysis Batch: 42524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3641-1	SS11	Total/NA	Solid	Total BTEX	

### **GC Semi VOA**

### Prep Batch: 41926

<b>Lab Sample ID</b> 890-3641-1	Client Sample ID SS11	Prep Type Total/NA	Matrix Solid	Method 8015NM Prep	Prep Batch
MB 880-41926/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41926/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41926/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3615-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3615-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

### Analysis Batch: 41982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3641-1	SS11	Total/NA	Solid	8015B NM	41926
MB 880-41926/1-A	Method Blank	Total/NA	Solid	8015B NM	41926
LCS 880-41926/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41926
LCSD 880-41926/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41926
890-3615-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	41926
890-3615-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41926

### **Analysis Batch: 42186**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3641-1	SS11	Total/NA	Solid	8015 NM	

### HPLC/IC

### Leach Batch: 41923

Released to Imaging: 5/19/2023 8:53:13 AM

Г					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3641-1	SS11	Soluble	Solid	DI Leach	
MB 880-41923/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

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### **QC Association Summary**

Client: Ensolum Job ID: 890-3641-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

### **HPLC/IC** (Continued)

### Leach Batch: 41923 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3637-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

### **Analysis Batch: 42049**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3641-1	SS11	Soluble	Solid	300.0	41923
MB 880-41923/1-A	Method Blank	Soluble	Solid	300.0	41923
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	300.0	41923
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41923
890-3637-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	41923
890-3637-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41923

### **Lab Chronicle**

Job ID: 890-3641-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Lab Sample ID: 890-3641-1 **Client Sample ID: SS11** Date Collected: 12/07/22 14:15

Matrix: Solid

Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	42357	12/20/22 21:30	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42409	12/21/22 20:59	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42524	12/22/22 13:15	SM	EET MID
Total/NA	Analysis	8015 NM		1			42186	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	41926	12/15/22 14:18	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 17:19	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	42049	12/19/22 21:59	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: 890-3641-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

### **Laboratory: Eurofins Midland**

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

Authority	Pr	ogram	Identification Number	Expiration Date
Texas	NE	ELAP	T104704400-22-25	06-30-23
The following analytes	are included in this report but	it the laboratory is not certifie	ed by the governing authority. This list ma	av include analytes fo
The following analytes	are medada m. ame repert, se	,	,	ly include analytes to
the agency does not of	• •	,		ly illolude allalytes lo
,	• •	Matrix	Analyte	y moduce analytes to

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### **Method Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3641-1

SDG: Eddy County NM

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: PLU 27 BD 161H

Job ID: 890-3641-1

SDG: Eddy County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3641-1	SS11	Solid	12/07/22 14:15	12/13/22 13:30	0.5'

Project Manager Company Name

Ensolum, LLC Ben Belili

Bill to (if different) Company Name

XTO Energy, Inc. Garrett Green

### Chain of Custody

Houston, TX (281) 240-4200, Dalles, TX (214) 902-0300 Nidtand, TX (432) 704-5440, San Antonio, TX (210) 509-3334 EL Paso, TX (915) 585-3443, Lubbock, TX (806) 784-1296 Hobbs, NM (575) 392-7650, Cerisbed, NM (575) 988-3199

<sup>9</sup> rogram: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund [	Work Order Comments	www.xenco.com	AROLY CITIES INC.
fields   RRC   Superfund	omments	Page1of1_	

	ACC MINISTER SANTA	The Line		11000		2104	1 1 1 1 1	200		Crate of a colecti		
Address	Sizz National parks nwy	S TWY	2 7	City State 710		Carlet	N Ded N	Carlehad NM 88220		Reporting Level II   Level III   PST/UST   TRRP   Level IV	PST/UST TRRP	Level IV
	9898540852		Email b	bbelill@ensolum.com	ım.co	n			ַם	Deliverables EDD	ADaPT Other	
Project Name	PLU 27 BD 161H	0 161H	Turn A	Turn Around					ANALYSIS REQUEST	EST	Preservative Codes	ve Codes
Project Number	03E1558089	8089	☑ Routine	Rush	Code						None: NO	DI Water. H <sub>2</sub> O
Project Location	EDDY COUNTY, NM	NTY. NM	Due Date:								Cool: Cool	MeOH: Me
Sampler's Name	Chris Brown	UMO	TAT starts the day received by	day received by							HCL HC	HNO3 HN
PO *		)	the lab. If recei	the lab. if received by 4:30pm	rs						H <sub>2</sub> SO <sub>4</sub> H <sub>2</sub>	NaOH: Na
SAMPLE RECEIPT	Temp Blank	Les No	Wet Ice:	Med No	nete	.0)					H <sub>3</sub> PO <sub>4</sub> , HP	
Samples Received Intact:		Thermo	6	78-43	ıran	300					NaHSO, NABIS	
Cooler Custody Seals	Yes No A	MA Correction Factor	actor	C. 0-	Pa	PA:					Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> . NaSO <sub>3</sub>	
Sample Custody Seals	No	NA Temperature Reading	Reading	2.8		S (E				This court was not	Zn Acetate+NaOH: Zn	H: Zn
Total Containers		Corrected Temperature	mperature	5.6		IDE	)15)	8021	890-3641 Chain of Custour	lody	NaOH+Ascorbic Acid SAPC	Acid SAPC
Sample Identification	ication Matrix	trix Date Sampled	Time Sampled	Depth Grab/	# of	CHLOR	TPH (80	BTEX (			Sample Comments	omments
SS11	S	12/7/2022	5141	0.5' Grab/		×	×	×			Cost Center: 1666961001	1666961001
											Incident Number:	Number:
											NAPP2217546910	7546910
Total 200.7 / 6010 200.8 / 6020: Circle Method(s) and Metal(s) to be analyzed	0 200.8 / 6020: Metal(s) to be an		BRCRA 13PPM	M Texas 11	CRA S	Sb As	Ba E	Be B	RA 13PPM Texas 11 AISb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg TCLP/SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni	b Mg Mn Mo Ni K Se Ag o Ni Se Ag TI U Hg	Ag SiO <sub>2</sub> Na Sr TI Sn U V Zn Hg: 1631 / 245.1 / 7470 / 7471	V Zn 7471
fice: Signature of this doc ervice. Eurofine Xenco v	oument and relinquishm will be liable only for the	ent of samples cons	stitutes a valid puro		client co	ympany v losses	to Euro	fins Xen	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. Eurofine Xenco will be finible 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	s. It assigns standard terms and conditions are due to circumstances beyond the control	tions	
Relinguished by: (Signature)	Signature)	Receive	d hw (Sinnatu	any responsibility of \$5 for each	by for an	submitte			Relinquished by: (Signature)	Received by:	ure)	
	P			Notice: Signature of this document and relinquishment of samples constitutes a wild purchase order from client company to Eurotins Xanco, its attuitives and succontractors. It assigns small to ensure a wild purchase order from client company to Eurotins Xanco will be included to seem and 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 Eurotins Xanco, A minimum charge of \$5.500 will be applied to each project and a charge of \$5 for each sample submitted to Eurotins Xanco, but not analyzed. These terms will be enforced unless previously negotiated by: (Signature)  Received by: (Signature)  Received by: (Signature)  Received by: (Signature)	sample	Date	Time			-		Date/Time
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**Eurofins Carlsbad** 

## **Chain of Custody Record**

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& eurofins Environment Testing

1089 N Canal St. Carlsbad, NM 88220	0	hain c	Chain of Custody Record	ody R	ecor	Q					1.8	41	MIN.					800	💸 eurofins	Environment Testing	esting
Phone. 575-988-3199 Fax. 575-988-3199	Sampler:			li ah D							╣╒			1	1			3	> (I_		
Client Information (Sub Contract Lab)	Oalilpied			Krame	Kramer, Jessica	ଥ	İ	ı	ı			Carrier Tracking No(s)	rackii	JG No	S			<b>8</b> 8	COC No: 890-1064 1		
Client Contact: Shipping/Receiving	Phone:			E-Mail Jessi	E-Mail Jessica Kramer@et.eurofinsus com	er@et	euro	finsus	com		<b>7</b> 0	State of Origin New Mexico	Origin	٦				Pag	Page: Page 1 of 1		
Company Eurofins Environment Testing South Centr					Accreditations Required (See note) NELAP - Texas	ons Rec	uired (	(See n	ote):						l			Job #	Job#: 890-3641-1		
Address. 1211 W Florida Ave, ,	Due Date Requested 12/19/2022	ä						≥	Analy	lysis F	Requested	este	ă					- 7	Preservation Codes	des M - Hexane	
City: Midland	TAT Requested (days):	ıys):				$\dashv$	一				-	$\dashv$	$\dashv$	$\dashv$	-	$\dashv$		) B >	A - HCL B NaOH	N - None O - AsNaO2	
State Zip: TX, 79701					TRU	TPH				<del></del>							M K.	m o c	D Nitric Acid E - NaHSO4	P Na2O4S Q - Na2SO3 R Na2S2O3	
Phone: 432-704-5440(TeI)	PO#					)) Full	le										<del>-v-zaja</del>	ר פ ז	MeOH Amchlor	S - H2SO4 T TSP Dodecahy	drate
Email	WO#-				lo)	p (MO	Chloric	EX									J.	Carrent Street	ice Di Water	U - Acetone V MCAA	
Project Name. PLU 27 BD 161H	Project #: 89000093				s or l	_S_Pre	EACH	OD) B									tainer		K-EDTA	Y Trizma Z - other (specify)	
Site	SSOW#:				SD (Y	315NM	D/DI_L	alc (M	v					<del></del>			of con	Madento	Other:		
			Sample Type	Matrix (W=water S=solid.	Filtered S	MOD_NM/80 MOD_Calc	DRGFM_28	3/5036FP_C	BTEX_GC								Number				
Sample Identification - Client ID (Lab ID)	Sample Date	Time	G=grab) <sub>B1</sub>	BT=Tissue, A=Air)	Per		300	802	Tota			<u> </u>	<u> </u>				Tot	30,70	Special I	Special Instructions/Note:	••
		X	Preservation Code:	on Code:	X	Sand	454	i de la composition della comp			la esta-	490		-		2000	V				
SS11 (890-3641-1)	12/7/22	Mountain		Solid		×	×	×	×		ļ	<u> </u>	<u> </u>	<u> </u>	-	-		Store on a			
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Note Since laboratory accreditations are subject to change Eurofins Environment Testing South Central LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.	t Testing South Centrove for analysis/tests.	al LLC places t /matrix being ar imediately If al	he ownership of nalyzed, the sam Il requested acci	f method, anal nples must be reditations are	yte & accre shipped ba current to	editation ack to th date, re	compl e Euro	liance fins Er e signe	upon o wironn ed Cha	ur sub ent Te	contra esting :	t labo South o	ratorie Centra ing to	s. Th	is san labor	iple st atory	hipme or othe	nt is for	orwarded under or tructions will be p	ces the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the its analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central. LLC laboratory or other instructions will be provided. Any changes if all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.	C & @
Possible Hazard Identification Unconfirmed					Sam	ple Di	le Disposal ( A fo	Clier A	† feer	may	⊔ as	assessed if san Disposal By Lah	Bull	sam	ples	⊓are	etai.	tained I	Sample Disposal (A fee may be assessed if samples are retained longer than 1	1 month)	
Deliverable Requested               Other (specify)	Primary Deliverable Rank 2	able Rank 2			Spec	Special Instructions/QC	truction	ons/C		Requirements.	ment	"	ŀ					ı			
Empty Kit Relinquished by		Date			Time.	7					.	¥	Method of Shipment:	of Sh	pmen	7					
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Custody Seals Intact. Custody Seal No  ∆ Yes ∆ No				***************************************		Cooler Temperature(s) °C	empera	ature(s		and Other Remarks	r Rem	arks								Ver: 06/08/2021	
																				Ver: 06/08/2021	

**Eurofins Carlsbad** 1089 N Canal St. Carlsbad, NM 88220 Phone 575-988-3199 Fax 575-988-3199

### **Chain of Custody Record**

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Environment Testing 12/22/2022

Client Information (Sub Contract Lab)	Current			Kramer Jessica	Jessi	ນ໌					G.	Jamer Tracking No(s)	King N	(s)			3 8	890-1064 1		
	Phone:			E-Mail						İ	State	State of Origin:	ă.				20 5	oage:		ㅗ
Company Eurofins Environment Testing South Centr				Accreditations Required (See note).	Accreditations Required (See note) NELAP - Texas	ns Req	uired (	ee not	e) (				18		- 1		g 등 ;	Job #:		
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	TAT Requested (days):	s);															CB>	- HCL NaOH - Zn Acetate	N - None O - AsNaO2 P - Na2OAS	
State, Zlp: TX 79701					TPH											T.	m o		P - Na2O4S Q Na2SO3 R - Na2SO3	—
Phone: 432-704-5440(Tel)	PO#				D) Full		le		····							germanicka M	ε φ T	MeOH Amchlor	S - H2SO4 T - TSP Dodecahydrate	
Email <sup>*</sup>	WO#			or No			Chloric	EX								<u> </u>	and the doctors	Ascorbic Acid De DI Water	U Acetone V - MCAA	
Project Name PLU 27 BD 161H	Project #* R9000093			(Yes	2000/05/22		ACH (	D) BT								iner	366 Z	- EDTA EDA	VV pH 4-5 Y - Trizma	
Site:	SSOW#:			mple	34,20010020090		DI_LE	c (MC								cont	- 10 m	Other:	c one (specify)	
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accreditation status should be brought to Eurofins Environment Testing South Central, LLC places trie ownership or metrod analyte & accreditation compliance upon our subcontract laboratores. This sample shipment is forwarded under chain-of-custody if the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central LLC.	resung south Central ve for analysis/tests/rr ral, LLC attention imm	atrix being analy lediately If all re	ownership of me zed the sample: quested accredi	thod analyte s must be shi ations are cu	& accred pped bac ment to c	x to the late, ret	compliant the	ance up ns Envi signed	on our ronmer Chain	subcor nt Testii of Cust	itract la ng Sou ody att	borato th Cen esting	nes T ralLL osaid	nis sar Clabor compli	nple si ratory ance t	nipme or othe	ofins	forwarded under cha structions will be pro- Environment Testing	ain-of-custody If the wided Any changes to g South Central LLC	
Possible Hazard Identification					Sample Disposal ( A fee	le Disposal (A f	posa	À		۵y be	asse	sed	fsan	ples	⊓are	etai	ned	may be assessed if samples are retained longer than 1 month)	month)	
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Custody Seals Intact. Custody Seal No					S	Cooler Temperature(s) °C	mperat	ure(s) °	တ	nd Other Remarks:	emark			I			l			
					F	١			١	l					1		l		Ver: 06/08/2021	L

### **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3641-1

SDG Number: Eddy County NM

List Source: Eurofins Carlsbad

Login Number: 3641 List Number: 1

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

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### **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3641-1

SDG Number: Eddy County NM

List Source: Eurofins Midland

List Creation: 12/15/22 11:29 AM

Login Number: 3641 List Number: 2 Creator: Teel, Brianna

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

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**Environment Testing** 

### **ANALYTICAL REPORT**

### PREPARED FOR

Attn: Ben Belill Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 12/22/2022 1:00:15 PM

### **JOB DESCRIPTION**

PLU 27 BD 161H SDG NUMBER Eddy County NM

### **JOB NUMBER**

890-3642-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

### **Eurofins Carlsbad**

### **Job Notes**

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

### **Authorization**

Generated 12/22/2022 1:00:15 PM

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

Eurofins Carlsbad is a laboratory within Eurofins Environment Testing South Central, LLC, a company within Eurofins Environment Testing Group of Companies

Page 2 of 22

Client: Ensolum
Project/Site: PLU 27 BD 161H
Laboratory Job ID: 890-3642-1
SDG: Eddy County NM

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## **Definitions/Glossary**

Job ID: 890-3642-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

## **Qualifiers**

**GC VOA** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

**GC Semi VOA** 

Qualifier **Qualifier Description** 

\*1 LCS/LCSD RPD exceeds control limits. F2 MS/MSD RPD exceeds control limits S1+ Surrogate recovery exceeds control limits, high biased.

Indicates the analyte was analyzed for but not detected.

**HPLC/IC** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

**Glossary** 

MCL

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

DFR 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

Decision Level Concentration (Radiochemistry) DLC

**EDL** Estimated Detection Limit (Dioxin) LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

Method Detection Limit MDL 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

Toxicity Equivalent Factor (Dioxin) TEF Toxicity Equivalent Quotient (Dioxin) TEQ

**TNTC** Too Numerous To Count

Job ID: 890-3642-1

## Case Narrative

Client: Ensolum

Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Job ID: 890-3642-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3642-1

#### Receipt

The sample was received on 12/13/2022 1:30 PM. 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 5.6°C

## **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: SS10 (890-3642-1).

#### **GC VOA**

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-22528-A-1-E). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

#### GC Semi VOA

Method 8015MOD NM: Surrogate recovery for the following sample was outside control limits: (LCSD 880-41926/3-A). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-41926 and analytical batch 880-41982 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

Method 8015MOD NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-41926 and analytical batch 880-41982 was outside control limits. Sample non-homogeneity is suspected.

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.

Matrix: Solid

Lab Sample ID: 890-3642-1

# **Client Sample Results**

Client: Ensolum Job ID: 890-3642-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

**Client Sample ID: SS10** 

Date Collected: 12/07/22 14:00 Date Received: 12/13/22 13:30

Sample Depth: 0.5'

	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 21:20	
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 21:20	,
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 21:20	
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		12/20/22 21:30	12/21/22 21:20	
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 21:20	,
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		12/20/22 21:30	12/21/22 21:20	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	104		70 - 130			12/20/22 21:30	12/21/22 21:20	
1,4-Difluorobenzene (Surr)	106		70 - 130			12/20/22 21:30	12/21/22 21:20	1
- Method: TAL SOP Total BTEX - T	otal BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			12/22/22 13:15	
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg		<u> </u>	12/19/22 15:03	
							12/13/22 10:00	
Mothod: SW846 8015R NM - Dios	eal Range Orga	nice (DRO)	(GC)				12/13/22 10.00	
				Unit	D	Prepared		Dil Fac
Analyte	Result	Qualifier	RL	Unit ma/Ka	D	Prepared 12/15/22 14:18	Analyzed	Dil Fac
Analyte Gasoline Range Organics				<mark>Unit</mark> mg/Kg	<u>D</u>	Prepared 12/15/22 14:18		
Analyte Gasoline Range Organics (GRO)-C6-C10	Result	Qualifier U	RL		<u>D</u>	<del></del>	Analyzed	
Analyte Gasoline Range Organics (GRO)-C6-C10	Result < 50.0	Qualifier U	<b>RL</b> 50.0	mg/Kg	<u>D</u>	12/15/22 14:18	Analyzed 12/16/22 17:41	
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result < 50.0	Qualifier U U *1	<b>RL</b> 50.0	mg/Kg	<u>D</u>	12/15/22 14:18	Analyzed 12/16/22 17:41	
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	<50.0 <50.0	Qualifier U U*1	RL 50.0	mg/Kg	<u>D</u>	12/15/22 14:18 12/15/22 14:18	Analyzed 12/16/22 17:41 12/16/22 17:41	
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result <50.0 <50.0 <50.0	Qualifier U U*1	RL 50.0 50.0 50.0	mg/Kg	<u>D</u>	12/15/22 14:18 12/15/22 14:18 12/15/22 14:18	Analyzed 12/16/22 17:41 12/16/22 17:41 12/16/22 17:41	
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <50.0   <50.0   <50.0   <50.0   <60.0   %Recovery	Qualifier U U*1	50.0 50.0 50.0 <i>Limits</i>	mg/Kg	<u> </u>	12/15/22 14:18 12/15/22 14:18 12/15/22 14:18  Prepared	Analyzed 12/16/22 17:41 12/16/22 17:41 12/16/22 17:41 Analyzed	Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result   <50.0   <50.0   <50.0     <50.0	Qualifier  U *1  U  Qualifier	8L 50.0 50.0 50.0 Limits 70 - 130 70 - 130	mg/Kg	<u>D</u>	12/15/22 14:18  12/15/22 14:18  12/15/22 14:18  Prepared  12/15/22 14:18	Analyzed 12/16/22 17:41 12/16/22 17:41 12/16/22 17:41  Analyzed 12/16/22 17:41	Dil Fac
Oll Range Organics (Over C28-C36)  Surrogate	Result	Qualifier  U *1  U  Qualifier	8L 50.0 50.0 50.0 Limits 70 - 130 70 - 130	mg/Kg	<u>D</u>	12/15/22 14:18  12/15/22 14:18  12/15/22 14:18  Prepared  12/15/22 14:18	Analyzed 12/16/22 17:41 12/16/22 17:41 12/16/22 17:41  Analyzed 12/16/22 17:41	Dil Fac

# **Surrogate Summary**

Client: Ensolum Job ID: 890-3642-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

•				Percent Sur	rrogate l
		BFB1	DFBZ1		
Lab Sample ID	Client Sample ID	(70-130)	(70-130)		
880-22528-A-1-C MS	Matrix Spike	97	109		
880-22528-A-1-D MSD	Matrix Spike Duplicate	104	117		
890-3642-1	SS10	104	106		
LCS 880-42357/1-A	Lab Control Sample	109	113		
LCSD 880-42357/2-A	Lab Control Sample Dup	123	117		
MB 880-42357/5-A	Method Blank	85	102		
Surrogate Legend					
BFB = 4-Bromofluorobenz	ene (Surr)				
DFBZ = 1,4-Difluorobenze	ne (Surr)				

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

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Accep			
		1CO1	OTPH1				
Lab Sample ID	Client Sample ID	(70-130)	(70-130)				
890-3615-A-1-E MS	Matrix Spike	109	98				
890-3615-A-1-F MSD	Matrix Spike Duplicate	105	86				
890-3642-1	SS10	123	116				
LCS 880-41926/2-A	Lab Control Sample	98	111				
LCSD 880-41926/3-A	Lab Control Sample Dup	128	134 S1+				
MB 880-41926/1-A	Method Blank	112	115				

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Job ID: 890-3642-1

Client: Ensolum SDG: Eddy County NM Project/Site: PLU 27 BD 161H

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-42357/5-A

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42357

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 21:30	12/21/22 17:53	1
Xylenes, Total	< 0.00400	U	0.00400	mg/Kg		12/20/22 21:30	12/21/22 17:53	1

MB MB

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85	70 - 130	12/20/22 21:30	12/21/22 17:53	1
1,4-Difluorobenzene (Surr)	102	70 <sub>-</sub> 130	12/20/22 21:30	12/21/22 17:53	1

Lab Sample ID: LCS 880-42357/1-A

Matrix: Solid

Analysis Batch: 42409

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 42357

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.09323		mg/Kg		93	70 - 130	
Toluene	0.100	0.09102		mg/Kg		91	70 - 130	
Ethylbenzene	0.100	0.09651		mg/Kg		97	70 - 130	
m-Xylene & p-Xylene	0.200	0.2008		mg/Kg		100	70 - 130	
o-Xylene	0.100	0.1003		mg/Kg		100	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	109	70 - 130
1,4-Difluorobenzene (Surr)	113	70 - 130

Lab Sample ID: LCSD 880-42357/2-A

**Matrix: Solid** 

Analysis Batch: 42409

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA Prep Batch: 42357

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.09835		mg/Kg		98	70 - 130	5	35
Toluene	0.100	0.1014		mg/Kg		101	70 - 130	11	35
Ethylbenzene	0.100	0.1122		mg/Kg		112	70 - 130	15	35
m-Xylene & p-Xylene	0.200	0.2388		mg/Kg		119	70 - 130	17	35
o-Xylene	0.100	0.1195		mg/Kg		119	70 - 130	17	35

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	123		70 - 130
1.4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: 880-22528-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 42409

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 42357

		Sample	Sample	Spike	MS	MS				%Rec	
	Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
	Benzene	<0.00199	U	0.101	0.09286		mg/Kg	_	92	70 - 130	
ı	Toluene	<0.00199	U	0.101	0.08719		mg/Kg		86	70 - 130	

Prep Type: Total/NA

Prep Type: Total/NA

Prep Batch: 42357

## QC Sample Results

Job ID: 890-3642-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

Lab Sample ID: 880-22528-A-1-C MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

Analysis Batch: 42409

	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Ethylbenzene	<0.00199	U	0.101	0.08338		mg/Kg		83	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.202	0.1725		mg/Kg		86	70 - 130
o-Xylene	< 0.00199	U	0.101	0.08628		mg/Kg		85	70 - 130

MS MS Surrogate %Recovery Qualifier Limits 4-Bromofluorobenzene (Surr) 97 70 - 130 1,4-Difluorobenzene (Surr) 70 - 130 109

Client Sample ID: Matrix Spike Duplicate Lab Sample ID: 880-22528-A-1-D MSD

**Matrix: Solid** 

Analysis Batch: 42409									Prep	Batch:	42357
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00199	U	0.0996	0.09619		mg/Kg		97	70 - 130	4	35
Toluene	<0.00199	U	0.0996	0.08829		mg/Kg		89	70 - 130	1	35
Ethylbenzene	<0.00199	U	0.0996	0.08535		mg/Kg		86	70 - 130	2	35
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1807		mg/Kg		91	70 - 130	5	35
o-Xylene	<0.00199	U	0.0996	0.09565		mg/Kg		95	70 - 130	10	35

MSD MSD Surrogate Qualifier Limits %Recovery 104 70 - 130 4-Bromofluorobenzene (Surr) 1,4-Difluorobenzene (Surr) 117 70 - 130

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

Lab Sample ID: MB 880-41926/1-A						Client Sa	mple ID: Metho	od Blank
Matrix: Solid							Prep Type:	Total/NA
Analysis Batch: 41982							Prep Batc	:h: 41926
	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130	12/15/22 14:18	12/16/22 08:33	1
o-Terphenyl	115		70 - 130	12/15/22 14:18	12/16/22 08:33	1

Lab Sample ID: LCS 880-41926/2-A **Client Sample ID: Lab Control Sample** 

**Matrix: Solid** 

Analysis Batch: 41982							Prep I	Batch: 41926
	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	1000	918.4		mg/Kg		92	70 - 130	
(GRO)-C6-C10								
Diesel Range Organics (Over	1000	903.8		mg/Kg		90	70 - 130	
C10-C28)								

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Prep Type: Total/NA

Job ID: 890-3642-1

Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

LCS LCS

Lab Sample ID: LCS 880-41926/2-A **Client Sample ID: Lab Control Sample** 

**Matrix: Solid** 

Analysis Batch: 41982

Prep Type: Total/NA

Prep Batch: 41926

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	98		70 - 130
o-Terphenyl	111		70 - 130

Lab Sample ID: LCSD 880-41926/3-A Client Sample ID: Lab Control Sample Dup

**Matrix: Solid** 

Analysis Batch: 41982

Prep Type: Total/NA

Prep Batch: 41926

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	1000	1055		mg/Kg		105	70 - 130	14	20
(GRO)-C6-C10									
Diesel Range Organics (Over	1000	1147	*1	mg/Kg		115	70 - 130	24	20
C10-C28)									

LCSD LCSD

Camania Camania

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	128		70 - 130
o-Terphenyl	134	S1+	70 - 130

Lab Sample ID: 890-3615-A-1-E MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

**Analysis Batch: 41982** 

Prep Type: Total/NA

Prep Batch: 41926

Sample Sample Spike MS MS Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Gasoline Range Organics <50.0 U F2 999 1283 mg/Kg 128 70 - 130 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U \*1 999 1096 mg/Kg 110 70 - 130 C10-C28)

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	109		70 - 130
o-Terphenyl	98		70 - 130

Lab Sample ID: 890-3615-A-1-F MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Analysis Batch: 41982

Prep Type: Total/NA Prep Batch: 41926

	Sample	Sample	<b>Бріке</b>	M2D	M2D				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics	<50.0	U F2	997	988.5	F2	mg/Kg		99	70 - 130	26	20	
(GRO)-C6-C10												
Diesel Range Organics (Over	<50.0	U *1	997	942.5		mg/Kg		95	70 - 130	15	20	
C10-C28)												

MSD MSD %Recovery Qualifier Surrogate

Limits 1-Chlorooctane 105 70 - 130 o-Terphenyl 86 70 - 130

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

**Prep Type: Soluble** 

Client Sample ID: Matrix Spike

Client Sample ID: Matrix Spike Duplicate

# **QC Sample Results**

Client: Ensolum Job ID: 890-3642-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41923/1-A

Matrix: Solid

Analysis Batch: 42049

MB MB

 Analyte
 Result
 Qualifier
 RL
 Unit
 D
 Prepared
 Analyzed
 Dil Fac

 Chloride
 <5.00</td>
 U
 5.00
 mg/Kg
 12/19/22 21:05
 1

Lab Sample ID: LCS 880-41923/2-A

Matrix: Solid

**Analysis Batch: 42049** 

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 235.6 mg/Kg 94 90 - 110

Lab Sample ID: LCSD 880-41923/3-A

Matrix: Solid

Analysis Batch: 42049

LCSD LCSD RPD Spike %Rec Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 237.1 mg/Kg 90 - 110

Lab Sample ID: 890-3637-A-1-B MS

Matrix: Solid

Analysis Batch: 42049

MS MS Sample Sample Spike %Rec Analyte Qualifier Added %Rec Result Result Qualifier Unit Limits 6580 5020 Chloride 11410 90 - 110 mg/Kg

Lab Sample ID: 890-3637-A-1-C MSD

Matrix: Solid

Analysis Batch: 42049

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit 5020 Chloride 6580 11440 mg/Kg 97 90 - 110 0 20

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# **QC Association Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3642-1 SDG: Eddy County NM

## **GC VOA**

Prep Batch: 42357

Lab Sample ID 890-3642-1	Client Sample ID SS10	Prep Type Total/NA	Matrix Solid	Method 5035	Prep Batch
MB 880-42357/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

# Analysis Batch: 42409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3642-1	SS10	Total/NA	Solid	8021B	42357
MB 880-42357/5-A	Method Blank	Total/NA	Solid	8021B	42357
LCS 880-42357/1-A	Lab Control Sample	Total/NA	Solid	8021B	42357
LCSD 880-42357/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	42357
880-22528-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	42357
880-22528-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	42357

## **Analysis Batch: 42525**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3642-1	SS10	Total/NA	Solid	Total BTEX	

## **GC Semi VOA**

## Prep Batch: 41926

<b>Lab Sample ID</b> 890-3642-1	Client Sample ID SS10	Prep Type Total/NA	Matrix Solid	Method 8015NM Prep	Prep Batch
MB 880-41926/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41926/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41926/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3615-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3615-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 41982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3642-1	SS10	Total/NA	Solid	8015B NM	41926
MB 880-41926/1-A	Method Blank	Total/NA	Solid	8015B NM	41926
LCS 880-41926/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41926
LCSD 880-41926/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41926
890-3615-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	41926
890-3615-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41926

## Analysis Batch: 42187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3642-1	SS10	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 41923

Released to Imaging: 5/19/2023 8:53:13 AM

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3642-1	SS10	Soluble	Solid	DI Leach	
MB 880-41923/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

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# **QC Association Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

SDG: Eddy County NM

# **HPLC/IC** (Continued)

## Leach Batch: 41923 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3637-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3637-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## **Analysis Batch: 42049**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3642-1	SS10	Soluble	Solid	300.0	41923
MB 880-41923/1-A	Method Blank	Soluble	Solid	300.0	41923
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	300.0	41923
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41923
890-3637-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	41923
890-3637-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41923

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## **Lab Chronicle**

Client: Ensolum Job ID: 890-3642-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

**Client Sample ID: SS10** Lab Sample ID: 890-3642-1 Date Collected: 12/07/22 14:00

Matrix: Solid

Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	42357	12/20/22 21:30	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42409	12/21/22 21:20	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42525	12/22/22 13:15	SM	EET MID
Total/NA	Analysis	8015 NM		1			42187	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	41926	12/15/22 14:18	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 17:41	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	42049	12/19/22 22:03	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: 890-3642-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

## **Laboratory: Eurofins Midland**

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

Authority	Pr	ogram	Identification Number	Expiration Date
Texas	NE	LAP	T104704400-22-25	06-30-23
The following analytes	are included in this report, but	it the laboratory is not certific	ed by the governing authority. This list ma	ay include analytes for
the agency does not of	ter certification.			
0 ,		Matrix	Analyte	
the agency does not of Analysis Method Total BTEX	fer certification.  Prep Method	Matrix Solid	Analyte Total BTEX	

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**Method Description** 

**Total BTEX Calculation** 

Microextraction

Volatile Organic Compounds (GC)

Diesel Range Organics (DRO) (GC)

Diesel Range Organics (DRO) (GC)

Deionized Water Leaching Procedure

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

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

Anions, Ion Chromatography

Closed System Purge and Trap

## **Method Summary**

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.

Client: Ensolum

Method

8021B

Total BTEX

8015 NM

8015B NM

8015NM Prep

**Protocol References:** 

Laboratory References:

ASTM = ASTM International

DI Leach

300.0

5035

Project/Site: PLU 27 BD 161H

Job ID: 890-3642-1

SDG: Eddy County NM

Laboratory

EET MID

EET MID

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EET MID

**EET MID** 

Protocol

SW846

TAL SOP

SW846

SW846

SW846

SW846

ASTM

MCAWW

# Sample Summary

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3642-1

SDG: Eddy County NM

Received	Donth	

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 Lab Sample ID
 Client Sample ID
 Matrix
 Collected
 Received
 Depth

 890-3642-1
 SS10
 Solid
 12/07/22 14:00
 12/13/22 13:30
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# Chain of Custody

Houston, TX (281) 240-4200, Delles, TX (214) 902-0300 Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334 EL Paso, TX (815) 585-3443, Lubbock, TX (806) 794-1286 Hobbs, NM (575) 392-7550, Carlabad, NM (575) 988-3199

Work Order Commer	www.xenco.com
omments	Page
	1 of
	-

Work Order No:

3	1	Relinquished by: (Signature)	of service. Eurofins Xenc of Eurofins Xenco. A min	Notice: Signature of this		Total 200.7 / 6010							SS10	Sample Identification		Total Containers	Sample Custody Seals	Cooler Custody Seals	Samples Received Intact	SAMPLE RECEIPT	PO#	Sampler's Name	Project Location	Project Number:	Project Name	Phone	City. State ZIP	Address.	Company Name	Project Manager		
		(Signature)	o will be liable only for thimum charge of \$85,00 w	document and relinguish	nd Metal(s) to be a	10 200.8 / 6020:							0				Yes No	Yes No	itact (Res) No	PT Temp Blank		Chris Brown	EDDY COUNTY,	03E1558089	PLU 27 BD 161H	9898540852	Carlsbad, NM 88220	3122 National parks Hwy	Ensolum, LLC	Ben Belill		
6	2 and	Received	he cost of samples and vill be applied to each p	ment of samples const									12/7/2022	Matrix Sampled	Date	Corrected Temperature	N/A Temperature Reading	N/A Correction Factor	Thermometer ID	K ( Med No		Brown	NM	58089	D 161H		20	ks Hwy				
2	S S S	Received by: (Signature)	shall not assum	itutes a valld pur	TCLP / SF	8RCRA 13PPM							1400	۵	Time	mperature	Reading	ctor	ō	Wet Ice	the lab, if rece	TAT starts the	Due Date:	Routine	Turn.	Email						
the state of the s	4	ure)	e any responsibl	chase order from		M Texas 11							0.5 Grab/	pin	Grab/	* b	8.8	000	INM EX	fres No	the lab, if received by 4:30pm	TAT starts the day received by		Rush	Turn Around	bbelill@ensolum.com	City, State ZIP	Address	Company Name	Bill to (if different)		
9	U		lity for an	n client co	RCRA		r			Н		+	1	_	/ # of			Pa	ıraı	nete	-			Code		um.co			ō	nt)		
	ひにして	Date/	y losses submitte	ompany t	Sb A	Al Sb As							×		LOR	IDE	S (E	PA:	300	(0.0						B	Carlsb	3104 E	XTOE	Garrett Green		
Date/Time			or expend to Euroi	o Eurofin	σ <sub>0</sub>	BaB	Ва Ве	Ва Ве	L						×	TPI	H (80	15)											Carlsbad, NM 88220	3104 E. Green Street	XTO Energy, Inc.	Green
	32		ses incur fins Xenc	s Xenco,	Be Cd Cr	B Cd	L	-			-	+	×	ВТ	EX (	8021	1										88220	Street	nc.			
		Relinquished by: (Signature)	of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expanses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$35,00 will be enforced unless previously negotisted	fillates and subcontractors. It	Co Cu Pb Mn Mo N	Ca Cr Co Cu Fe Pb Mg Mn Mo										090-3642 Chain of Custody					_				ANALYSIS REQUEST	Deliver	Reporti	State o	Progra			
		Received by: (Signature)	cumstances beyond the control riced unless previously negotiated.	standard terms and conditions	TI U	Ni K Se A																				Deliverables EDD L ADaP	ng Level II Level III L PS	State of Project:	m: UST/PST   PRP   Brow	Work Order Comments		
		ture) Date/Time			Hg: 1631 / 245.1 / 7470 / 7471	la Sr Tl Sn U V Zn		NAPP2218236445	Incident Number:				Cost Center: 1666961001		Sample Comments	NaOH+Ascorbic Acid SAPC	Zn Acetate+NaOH: Zn	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>	NaHSO4: NABIS	H <sub>3</sub> PO <sub>4</sub> HP	H <sub>2</sub> SO <sub>4</sub> H <sub>2</sub> NaOH: Na		9	None. NO DI Water: H <sub>2</sub> O	Preservative Codes	ADaPI L. Other			Program: UST/PST   PRP   Brownfields   RRC   Superfund	Comments		

**Eurofins Carlsbad** 

1089 N Canal St.

**Chain of Custody Record** 

eurofins :

**Environment Testing** 

State Zip TX, 79701 SS10 (890-3642-1) Project Name: PLU 27 BD 161H Sample Identification - Client ID (Lab ID) 432-704-5440(Tel) Midland Eurofins Environment Testing South Centr Shipping/Receiving Carlsbad NM 88220 Phone: 575-988-3199 Fax: 575-988-3199 Vote Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody if the aboratory does not currently maintain accreditation in the State of Origin listed above for analysis/flests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central LLC. 1211 W Florida Ave Client Information (Sub Contract Lab) Possible Hazard Identification Empty Kit Relinguished by Deliverable Requested | II III IV elinquished by: alinquished by: elinquished by: rconfirmed R Custody Seal Other (specify) 8 Project #: 89000093 ₩O#: Phone: PO# TAT Requested (days) Due Date Requested 12/19/2022 Sampler Date/Time Primary Deliverable Rank Sample Date 12/7/22 Date Mountain Sample 14 00 Time (C=Comp, G=grab) Type Sample Preservation Code: Company Company Matrix Solid E-Mail Kramer Jessica Jessica.Kramer@et.eurofinsus com Field Filtered Sample (Yes or No) NELAP - Texas Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mon Perform MS/MSD (Yes or No) Special Instructions/QC Requirements × 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH Cooler Temperature(s) °C and Other Remarks. Received by × 8015MOD Calo 300\_ORGFM\_28D/DI\_LEACH Chloride 8021B/5035FP\_Calc (MOD) BTEX × Analysis Requested Total\_BTEX\_GCV State of Origin: New Mexico Carrier Tracking No(s) thod of Shipment Date/Time Date/Time Date/Time Total Number of containers A HCL
B-NaOH
C Zn Acetate
D-Nitric Acid
E-NelOH
G Amchior
H Ascorbic Acid
I Ice
J-DI Water
K EDTA
L EDA COC No. 890-1064 1 Preservation Codes: Page 1 of 1 390-3642-1 T TSP Dodecahydrate
U - Acetone
V MCAA
W - pH 4-5
Y Trizma M - Hexane N None O AsNaO2 P Na2O4S Q - Na2SO3 R Na2S2O3 S - H2SO4 Z - other (specify) Company Company Ver: 06/08/202 Months

1089 N Canal St. Euroins Carisbad

Carlsbad, NM 88220 Phone. 575-988-3199 Fax. 575-988-3199

Chain of Custody

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eurofins :

Environment Testing

Note Since laboratory accreditations are subject to change Eurofins Environment Testing South Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC. State Zip: T**X**, 79701 Project Name<sup>.</sup> PLU 27 BD 161H Deliverable Requested I II III, IV, Other (specify) 1211 W Florida Ave Eurofins Environment Testing South Centr Empty Kit Relinguished by SS10 (890-3642-1) Sample Identification - Client ID (Lab ID) 432-704-5440(Tel) Midland Client Information (Sub Contract Lab) ossible Hazard Identification elinquished by elinquished by hipping/Receiving R Custody Seal No Date/Time Project #: 89000093 Date/Time Primary Deliverable Rank. 2 Due Date Requested 12/19/2022 Phone Sampler AT Requested (days): Sample Date 12/7/22 Date Mountain Sample 14 00 (C=comp, Sample Type Preservation Code: Company Company Company Matrix Solid Jessica Kramer@et.eurofinsus com Accreditations Required (See note) Kramer, Jessica Lab PM Time: NELAP - Texas Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mon Perform MS/MSD (Yes or No) Special Instructions/QC Requirements Cooler Temperature(s) °C and Other Remarks Received by: 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH × × 8015MOD\_Calc 300\_ORGFM\_28D/DI\_LEACH Chloride × × 8021B/5035FP\_Calc (MOD) BTEX Analysis Requested Total\_BTEX\_GCV State of Origin New Mexico Carrier Tracking No(s) Method of Shipment Date/Time Date/Time Date/Time Total Number of containers A-HCL B NaOH C-Zn Acetate D Nitric Acid E NaHSO4 F MahSO4 F MahSO4 F Ascorbic Acid I-loe J-DI Water K-EDTA L-EDA COC No: 890-1064 1 Preservation Cod Page 1 of 1 390-3642-1 Special Instructions/Note M Hexane
N None
etate P Na204S
7id Q Na2803
R Na28203
R Na28203
S H2S04
T-TSP Dodecahydrate
U Acetone
V MCAA Company Company Ver: 06/08/2021 Trizma other (specify) Months

# **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3642-1

SDG Number: Eddy County NM

List Source: Eurofins Carlsbad Login Number: 3642 List Number: 1

Creator: Stutzman, Amanda

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

# **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3642-1

SDG Number: Eddy County NM

List Source: Eurofins Midland

List Creation: 12/15/22 11:29 AM

Login Number: 3642 List Number: 2 Creator: Teel, Brianna

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

1

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Ben Belill

Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 12/22/2022 12:14:04 PM

# **JOB DESCRIPTION**

PLU 27 BD 161H SDG NUMBER Eddy County NM

# **JOB NUMBER**

890-3643-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

# **Eurofins Carlsbad**

# **Job Notes**

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

# **Authorization**

Generated 12/22/2022 12:14:04 PM

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

Client: Ensolum

Laboratory Job ID: 890-3643-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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## **Definitions/Glossary**

Job ID: 890-3643-1 Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

## **Qualifiers**

**GC VOA** 

Qualifier **Qualifier Description** MS and/or MSD recovery exceeds control limits.

U Indicates the analyte was analyzed for but not detected.

## **GC Semi VOA**

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier **Qualifier Description** 

U Indicates the analyte was analyzed for but not detected.

## **Glossary**

EDL

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)

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 **Practical Quantitation Limit PQL** 

**PRES** Presumptive **Quality Control** QC

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

Toxicity Equivalent Factor (Dioxin) TEF **TEQ** Toxicity Equivalent Quotient (Dioxin)

Released to Imaging: 5/19/2023 8:53:13 AM

**TNTC** Too Numerous To Count

## **Case Narrative**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3643-1

SDG: Eddy County NM

Job ID: 890-3643-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3643-1

#### Receipt

The samples were received on 12/13/2022 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.6°C

## **Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: SS01 (890-3643-1), SS02 (890-3643-2), SS03 (890-3643-3) and SS04 (890-3643-4).

#### GC VOA

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

#### GC Semi VOA

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: (LCSD 880-41926/3-A). Evidence of matrix interferences is not obvious.

Method 8015MOD NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-41926 and analytical batch 880-41982 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

Method 8015MOD NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-41926 and analytical batch 880-41982 was outside control limits. Sample non-homogeneity is suspected.

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: Ensolum

Job ID: 890-3643-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

**Client Sample ID: SS01** Lab Sample ID: 890-3643-1

Date Collected: 12/07/22 11:45 Matrix: Solid Date Received: 12/13/22 13:30

Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		12/20/22 15:23	12/21/22 16:56	1
Toluene	<0.00202	U	0.00202	mg/Kg		12/20/22 15:23	12/21/22 16:56	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		12/20/22 15:23	12/21/22 16:56	1
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		12/20/22 15:23	12/21/22 16:56	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		12/20/22 15:23	12/21/22 16:56	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		12/20/22 15:23	12/21/22 16:56	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130			12/20/22 15:23	12/21/22 16:56	1
1,4-Difluorobenzene (Surr)	102		70 - 130			12/20/22 15:23	12/21/22 16:56	1
Method: TAL SOP Total BTEX -	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	< 0.00403	U	0.00403	mg/Kg			12/22/22 08:57	1
Method: CW946 904E NM Diese	ol Bongo Organ	ion (DDO) (	CCI					
Method: SW846 8015 NM - Diese Analyte		ics (DRO) ( Qualifier	GC) RL	Unit	D	Prepared	Analyzed	Dil Fac
		Qualifier	•	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 12/19/22 15:03	Dil Fac
Analyte Total TPH	Result   <49.9	Qualifier U	RL 49.9		<u>D</u>	Prepared		
Analyte Total TPH  Method: SW846 8015B NM - Die	Result <49.9  sel Range Orga	Qualifier U	RL 49.9		<u>D</u>	Prepared Prepared		
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics	Result <49.9  sel Range Orga	Qualifier Unics (DRO) Qualifier	RL 49.9	mg/Kg	_ =		12/19/22 15:03	1
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <49.9  sel Range Orga Result	Qualifier U  nics (DRO) Qualifier U	RL 49.9 (GC)	mg/Kg	_ =	Prepared	12/19/22 15:03  Analyzed	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10	Result <49.9  Sel Range Orga Result <49.9	Qualifier U  nics (DRO) Qualifier U  U *1	(GC) RL 49.9	mg/Kg  Unit  mg/Kg	_ =	Prepared 12/15/22 14:18	12/19/22 15:03  Analyzed 12/16/22 18:03	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U*1	RL 49.9  (GC)  RL 49.9  49.9	mg/Kg  Unit  mg/Kg  mg/Kg	_ =	Prepared 12/15/22 14:18 12/15/22 14:18	12/19/22 15:03  Analyzed 12/16/22 18:03 12/16/22 18:03	1 Dil Fac 1
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U*1	RL 49.9 (GC) RL 49.9 49.9	mg/Kg  Unit  mg/Kg  mg/Kg	_ =	Prepared 12/15/22 14:18 12/15/22 14:18 12/15/22 14:18	12/19/22 15:03  Analyzed 12/16/22 18:03 12/16/22 18:03	1 Dil Fac 1 1
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result	Qualifier U  nics (DRO) Qualifier U  U*1	RL 49.9 (GC) RL 49.9 49.9 Limits	mg/Kg  Unit  mg/Kg  mg/Kg	_ =	Prepared 12/15/22 14:18 12/15/22 14:18 12/15/22 14:18 Prepared	Analyzed 12/16/22 18:03 12/16/22 18:03 12/16/22 18:03 Analyzed	Dil Fac  1  1  Dil Fac  Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U*1 U  Qualifier	RL 49.9 (GC) RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg	_ =	Prepared 12/15/22 14:18 12/15/22 14:18 12/15/22 14:18  Prepared 12/15/22 14:18	Analyzed 12/16/22 18:03 12/16/22 18:03 12/16/22 18:03 Analyzed 12/16/22 18:03	Dil Fac  1  1  1  Dil Fac  1
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U*1 U  Qualifier	RL 49.9 (GC) RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg	_ =	Prepared 12/15/22 14:18 12/15/22 14:18 12/15/22 14:18  Prepared 12/15/22 14:18	Analyzed 12/16/22 18:03 12/16/22 18:03 12/16/22 18:03 Analyzed 12/16/22 18:03	1 Dil Fac 1 Dil Fac 1

**Client Sample ID: SS02** Lab Sample ID: 890-3643-2

Date Collected: 12/07/22 12:00 Date Received: 12/13/22 13:30

Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/20/22 15:23	12/21/22 17:16	1
Toluene	<0.00199	U	0.00199	mg/Kg		12/20/22 15:23	12/21/22 17:16	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		12/20/22 15:23	12/21/22 17:16	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/20/22 15:23	12/21/22 17:16	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		12/20/22 15:23	12/21/22 17:16	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/20/22 15:23	12/21/22 17:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)			70 - 130			12/20/22 15:23	12/21/22 17:16	1

**Eurofins Carlsbad** 

**Matrix: Solid** 

Client: Ensolum Project/Site: PLU 27 BD 161H

Job ID: 890-3643-1 SDG: Eddy County NM

**Client Sample ID: SS02** Lab Sample ID: 890-3643-2

Matrix: Solid

Date Collected: 12/07/22 12:00 Date Received: 12/13/22 13:30

Sample Depth: 0.5'

Method: SW846 8021B	- Volatile Organic	Compounds (	GC)	(Continued)
moundar official contract	Tolumo Organio	oompounae (	,	( Continuou,

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	99	70 - 130	12/20/22 15:23	12/21/22 17:16	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	< 0.00398	U	0.00398	mg/Kg			12/22/22 08:57	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (0	н						
	ı	Mothod: CIMOAC ODAE NIM	Discal Bangs	Organica	(DDO)		١.
	н	MELITOU. SYVO40 OUTS INIVI-	· Diesei Kaliue	Organics	IURUI	uu	

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			12/19/22 15:03	1

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

	or runigo or ga		(33)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 18:25	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0	mg/Kg		12/15/22 14:18	12/16/22 18:25	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 18:25	1
Surrogate	%Recovery	Qualifier	l imite			Prenared	Analyzod	Dil Fac

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	123	70 - 130	12/15/22 14:18	12/16/22 18:25	1
o-Terphenyl	115	70 - 130	12/15/22 14:18	3 12/16/22 18:25	1

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

Analyte	Result Qualit	fier RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	62.4	5.02	mg/Kg			12/20/22 14:15	1

**Client Sample ID: SS03** Lab Sample ID: 890-3643-3

Date Collected: 12/07/22 12:15 Date Received: 12/13/22 13:30

Sample Depth: 0.5'

ı	Method: SW846 8021B	Valatila Ossasia	O = (OO)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 17:37	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 17:37	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 17:37	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		12/20/22 15:23	12/21/22 17:37	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 17:37	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		12/20/22 15:23	12/21/22 17:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130			12/20/22 15:23	12/21/22 17:37	1

4-Bromofluorobenzene (Surr)	99	70 - 130	12/20/22 15:23	12/21/22 17:37	1
1,4-Difluorobenzene (Surr)	103	70 - 130	12/20/22 15:23	12/21/22 17:37	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			12/22/22 08:57	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/19/22 15:03	1

**Eurofins Carlsbad** 

**Matrix: Solid** 

Matrix: Solid

Lab Sample ID: 890-3643-3

Analyzed

Unit

D

Prepared

12/15/22 14:18

12/15/22 14:18

Client: Ensolum Job ID: 890-3643-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

**Client Sample ID: SS03** 

Date Collected: 12/07/22 12:15 Date Received: 12/13/22 13:30

Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/15/22 14:18	12/16/22 18:47	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9	mg/Kg		12/15/22 14:18	12/16/22 18:47	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/15/22 14:18	12/16/22 18:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130			12/15/22 14:18	12/16/22 18:47	1
o-Terphenyl	95		70 - 130			12/15/22 14:18	12/16/22 18:47	1

4.98 12/19/22 22:16 Chloride 58.6 mg/Kg Client Sample ID: SS04 Lab Sample ID: 890-3643-4

RL

Result Qualifier

<49.9 U \*1

<49.9 U

Date Collected: 12/07/22 12:30 Date Received: 12/13/22 13:30

Sample Depth: 0.5'

Analyte

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 17:57	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 17:57	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 17:57	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/20/22 15:23	12/21/22 17:57	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 17:57	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/20/22 15:23	12/21/22 17:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130			12/20/22 15:23	12/21/22 17:57	1
1,4-Difluorobenzene (Surr)	102		70 - 130			12/20/22 15:23	12/21/22 17:57	1

Method. IAL OOI Total DTLX - Total	DILX Call	Julation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			12/22/22 08:57	1
Г.,								

Method: SW846 8015 NM - Diesel F	Range Organ	ics (DRO) (G	iC)							
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac		
Total TPH	<49.9	U	49.9	mg/Kg			12/19/22 15:03	1		
Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)										
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac		
Gasoline Range Organics	<49.9	U	49.9	mg/Kg		12/15/22 14:18	12/16/22 19:09	1		
(GRO)-C6-C10										

49.9

49.9

mg/Kg

mg/Kg

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	121	70 - 130	12/15/22 14:18	12/16/22 19:09	1
o-Terphenyl	112	70 - 130	12/15/22 14:18	12/16/22 19:09	1

**Eurofins Carlsbad** 

12/16/22 19:09

12/16/22 19:09

Diesel Range Organics (Over

Oll Range Organics (Over C28-C36)

C10-C28)

Dil Fac

**Matrix: Solid** 

# **Client Sample Results**

Client: Ensolum

Project/Site: PLU 27 BD 161H

SDG: Eddy County NM

Client Sample ID: SS04 Lab Sample ID: 890-3643-4

Date Collected: 12/07/22 12:30 Matrix: Solid
Date Received: 12/13/22 13:30

Sample Depth: 0.5'

Method: MCAWW 300.0 - Anions, I	on Chromatog	graphy - Solu	ıble					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	497		24.8	mg/Kg			12/19/22 22:21	5

6

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46

11

13

12

# **Surrogate Summary**

Client: Ensolum Job ID: 890-3643-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Rec
		BFB1	DFBZ1	_
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
880-22567-A-20-D MS	Matrix Spike	99	99	
880-22567-A-20-E MSD	Matrix Spike Duplicate	104	99	
890-3643-1	SS01	95	102	
890-3643-2	SS02	101	99	
890-3643-3	SS03	99	103	
890-3643-4	SS04	105	102	
LCS 880-42329/1-A	Lab Control Sample	98	100	
LCSD 880-42329/2-A	Lab Control Sample Dup	96	99	
MB 880-42329/5-A	Method Blank	87	101	
Surrogate Legend				
BFB = 4-Bromofluorobenze	ene (Surr)			
DFBZ = 1,4-Difluorobenzen	ne (Surr)			

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

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

				Percent Surrogate Recovery (Acceptance Limits)
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3615-A-1-E MS	Matrix Spike	109	98	
890-3615-A-1-F MSD	Matrix Spike Duplicate	105	86	
890-3643-1	SS01	105	102	
890-3643-2	SS02	123	115	
890-3643-3	SS03	97	95	
890-3643-4	SS04	121	112	
LCS 880-41926/2-A	Lab Control Sample	98	111	
LCSD 880-41926/3-A	Lab Control Sample Dup	128	134 S1+	
MB 880-41926/1-A	Method Blank	112	115	

1CO = 1-Chlorooctane OTPH = o-Terphenyl

Job ID: 890-3643-1

SDG: Eddy County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-42329/5-A

Lab Sample ID: LCS 880-42329/1-A

**Matrix: Solid** 

Analysis Batch: 42368

**Matrix: Solid** 

Client: Ensolum

Analysis Batch: 42368

Project/Site: PLU 27 BD 161H

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42329

	MB	МВ						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 11:22	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 11:22	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 11:22	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/20/22 15:23	12/21/22 11:22	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/20/22 15:23	12/21/22 11:22	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/20/22 15:23	12/21/22 11:22	1

MB MB

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87	70 - 130	12/20/22 15:23	12/21/22 11:22	1
1,4-Difluorobenzene (Surr)	101	70 - 130	12/20/22 15:23	12/21/22 11:22	1

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 42329

LCS LCS Spike Analyte Added Result Qualifier Unit %Rec Limits Benzene 0.100 0.09235 mg/Kg 92 70 - 130 Toluene 0.100 0.08850 mg/Kg 89 70 - 130 0.100 0.08780 88 Ethylbenzene mg/Kg 70 - 130 0.200 0.1828 70 - 130 m-Xylene & p-Xylene mg/Kg 0.100 0.08816 70 - 130 o-Xylene mg/Kg

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

**Client Sample ID: Lab Control Sample Dup** 

**Matrix: Solid** Analysis Batch: 42368 Prep Type: Total/NA Prep Batch: 42329

	Spike	LCSD	LCSD				%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.09353		mg/Kg		94	70 - 130	1	35	
Toluene	0.100	0.08701		mg/Kg		87	70 - 130	2	35	
Ethylbenzene	0.100	0.08572		mg/Kg		86	70 - 130	2	35	
m-Xylene & p-Xylene	0.200	0.1790		mg/Kg		90	70 - 130	2	35	
o-Xylene	0.100	0.08705		mg/Kg		87	70 - 130	1	35	

LCSD LCSD

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	96	70 - 130
1.4-Difluorobenzene (Surr)	99	70 - 130

Lab Sample ID: 880-22567-A-20-D MS

Lab Sample ID: LCSD 880-42329/2-A

**Matrix: Solid** 

Analysis Batch: 42368

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

Prep Batch: 42329

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00200	U	0.101	0.08508		mg/Kg		84	70 - 130	
Toluene	<0.00200	U	0.101	0.07808		mg/Kg		77	70 - 130	

Client: Ensolum

Job ID: 890-3643-1

SDG: Eddy County NM Project/Site: PLU 27 BD 161H

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

Lab Sar

**Matrix: Solid** 

Analysis Batch: 42368

ample ID: 880-22567-A-20-D MS	Client Sample ID: Matrix Spike
. 0 - 11-1	Duan Tanas Tatal/NA

Prep Type: Total/NA

Prep Batch: 42329

	Sample	Sample	<b>Spike</b>	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Ethylbenzene	<0.00200	U F1	0.101	0.07305		mg/Kg		72	70 - 130
m-Xylene & p-Xylene	<0.00399	U	0.202	0.1518		mg/Kg		75	70 - 130
o-Xylene	<0.00200	U F1	0.101	0.07296		mg/Kg		72	70 - 130

MS MS

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

**Client Sample ID: Matrix Spike Duplicate** 

Prep Type: Total/NA

Prep Batch: 42329

**Matrix: Solid** 

Lab Sample ID: 880-22567-A-20-E MSD

**Analysis Batch: 42368** 

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00200	U	0.0996	0.07864		mg/Kg		79	70 - 130	8	35
Toluene	<0.00200	U	0.0996	0.07159		mg/Kg		72	70 - 130	9	35
Ethylbenzene	<0.00200	U F1	0.0996	0.06671	F1	mg/Kg		67	70 - 130	9	35
m-Xylene & p-Xylene	<0.00399	U	0.199	0.1402		mg/Kg		70	70 - 130	8	35
o-Xylene	<0.00200	U F1	0.0996	0.06795	F1	mg/Kg		68	70 - 130	7	35

MSD MSD

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

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

Lab Sample ID: MB 880-41926/1-A

**Matrix: Solid** 

Analysis Batch: 41982

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

Prep Batch: 41926

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1
C10-C28) Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/15/22 14:18	12/16/22 08:33	1

MB MB

--- ---

Surrogate	%Recovery	Qualifier	Limits	Pro	epared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130	12/15	5/22 14:18	12/16/22 08:33	1
o-Terphenyl	115		70 - 130	12/15	5/22 14:18	12/16/22 08:33	1

Lab Sample ID: LCS 880-41926/2-A

**Matrix: Solid** 

Analysis Batch: 41982

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

Prep Batch: 41926

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	1000	918.4		mg/Kg		92	70 - 130	 
(GRO)-C6-C10								
Diesel Range Organics (Over	1000	903.8		mg/Kg		90	70 - 130	
C10-C28)								

Job ID: 890-3643-1

Client: Ensolum Project/Site: PLU 27 BD 161H SDG: Eddy County NM

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

LCS LCS

Lab Sample ID: LCS 880-41926/2-A **Client Sample ID: Lab Control Sample** 

**Matrix: Solid** 

Analysis Batch: 41982

Prep Type: Total/NA

Prep Batch: 41926

Surrogate %Recovery Qualifier Limits 1-Chlorooctane 98 70 - 130 o-Terphenyl 111 70 - 130

Lab Sample ID: LCSD 880-41926/3-A Client Sample ID: Lab Control Sample Dup

**Matrix: Solid** 

Analysis Batch: 41982

Prep Type: Total/NA

Prep Batch: 41926

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit 1000 1055 105 70 - 13014 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 1147 \*1 mg/Kg 115 70 - 13024 20 C10-C28)

LCSD LCSD

Surrogate %Recovery Qualifier Limits 70 - 130 1-Chlorooctane 128 134 S1+ 70 - 130 o-Terphenyl

Lab Sample ID: 890-3615-A-1-E MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

**Analysis Batch: 41982** 

Prep Type: Total/NA

Prep Batch: 41926

Sample Sample MS MS Spike Analyte Added Result Qualifier Result Qualifier Unit %Rec Limits D Gasoline Range Organics <50.0 U F2 999 1283 mg/Kg 128 70 - 130 (GRO)-C6-C10 <50.0 U \*1 Diesel Range Organics (Over 999 1096 mg/Kg 110 70 - 130 C10-C28)

MS MS %Recovery Qualifier Surrogate Limits 70 - 130 1-Chlorooctane 109 o-Terphenyl 98 70 - 130

Lab Sample ID: 890-3615-A-1-F MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Analysis Batch: 41982

Prep Type: Total/NA

Prep Batch: 41926

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F2	997	988.5	F2	mg/Kg		99	70 - 130	26	20
Diesel Range Organics (Over C10-C28)	<50.0	U *1	997	942.5		mg/Kg		95	70 - 130	15	20

MSD MSD Qualifier %Recovery Surrogate Limits

1-Chlorooctane 105 70 - 130 86 70 - 130 o-Terphenyl

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Client Sample ID: SS04** 

Client Sample ID: SS04

**Prep Type: Soluble** 

**Prep Type: Soluble** 

Client: Ensolum Job ID: 890-3643-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41923/1-A

**Matrix: Solid** 

Analysis Batch: 42049

мв мв

Dil Fac Analyte Result Qualifier RL Unit D Prepared Analyzed Chloride <5.00 U 5.00 mg/Kg 12/19/22 21:05

Lab Sample ID: LCS 880-41923/2-A

**Matrix: Solid** 

**Analysis Batch: 42049** 

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 235.6 mg/Kg 94 90 - 110

Lab Sample ID: LCSD 880-41923/3-A

**Matrix: Solid** 

Analysis Batch: 42049

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 237.1 90 - 110 mg/Kg

Lab Sample ID: 890-3643-4 MS

**Matrix: Solid** 

Analysis Batch: 42049

MS MS %Rec Sample Sample Spike Analyte Result Qualifier Added Qualifier Unit %Rec Result Limits Chloride 497 1240 1620 91 90 - 110 mg/Kg

Lab Sample ID: 890-3643-4 MSD

**Matrix: Solid** 

Analysis Batch: 42049

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 1240 497 1621 mg/Kg 91 90 - 110 0 20

# **QC Association Summary**

Client: Ensolum

Job ID: 890-3643-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

**GC VOA** 

Prep Batch: 42329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3643-1	SS01	Total/NA	Solid	5035	
890-3643-2	SS02	Total/NA	Solid	5035	
890-3643-3	SS03	Total/NA	Solid	5035	
890-3643-4	SS04	Total/NA	Solid	5035	
MB 880-42329/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-42329/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-42329/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-22567-A-20-D MS	Matrix Spike	Total/NA	Solid	5035	
880-22567-A-20-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

**Analysis Batch: 42368** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3643-1	SS01	Total/NA	Solid	8021B	42329
890-3643-2	SS02	Total/NA	Solid	8021B	42329
890-3643-3	SS03	Total/NA	Solid	8021B	42329
890-3643-4	SS04	Total/NA	Solid	8021B	42329
MB 880-42329/5-A	Method Blank	Total/NA	Solid	8021B	42329
LCS 880-42329/1-A	Lab Control Sample	Total/NA	Solid	8021B	42329
LCSD 880-42329/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	42329
880-22567-A-20-D MS	Matrix Spike	Total/NA	Solid	8021B	42329
880-22567-A-20-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	42329

Analysis Batch: 42478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3643-1	SS01	Total/NA	Solid	Total BTEX	
890-3643-2	SS02	Total/NA	Solid	Total BTEX	
890-3643-3	SS03	Total/NA	Solid	Total BTEX	
890-3643-4	SS04	Total/NA	Solid	Total BTEX	

**GC Semi VOA** 

Prep Batch: 41926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3643-1	SS01	Total/NA	Solid	8015NM Prep	
890-3643-2	SS02	Total/NA	Solid	8015NM Prep	
890-3643-3	SS03	Total/NA	Solid	8015NM Prep	
890-3643-4	SS04	Total/NA	Solid	8015NM Prep	
MB 880-41926/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41926/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41926/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3615-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3615-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 41982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3643-1	SS01	Total/NA	Solid	8015B NM	41926
890-3643-2	SS02	Total/NA	Solid	8015B NM	41926
890-3643-3	SS03	Total/NA	Solid	8015B NM	41926
890-3643-4	SS04	Total/NA	Solid	8015B NM	41926
MB 880-41926/1-A	Method Blank	Total/NA	Solid	8015B NM	41926
LCS 880-41926/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41926

# **QC Association Summary**

Client: Ensolum Job ID: 890-3643-1 Project/Site: PLU 27 BD 161H SDG: Eddy County NM

# GC Semi VOA (Continued)

## **Analysis Batch: 41982 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-41926/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41926
890-3615-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	41926
890-3615-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41926

## Analysis Batch: 42188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3643-1	SS01	Total/NA	Solid	8015 NM	
890-3643-2	SS02	Total/NA	Solid	8015 NM	
890-3643-3	SS03	Total/NA	Solid	8015 NM	
890-3643-4	SS04	Total/NA	Solid	8015 NM	

## **HPLC/IC**

## Leach Batch: 41923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3643-1	SS01	Soluble	Solid	DI Leach	
890-3643-2	SS02	Soluble	Solid	DI Leach	
890-3643-3	SS03	Soluble	Solid	DI Leach	
890-3643-4	SS04	Soluble	Solid	DI Leach	
MB 880-41923/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3643-4 MS	SS04	Soluble	Solid	DI Leach	
890-3643-4 MSD	SS04	Soluble	Solid	DI Leach	

## Analysis Batch: 42049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3643-1	SS01	Soluble	Solid	300.0	41923
890-3643-2	SS02	Soluble	Solid	300.0	41923
890-3643-3	SS03	Soluble	Solid	300.0	41923
890-3643-4	SS04	Soluble	Solid	300.0	41923
MB 880-41923/1-A	Method Blank	Soluble	Solid	300.0	41923
LCS 880-41923/2-A	Lab Control Sample	Soluble	Solid	300.0	41923
LCSD 880-41923/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41923
890-3643-4 MS	SS04	Soluble	Solid	300.0	41923
890-3643-4 MSD	SS04	Soluble	Solid	300.0	41923

SDG: Eddy County NM

Project/Site: PLU 27 BD 161H **Client Sample ID: SS01** 

Client: Ensolum

Lab Sample ID: 890-3643-1

Matrix: Solid

Date Collected: 12/07/22 11:45 Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	42329	12/20/22 15:23	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42368	12/21/22 16:56	SM	EET MID
Total/NA	Analysis	Total BTEX		1			42478	12/22/22 08:57	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42188	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	41926	12/15/22 14:18	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 18:03	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	42049	12/20/22 14:10	CH	EET MID

Lab Sample ID: 890-3643-2

**Client Sample ID: SS02** Date Collected: 12/07/22 12:00 Matrix: Solid

Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	42329	12/20/22 15:23	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42368	12/21/22 17:16	SM	EET MID
Total/NA	Analysis	Total BTEX		1			42478	12/22/22 08:57	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42188	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	41926	12/15/22 14:18	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 18:25	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	42049	12/20/22 14:15	CH	EET MID

**Client Sample ID: SS03** Lab Sample ID: 890-3643-3

Date Collected: 12/07/22 12:15 **Matrix: Solid** Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	42329	12/20/22 15:23	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42368	12/21/22 17:37	SM	EET MID
Total/NA	Analysis	Total BTEX		1			42478	12/22/22 08:57	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42188	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	41926	12/15/22 14:18	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 18:47	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	42049	12/19/22 22:16	CH	EET MID

**Client Sample ID: SS04** Lab Sample ID: 890-3643-4 Date Collected: 12/07/22 12:30 **Matrix: Solid** 

Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	42329	12/20/22 15:23	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42368	12/21/22 17:57	SM	EET MID
Total/NA	Analysis	Total BTEX		1			42478	12/22/22 08:57	AJ	EET MID

**Eurofins Carlsbad** 

Page 17 of 26

#### Lab Chronicle

Client: Ensolum Job ID: 890-3643-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

Client Sample ID: SS04

Lab Sample ID: 890-3643-4

Matrix: Solid

Date Collected: 12/07/22 12:30 Date Received: 12/13/22 13:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			42188	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	41926	12/15/22 14:18	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 19:09	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	41923	12/15/22 14:14	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	42049	12/19/22 22:21	CH	EET MID

#### Laboratory References:

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

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# **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3643-1
Project/Site: PLU 27 BD 161H SDG: Eddy County NM

#### **Laboratory: Eurofins Midland**

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

Authority	Pr	ogram	Identification Number	<b>Expiration Date</b>
Texas	NE	ELAP	T104704400-22-25	06-30-23
The following analytes	and the almost and the Alaba management has		and the state of the second control of the s	
the agency does not of	• '	it the laboratory is not certifi	ed by the governing authority. This list ma	ay include analytes for
,	• '	Matrix	ed by the governing authority. This list ma	ay include analytes for
the agency does not of	fer certification.	•	, , ,	ay include analytes for

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## **Method Summary**

Client: Ensolum

Project/Site: PLU 27 BD 161H

Job ID: 890-3643-1

SDG: Eddy County NM

/lethod	Method Description	Protocol	Laboratory
3021B	Volatile Organic Compounds (GC)	SW846	EET MID
otal BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
6035	Closed System Purge and Trap	SW846	EET MID
015NM Prep	Microextraction	SW846	EET MID
Ol 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: PLU 27 BD 161H

Job ID: 890-3643-1

SDG: Eddy County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3643-1	SS01	Solid	12/07/22 11:45	12/13/22 13:30	0.5'
890-3643-2	SS02	Solid	12/07/22 12:00	12/13/22 13:30	0.5'
890-3643-3	SS03	Solid	12/07/22 12:15	12/13/22 13:30	0.5'
890-3643-4	SS04	Solid	12/07/22 12:30	12/13/22 13:30	0.5'

eurofins

**Environment Testing** 

# Chain of Custody

Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334 EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296 Houston, TX (281) 240-4200, Dalles, TX (214) 902-0300

Project Manager	Ben Belill			Bill to (if different)	nt)	Garre	Garrett Green	9		Work Order Comments	ments
	Ensolum, LLC			Company Name	G.	хто	XTO Energy, Inc.	/ Inc.	Pr	Program: UST/PST 🗌 PRP 🔲 Brownfields 🗌 RRC 🗌	ds RRC Superfund
	3122 National parks Hwy	s Hwy		Address		3104	E. Gre	3104 E. Green Street	St	State of Project:	
City. State ZIP:	Carlsbad, NM 88220	0		City, State ZIP		Carls	bad, N	Carlsbad, NM 88220	Re	Reporting Level III Level III L PST/UST L TRRP L	T   TRRP   Level IV
	9898540852		Email	bbelil@ensolum.com	lum.cc	Ď.			De	Deliverables EDD   ADaPT	Other
Project Name:	PLU 27 BD 161H	161H	Turn.	Turn Around					ANALYSIS REQUE	UEST	Preservative Codes
Project Number	03E1558089	3089	Routine	Rush	Code					Non	None: NO DI Water: H <sub>2</sub> O
Project Location	EDDY COUNTY, NM	MN, YTV	Due Date:							Coc	Cool: Cool MeOH: Me
Sampler's Name	Chris Brown	OWO	TAT starts the	TAT starts the day received by	~				-	HC	
PO *		)	the lab, if rece	the lab, if received by 4:30pm						H <sub>2</sub> S	H <sub>2</sub> SO <sub>4</sub> H <sub>2</sub> NaOH Na
SAMPLE RECEIPT	Temp Blank	Yes No	Wet ice:	(Yes No	nete	.0)				H <sub>3</sub> P	H <sub>3</sub> PO <sub>4</sub> HP
Samples Received Intact	tact XYes No	Thermometer ID		Je - 20	aran	300				Na	NaHSO4 NABIS
Cooler Custody Seals:	Yet NO (NIA)	(A) Correction Factor		0.0	Pi	PA:				Na <sub>2</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>
Sample Custody Seals	s Yes No WA	A Temperature Reading	Reading	XX		S (E			890-3643 Chain of Custody	Zn	Zn Acetate+NaOH: Zn
Total Containers		Corrected Temperature	mperature	9.5		RIDE	015)	8021	-	Nac	NaOH+Ascorbic Acid: SAPC
Sample Identification	lification Matrix	trix Date Sampled	Time Sampled	Depth Comp	# of Cont	CHLO	TPH (8	BTEX (			Sample Comments
SS01	S	12/7/2022	1145	0.5' Grab/	b/ 1	×	×	×		0	Cost Center: 1666961001
SS02	S	12/7/2022	1200	0.5' Grab/	1	×	×	×			
SS03	S	12/7/2022	12/5	0.5' Grab/	1	×	×	×			
SS04	S	12/7/2022	1230	0.5' Grab/	1	×	×	×			
											Incident Number
											NAPP2218236445
			11 1	H I		-			Cal Car Car Car Car Bh Ma	Dr. Ma Mr. Mo Ni K So Ag SiO. Na Sr	TI Sn 11 V Zn
rcle Method(s) and I	Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLF	TCLP / SPLP 6010: 8RCRA	RCRA S		Sb As Ba Be	Be (	Cr Co Cu Pb Mn		1
ice: Signature of this d ervice. Eurofins Xenco urofins Xenco. A mini	locument and relinquishm o will be liable only for the mum charge of \$85.00 wil	ent of samples cons cost of samples an i be applied to each	titutes a valid pur d shall not assum project and a chai	chase order from e any responsib- rge of \$5 for eac	n client o	ompany ny losse submit	to Euro	fins Xen enses in profins X	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 fosses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$55.00 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 negotiate.	ssigns standard terms and conditions ue to circumstances beyond the control be enforced unless previously negotiated.	
Relinquished by: (Signature)	(Signature)	Receive	Received by: (Signature)	ле)		Date	Date/Time		Relinquished by: (Signature)	) Received by: (Signature)	Date/Time
2		W VOCA	look.	tut	نا	5	120	2/3	20		
					$\dagger$						

**Eurofins Carlsbad** 

1089 N Canal St

# Chain of Custody Record

eurofins :

**Environment Testing** 

Midland State Zip: TX 79701 Project Name: PLU 27 BD 161H Carlsbad, NM 88220 Phone 575-988-3199 Fax. 575-988-3199 Note Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody if the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/hests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central, LLC aboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central. LLC SS04 (890-3643-4) SS03 (890-3643-3) SS02 (890-3643-2) SS01 (890-3643-1) Sample Identification - Client ID (Lab ID) 432-704-5440(Tel) 1211 W Flonda Ave, Eurofins Environment Testing South Centr Shipping/Receiving Client Information (Sub Contract Lab) mpty Kit Relinquished by ossible Hazard Identification Deliverable Requested I, II, III IV Other (specify) elinquished by: elinquished by elinquished Custody Seals าconfirmed Yes ∆ No Intact. Custody Seal Z Project #: 89000093 Phone: WO# Primary Deliverable Rank. PO#: TAT Requested (days): Due Date Requested 12/19/2022 Sampler Date/Time: Sample Date 12/7/22 12/7/22 12/7/22 12/7/22 Date Mountain 12 15 Mountain 12 00 Mountain 12 30 Mountain Sample 11 45 Time (C=comp, G=grab) Туре Sample Preservation Code: Company Company Company Matrix Solid Solid Solid Solid Kramer, Jessica Jessica Kramer@et.eurofinsus com Field Filtered Sample (Yes or No) NELAP - Texas Accreditations Required (See note) Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Month Perform MS/MSD (Yes or No) Special Instructions/QC Requirements Received by 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH Cooler Temperature(s) °C and Other Remarks × × × × × × 8015MOD Cald × × × × 300\_ORGFM\_28D/DI\_LEACH Chloride × × × × 8021B/6035FP\_Calc (MOD) BTEX Analysis Requested × × Total\_BTEX\_GCV × × State of Origin. New Mexico Carrier Tracking No(s) Method of Shipment Date/Time Date/Time Date/Time Total Number of containers A - HCL B NaOH C - Zn Acetate D Nitric Acid E - NaHSO4 F MeloH G - Amehor H Ascorbic Acid I - Ice J DI Water K EDTA L EDA COC No: 890-1064 1 Preservation Codes: 890-3643-1 Page 1 of 1 age: Special Instructions/Note N None
O - AsNaO2
P Na2O4S
Q - Na2SO3
R Na2SO3
R Na2SO4
T TSP Dodecahydrate U - Acetone V MCAA W - pH 4-5 Y Trizma Ver: 06/08/2021 company other (specify) Months

# **Chain of Custody Record**

<b>X</b> X
MAIM?

Eurofins Carlsbad										_		•							
1089 N Canal St.  Carlsbad NM 88220  Phone 575-988-3199  Phone 575-988-3199	0	Chain of Custody Record	of Cust	ody R	ecor	<u>o</u> .					<b>%</b> **	ain)					8	🐉 eurofins	Environment Testing
Client Information (Sub Contract Lab)	Sampler			Lab PM: Kramei	Lab PM: Kramer, Jessica	8		l			Can	Carrier Tracking No(s)	cking	No(s)			~	COC No:	
	Phone:			E-Mail Jessi	E-Mail Jessica Kramer@et.eurofinsus c	er@et.	eurofi	nsus	8		Ne Stat	State of Origin New Mexico	§. 🗐				- 71	Page 1 of 1	
Company  Eurofins Environment Testing South Centr					Accreditations Required (See note): NELAP - Texas	ns Requ	uired (S	èee not	е)									Job#: 890-3643-1	
Address 1211 W Florida Ave, ,	Due Date Requested 12/19/2022	ed.						Ana	alysis		Requested	rted	- 1				<b>_</b>	Preservation Codes	^
City Midland	TAT Requested (days):	ays):				$\dashv$			-		-							A HCL B NaOH	N - None O AsNaO2
State Zip: TX 79701					тры												Ma	D Nitric Acid E NaHSO4	P - Na2O4S Q Na2SO3
Phone: 432-704-5440(Tel)	PO#:					,, r un	9												R - Na2S2O3 S H2SO4 T - TSP Dodecahydrate
Email	WO#				lo)	p (moi	Chlorid	EX									1831.L181.59	H Ascomic Acid	
Project Name <sup>.</sup> PLU 27 BD 161H	Project #: 89000093				s or l		EACH	OD) B1										K EDTA	Y Trizma Z other (specify)
Sile:	SSOW#:				ISD (Y		D/DI_L	Calc (M	····								10,488/10350	Other:	
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp,	Matrix (w=water S=solid O=waste/oil, BT=Tissue, A=Air)	Field Filtered Perform MS/N 8016MOD_NM/8	B015MOD_Calc	300_ORGFM_28	3021B/5036FP_	Fotal_BTEX_GC								otal Number	0 0 0 0 0	
	X	X	0		X	apple i	de			7				3		6.4	XI.		Burney Complete Compl
SS01 (890-3643-1)	12/7/22	11 45 Mountain		Solid	×	×	×	×	×					100	7046 3540		#		
SS02 (890-3643-2)	12/7/22	12 00 Mountain		Solid	×	×	×	×	×								- 1		
SS03 (890-3643-3)	12/7/22	12.15 Mountain		Solid	×	×	×	×	×	_	$\dashv$						-		
SS04 (890-3643-4)	12/7/22	12 30 Mountain		Solid	×	×	×	×	×								4		
						<del>                                     </del>			+	+-	+						4		
										+	$\dashv$							**************************************	
								<u> </u>		$\vdash$	-								
Note Since laboratory accreditations are subject to change Eurofins Environment Testing South Central LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central LLC.	Testing South Centrove for analysis/tests	al LLC places to /matrix being an nmediately If all	he ownership or alyzed, the sam I requested acc	f method, analy nples must be s reditations are	te & accreating according to ac	ditation o	complia Eurofir	ince up ns Envi signed	on our ronmer Chain	subcor nt Testi of Cus	ntract I	aborate Ith Cer	onies ntral L to sai	This s LC lat	ample orato pliano	shipr Yoro	ent is ther ir	s forwarded under constructions will be prosecutions.	chain-of-custody If the rovided. Any changes to ing South Central LLC
Possible Hazard Identification Unconfirmed					Samp	le Disposal (At	posal	Â	ee ma	∏be	asse	ssed	ifsa	mple	_ ar		ine	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	1 month)
Deliverable Requested I II III, IV Other (specify)	Primary Deliverable Rank 2	able Rank 2			Specia	Special Instructions/QC	uction	ns/QC		Requirements	ents.		Ì	ľ		- 1			
Empty Kit Relinquished by		Date			Time:	3	١			٠	5	Meth	Method of Shipment:	Shipm	ent	ı			
Relinquished by 1000	Date/Time <sup>.</sup>			Company	R		5		=	口	$\langle 1 \rangle$	ľ	1	Date	Date/Time				Company
Relinquished by:	Date/Time:		C	Company	7	Received	y,	4	1					Date/	Date/Time				Company
J	Date/Time		C	Company	Re	Received by:	Jy.							Date	Date/Time:				Company
Custody Seal No A Yes A No					, ,	Cooler Temperature(s) °C	mperati	re(s) °		and Other Remarks	(eman	ξή							
										l			-						Ver: 06/08/2021

## **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3643-1

SDG Number: Eddy County NM

List Source: Eurofins Carlsbad

Login Number: 3643 List Number: 1

Creator: Stutzman, Amanda

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

Released to Imaging: 5/19/2023 8:53:13 AM

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## **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3643-1

SDG Number: Eddy County NM

List Source: Eurofins Midland

List Creation: 12/15/22 11:29 AM

Login Number: 3643 List Number: 2 Creator: Teel, Brianna

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

True

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13

14

<6mm (1/4").

Containers requiring zero headspace have no headspace or bubble is

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Ben Belill Ensolum 601 N. Marienfeld St.

Suite 400

Suite 400

Midland, Texas 79701

Generated 12/27/2022 8:39:00 AM

# **JOB DESCRIPTION**

PLU 27 Brushy Draw 161H SDG NUMBER 03E11558091

# **JOB NUMBER**

890-3646-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

# **Eurofins Carlsbad**

# **Job Notes**

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

# **Authorization**

Generated 12/27/2022 8:39:00 AM

Authorized for release by Jessica Kramer, Project Manager <u>Jessica.Kramer@et.eurofinsus.com</u> (432)704-5440

Page 2 of 23

Client: Ensolum
Project/Site: PLU 27 Brushy Draw 161H
Laboratory Job ID: 890-3646-1
SDG: 03E11558091

# **Table of Contents**

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QC Sample Results	8
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Method Summary	17
Sample Summary	18
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#### **Definitions/Glossary**

Job ID: 890-3646-1 Client: Ensolum Project/Site: PLU 27 Brushy Draw 161H SDG: 03E11558091

**Qualifiers** 

**GC VOA** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

**GC Semi VOA** 

Qualifier **Qualifier Description** 

F2 MS/MSD RPD exceeds control limits

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

**HPLC/IC** 

Qualifier **Qualifier Description** 

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

**Glossary** 

MCL

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

DFR 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

Decision Level Concentration (Radiochemistry) DLC

**EDL** Estimated Detection Limit (Dioxin) LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

Method Detection Limit MDL 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

Toxicity Equivalent Factor (Dioxin) TEF Toxicity Equivalent Quotient (Dioxin) TEQ

**TNTC** Too Numerous To Count

#### **Case Narrative**

Client: Ensolum

Project/Site: PLU 27 Brushy Draw 161H

Job ID: 890-3646-1 SDG: 03E11558091

Job ID: 890-3646-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3646-1

#### Receipt

The sample was received on 12/13/2022 3:30 PM. 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 9.0°C

#### **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: PH06B (W) (890-3646-1).

#### **GC VOA**

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

#### GC Semi VOA

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-41930 and analytical batch 880-41982 was outside the upper control limits.

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-41930 and analytical batch 880-41982 was outside control limits. Sample non-homogeneity is suspected.

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

#### HPLC/IC

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-41925 and analytical batch 880-42330 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits. The associated samples are: PH06B (W) (890-3646-1), (890-3644-A-11-A), (890-3644-A-11-B MS) and (890-3644-A-11-C MSD).

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

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Matrix: Solid

Lab Sample ID: 890-3646-1

# **Client Sample Results**

 Client: Ensolum
 Job ID: 890-3646-1

 Project/Site: PLU 27 Brushy Draw 161H
 SDG: 03E11558091

Client Sample ID: PH06B (W)

Date Collected: 12/12/22 13:50 Date Received: 12/13/22 15:30

Sample Depth: 8'

Chloride

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		12/22/22 10:23	12/23/22 21:02	
Toluene	<0.00201	U	0.00201	mg/Kg		12/22/22 10:23	12/23/22 21:02	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		12/22/22 10:23	12/23/22 21:02	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		12/22/22 10:23	12/23/22 21:02	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		12/22/22 10:23	12/23/22 21:02	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		12/22/22 10:23	12/23/22 21:02	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130			12/22/22 10:23	12/23/22 21:02	1
1,4-Difluorobenzene (Surr)	84		70 - 130			12/22/22 10:23	12/23/22 21:02	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			12/24/22 08:27	1
Method: SW846 8015 NM - Diese	al Pange Organ	ice (DRO) ((	ec)					
Method: SW846 8015 NM - Diese Analyte	•	ics (DRO) (	GC)	Unit	D	Prepared	Analyzed	Dil Fac
	•	Qualifier	•	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 12/19/22 15:03	Dil Fac
Analyte Total TPH	Result < 50.0	Qualifier U	RL 50.0		<u>D</u>	Prepared		
Analyte	Result <50.0	Qualifier U	RL 50.0		<u>D</u>	Prepared Prepared		
Analyte Total TPH  . Method: SW846 8015B NM - Dies	Result <50.0	Qualifier Unics (DRO) Qualifier	RL 50.0	mg/Kg		<u> </u>	12/19/22 15:03	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	Result <50.0  sel Range Orga Result	Qualifier U  nics (DRO) Qualifier U F2	RL 50.0 (GC)	mg/Kg		Prepared	12/19/22 15:03 Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <50.0  Sel Range Orga Result <50.0	Qualifier U  nics (DRO) Qualifier U F2 U	RL 50.0 (GC) RL 50.0	mg/Kg  Unit  mg/Kg		Prepared 12/15/22 14:22	12/19/22 15:03  Analyzed  12/16/22 21:00	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result	Qualifier U  nics (DRO) Qualifier U F2 U	RL 50.0  (GC)  RL 50.0  50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22	12/19/22 15:03  Analyzed 12/16/22 21:00 12/16/22 21:00	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result	Qualifier U  nics (DRO) Qualifier U F2 U	RL 50.0 (GC) RL 50.0 50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22	Analyzed 12/16/22 21:00 12/16/22 21:00 12/16/22 21:00	Dil Face 1 1 1 1 Dil Face
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result	Qualifier U  nics (DRO) Qualifier U F2 U	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22 Prepared	Analyzed 12/16/22 21:00 12/16/22 21:00 12/16/22 21:00 Analyzed	1
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <50.0	Qualifier U  nics (DRO) Qualifier U F2 U  U  Qualifier	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits  70 - 130  70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22  Prepared 12/15/22 14:22	12/19/22 15:03  Analyzed 12/16/22 21:00 12/16/22 21:00  Analyzed 12/16/22 21:00	Dil Fac

5.05

mg/Kg

9.26

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12/23/22 00:44

# **Surrogate Summary**

 Client: Ensolum
 Job ID: 890-3646-1

 Project/Site: PLU 27 Brushy Draw 161H
 SDG: 03E11558091

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

	DED4		
	BFB1	DFBZ1	
Client Sample ID	(70-130)	(70-130)	
PH06B (W)	115	84	
PH06B (W)	120	85	
PH06B (W)	111	87	
Lab Control Sample	107	85	
Lab Control Sample	111	86	
Lab Control Sample Dup	94	95	
Method Blank	97	90	
Method Blank	101	86	
Method Blank	105	76	
zene (Surr)			
	PH06B (W) PH06B (W) PH06B (W) Lab Control Sample Lab Control Sample Lab Control Sample Dup Method Blank Method Blank Method Blank	PH06B (W) 115 PH06B (W) 120 PH06B (W) 111 Lab Control Sample 107 Lab Control Sample 111 Lab Control Sample 94 Method Blank 97 Method Blank 101 Method Blank 105	PH06B (W)       115       84         PH06B (W)       120       85         PH06B (W)       111       87         Lab Control Sample       107       85         Lab Control Sample       111       86         Lab Control Sample Dup       94       95         Method Blank       97       90         Method Blank       101       86         Method Blank       105       76

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)	
890-3646-1	PH06B (W)	90	89	
890-3646-1 MS	PH06B (W)	98	88	
890-3646-1 MSD	PH06B (W)	84	78	
LCS 880-41930/2-A	Lab Control Sample	114	122	
LCSD 880-41930/3-A	Lab Control Sample Dup	114	120	
MB 880-41930/1-A	Method Blank	133 S1+	131 S1+	

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

**Eurofins Carlsbad** 

Released to Imaging: 5/19/2023 8:53:13 AM

Project/Site: PLU 27 Brushy Draw 161H

Client: Ensolum

Job ID: 890-3646-1 SDG: 03E11558091

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-42420/5-A

Matrix: Solid Analysis Batch: 42466 Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42420

	Prep Bate
MB	

	МВ	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/21/22 12:40	12/22/22 22:51	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/21/22 12:40	12/22/22 22:51	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/21/22 12:40	12/22/22 22:51	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/21/22 12:40	12/22/22 22:51	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/21/22 12:40	12/22/22 22:51	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/21/22 12:40	12/22/22 22:51	1

MB MB

Surrogate	%Recovery Qualifier	Limits	Pr	epared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97	70 - 130	12/21	1/22 12:40	12/22/22 22:51	1
1,4-Difluorobenzene (Surr)	90	70 - 130	12/21	1/22 12:40	12/22/22 22:51	1

Lab Sample ID: MB 880-42483/5-A Client Sample ID: Method Blank

Matrix: Solid Prep Type: Total/NA
Analysis Batch: 42466 Prep Batch: 42483

MR MR Analyte Result Qualifier RL Unit Prepared Analyzed Dil Fac mg/Kg Benzene <0.00200 U 0.00200 12/22/22 09:22 12/23/22 09:36 Toluene <0.00200 U 0.00200 mg/Kg 12/22/22 09:22 12/23/22 09:36 Ethylbenzene <0.00200 U 0.00200 mg/Kg 12/22/22 09:22 12/23/22 09:36 12/22/22 09:22 m-Xylene & p-Xylene <0.00400 U 0.00400 mg/Kg 12/23/22 09:36 <0.00200 U 12/23/22 09:36 o-Xylene 0.00200 mg/Kg 12/22/22 09:22 Xylenes, Total <0.00400 U 0.00400 12/22/22 09:22 12/23/22 09:36 mg/Kg

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130	12/22/22 09:22	12/23/22 09:36	1
1,4-Difluorobenzene (Surr)	86		70 - 130	12/22/22 09:22	12/23/22 09:36	1

Lab Sample ID: LCSD 880-42483/2-A

Matrix: Solid
Analysis Batch: 42466
Spike LCSD LCSD %Rec RPD

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.08380		mg/Kg		84	70 - 130	20	35
Toluene	0.100	0.07951		mg/Kg		80	70 - 130	19	35
Ethylbenzene	0.100	0.07270		mg/Kg		73	70 - 130	21	35
m-Xylene & p-Xylene	0.200	0.1547		mg/Kg		77	70 - 130	22	35
o-Xylene	0.100	0.07994		mg/Kg		80	70 - 130	20	35

LCSD LCSD

MB MB

<0.00200 U

Result Qualifier

Surrogate	%Recovery Qualifie	r Limits
4-Bromofluorobenzene (Surr)	94	70 - 130
1.4-Difluorobenzene (Surr)	95	70 - 130

Lab Sample ID: MB 880-42486/5-A

Matrix: Solid

Analysis Batch: 42466

Analyte

Benzene

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

12/23/22 20:41

Prepared

12/22/22 10:23

Client Sample ID: Lab Control Sample Dup

Prep Batch: 42486

Analyzed Dil Fac

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0.00200

RL

Unit

mg/Kg

2

3

4

6

1

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#### QC Sample Results

Client: Ensolum Job ID: 890-3646-1 Project/Site: PLU 27 Brushy Draw 161H SDG: 03E11558091

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

Lab Sample ID: MB 880-42486/5-A **Matrix: Solid** 

Analysis Batch: 42466

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42486

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	<0.00200	U	0.00200	mg/Kg	_	12/22/22 10:23	12/23/22 20:41	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/22/22 10:23	12/23/22 20:41	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/22/22 10:23	12/23/22 20:41	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/22/22 10:23	12/23/22 20:41	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/22/22 10:23	12/23/22 20:41	1

мв мв

MB MB

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105	70 - 130	12/22/22 10:23	12/23/22 20:41	1
1,4-Difluorobenzene (Surr)	76	70 <sub>-</sub> 130	12/22/22 10:23	12/23/22 20:41	1

Lab Sample ID: LCS 880-42486/1-A

**Matrix: Solid** 

**Analysis Batch: 42466** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Prep Batch: 42486

LCS LCS Spike %Rec Analyte Added Result Qualifier Unit %Rec Limits 0.100 Benzene 0.09622 96 70 - 130 mg/Kg Toluene 0.100 0.1007 70 - 130 mg/Kg 101 0.100 Ethylbenzene 0.1028 mg/Kg 103 70 - 130 m-Xylene & p-Xylene 0.200 0.2274 mg/Kg 114 70 - 130 o-Xylene 0.100 0.1119 mg/Kg 70 - 130 112

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	107	70 - 130
1,4-Difluorobenzene (Surr)	85	70 - 130

Lab Sample ID: LCS 880-42486/2-A

**Matrix: Solid** 

Analysis Batch: 42466

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 42486

	Spike	LCS	LCS			%Rec	
Analyte	Added	Result	Qualifier	Unit D	%Rec	Limits	
Benzene	0.100	0.09788		mg/Kg	98	70 - 130	
Toluene	0.100	0.1020		mg/Kg	102	70 - 130	
Ethylbenzene	0.100	0.1044		mg/Kg	104	70 - 130	
m-Xylene & p-Xylene	0.200	0.2327		mg/Kg	116	70 - 130	
o-Xylene	0.100	0.1151		mg/Kg	115	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	111	70 - 130
1,4-Difluorobenzene (Surr)	86	70 - 130

Lab Sample ID: 890-3646-1 MS

**Matrix: Solid** 

Analysis Batch: 42466

Client Sample ID: PH06B (W)

Prep Type: Total/NA

Prep Batch: 42486

	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Benzene	<0.00201	U	0.0998	0.08133		mg/Kg		81	70 - 130
Toluene	<0.00201	U	0.0998	0.09387		mg/Kg		94	70 - 130
Ethylbenzene	< 0.00201	U	0.0998	0.1032		mg/Kg		103	70 - 130

#### **QC Sample Results**

 Client: Ensolum
 Job ID: 890-3646-1

 Project/Site: PLU 27 Brushy Draw 161H
 SDG: 03E11558091

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

Lab Sample ID: 890-3646-1 MS

Client Sample ID: PH06B (W)

Matrix: Solid Prep Type: Total/NA
Analysis Batch: 42466 Prep Batch: 42486

	Sample	Sample	Spike	IVIS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2296		mg/Kg		115	70 - 130	
o-Xylene	<0.00201	U	0.0998	0.1123		mg/Kg		112	70 - 130	

 Surrogate
 %Recovery
 Qualifier
 Limits

 4-Bromofluorobenzene (Surr)
 120
 70 - 130

 1,4-Difluorobenzene (Surr)
 85
 70 - 130

Lab Sample ID: 890-3646-1 MSD Client Sample ID: PH06B (W)

Matrix: Solid Prep Type: Total/NA
Analysis Batch: 42466 Prep Batch: 42486

Sample Sample Spike MSD MSD %Rec RPD Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit Benzene <0.00201 U 0.0990 0.08250 83 70 - 130 35 mg/Kg 1 Toluene <0.00201 U 0.0990 0.08671 mg/Kg 88 70 - 130 8 35 0.0990 Ethylbenzene <0.00201 0.08708 mg/Kg 88 70 - 130 17 35 m-Xylene & p-Xylene <0.00402 U 0.198 0.1918 97 70 - 130 35 mg/Kg 18

0.09425

mg/Kg

95

70 - 130

17

0.0990

 Surrogate
 %Recovery
 Qualifier
 Limits

 4-Bromofluorobenzene (Surr)
 111
 70 - 130

 1,4-Difluorobenzene (Surr)
 87
 70 - 130

<0.00201 U

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

Lab Sample ID: MB 880-41930/1-A

Matrix: Solid

Analysis Batch: 41982

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 41930

MB MB

o-Xylene

	IVID	IVID						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg	_	12/15/22 14:22	12/16/22 19:53	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		12/15/22 14:22	12/16/22 19:53	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/15/22 14:22	12/16/22 19:53	1

MB MB Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1-Chlorooctane 133 S1+ 70 - 130 12/15/22 14:22 12/16/22 19:53 131 S1+ 70 - 130 12/15/22 14:22 12/16/22 19:53 o-Terphenyl

Lab Sample ID: LCS 880-41930/2-A Client Sample ID: Lab Control Sample

Matrix: Solid Prep Type: Total/NA
Analysis Batch: 41982 Prep Batch: 41930

	Spike	LCS	LCS			%Rec	
Analyte	Added	Result	Qualifier	Unit D	%Rec	Limits	
Gasoline Range Organics	1000	961.8		mg/Kg	96	70 - 130	
(GRO)-C6-C10							
Diesel Range Organics (Over	1000	1013		mg/Kg	101	70 - 130	
C10-C28)							

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Job ID: 890-3646-1 Client: Ensolum Project/Site: PLU 27 Brushy Draw 161H

SDG: 03E11558091

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

Lab Sample ID: LCS 880-41930/2-A

Lab Sample ID: LCSD 880-41930/3-A

**Matrix: Solid** 

**Matrix: Solid** 

Gasoline Range Organics

Lab Sample ID: 890-3646-1 MS

**Analysis Batch: 41982** 

Analysis Batch: 41982

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 41930

LCS LCS

Surrogate %Recovery Qualifier Limits 1-Chlorooctane 114 70 - 130 o-Terphenyl 122 70 - 130

Client Sample ID: Lab Control Sample Dup

70 - 130

70 - 130

98

101

Prep Type: Total/NA

2

Analysis Batch: 41982 Prep Batch: 41930 Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit

979.2

1008

mg/Kg

mg/Kg

1000

1000

(GRO)-C6-C10 Diesel Range Organics (Over

C10-C28)

**Matrix: Solid** 

LCSD LCSD

Surrogate %Recovery Qualifier Limits 70 - 130 1-Chlorooctane 114 120 70 - 130 o-Terphenyl

Client Sample ID: PH06B (W)

Prep Type: Total/NA

Prep Batch: 41930

Sample Sample MS MS Spike Added Analyte Result Qualifier Result Qualifier Unit %Rec Limits D Gasoline Range Organics <50.0 U F2 999 1283 mg/Kg 128 70 - 130 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 999 1005 mg/Kg 101 70 - 130

C10-C28)

MS MS

%Recovery Qualifier Surrogate Limits 70 - 130 1-Chlorooctane 98 o-Terphenyl 88 70 - 130

Lab Sample ID: 890-3646-1 MSD Client Sample ID: PH06B (W) Prep Type: Total/NA

**Matrix: Solid** 

Analysis Batch: 41982

Prep Batch: 41930 %Rec RPD

Sample Sample Spike Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits **RPD** Limit Gasoline Range Organics U F2 997 1006 F2 101 <50.0 70 - 130 24 20 mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 997 889.7 mg/Kg 89 70 - 130 12 20

MSD MSD

C10-C28)

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	84		70 - 130
o-Terphenyl	78		70 - 130

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Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

**Prep Type: Soluble** 

Client Sample ID: Matrix Spike

Client Sample ID: Matrix Spike Duplicate

#### QC Sample Results

Client: Ensolum Job ID: 890-3646-1 Project/Site: PLU 27 Brushy Draw 161H SDG: 03E11558091

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41925/1-A

**Matrix: Solid** 

Analysis Batch: 42330

MB MB Dil Fac Analyte Result Qualifier RL Unit D Prepared Analyzed Chloride <5.00 U 5.00 mg/Kg 12/22/22 20:57

Lab Sample ID: LCS 880-41925/2-A

**Matrix: Solid** 

**Analysis Batch: 42330** 

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 268.0 mg/Kg 107 90 - 110

Lab Sample ID: LCSD 880-41925/3-A

**Matrix: Solid** 

Analysis Batch: 42330

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 266.1 mg/Kg 106 90 - 110

Lab Sample ID: 890-3644-A-11-B MS

**Matrix: Solid** 

Analysis Batch: 42330

MS MS Sample Sample Spike %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Chloride 165 F1 249 505.8 F1 137 90 - 110 mg/Kg

Lab Sample ID: 890-3644-A-11-C MSD

**Matrix: Solid** 

Analysis Batch: 42330

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 165 F1 249 484.9 F1 mg/Kg 129 90 - 110 20

# **QC Association Summary**

Client: Ensolum

Project/Site: PLU 27 Brushy Draw 161H

Job ID: 890-3646-1 SDG: 03E11558091

#### **GC VOA**

#### Prep Batch: 42420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-42420/5-A	Method Blank	Total/NA	Solid	5035	

#### Analysis Batch: 42466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3646-1	PH06B (W)	Total/NA	Solid	8021B	42486
MB 880-42420/5-A	Method Blank	Total/NA	Solid	8021B	42420
MB 880-42483/5-A	Method Blank	Total/NA	Solid	8021B	42483
MB 880-42486/5-A	Method Blank	Total/NA	Solid	8021B	42486
LCS 880-42486/1-A	Lab Control Sample	Total/NA	Solid	8021B	42486
LCS 880-42486/2-A	Lab Control Sample	Total/NA	Solid	8021B	42486
LCSD 880-42483/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	42483
890-3646-1 MS	PH06B (W)	Total/NA	Solid	8021B	42486
890-3646-1 MSD	PH06B (W)	Total/NA	Solid	8021B	42486

#### Prep Batch: 42483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-42483/5-A	Method Blank	Total/NA	Solid	5035	
LCSD 880-42483/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

#### Prep Batch: 42486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
890-3646-1	PH06B (W)	Total/NA	Solid	5035	
MB 880-42486/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-42486/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCS 880-42486/2-A	Lab Control Sample	Total/NA	Solid	5035	
890-3646-1 MS	PH06B (W)	Total/NA	Solid	5035	
890-3646-1 MSD	PH06B (W)	Total/NA	Solid	5035	

#### Analysis Batch: 42582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3646-1	PH06B (W)	Total/NA	Solid	Total BTEX	

#### **GC Semi VOA**

#### Prep Batch: 41930

Γ					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3646-1	PH06B (W)	Total/NA	Solid	8015NM Prep	
MB 880-41930/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41930/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41930/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3646-1 MS	PH06B (W)	Total/NA	Solid	8015NM Prep	
890-3646-1 MSD	PH06B (W)	Total/NA	Solid	8015NM Prep	

#### Analysis Batch: 41982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3646-1	PH06B (W)	Total/NA	Solid	8015B NM	41930
MB 880-41930/1-A	Method Blank	Total/NA	Solid	8015B NM	41930
LCS 880-41930/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41930
LCSD 880-41930/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41930
890-3646-1 MS	PH06B (W)	Total/NA	Solid	8015B NM	41930
890-3646-1 MSD	PH06B (W)	Total/NA	Solid	8015B NM	41930

# **QC Association Summary**

Client: Ensolum

Project/Site: PLU 27 Brushy Draw 161H

Job ID: 890-3646-1 SDG: 03E11558091

#### GC Semi VOA

#### Analysis Batch: 42189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3646-1	PH06B (W)	Total/NA	Solid	8015 NM	

#### HPLC/IC

#### Leach Batch: 41925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
890-3646-1	PH06B (W)	Soluble	Solid	DI Leach	
MB 880-41925/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41925/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41925/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3644-A-11-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3644-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

#### Analysis Batch: 42330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3646-1	PH06B (W)	Soluble	Solid	300.0	41925
MB 880-41925/1-A	Method Blank	Soluble	Solid	300.0	41925
LCS 880-41925/2-A	Lab Control Sample	Soluble	Solid	300.0	41925
LCSD 880-41925/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41925
890-3644-A-11-B MS	Matrix Spike	Soluble	Solid	300.0	41925
890-3644-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41925

#### **Lab Chronicle**

Client: Ensolum Job ID: 890-3646-1 Project/Site: PLU 27 Brushy Draw 161H SDG: 03E11558091

Client Sample ID: PH06B (W)

Lab Sample ID: 890-3646-1 Date Collected: 12/12/22 13:50

Matrix: Solid

Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	42486	12/22/22 10:23	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42466	12/23/22 21:02	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42582	12/24/22 08:27	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42189	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 21:00	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	41925	12/15/22 14:17	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	42330	12/23/22 00:44	SMC	EET MID

#### **Laboratory References:**

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

# **Accreditation/Certification Summary**

Client: Ensolum

Job ID: 890-3646-1

Project/Site: PLU 27 Brushy Draw 161H

SDC: 03E11558091

Project/Site: PLU 27 Brushy Draw 161H
SDG: 03E11558091

#### **Laboratory: Eurofins Midland**

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

Authority	Pro	ogram	Identification Number	Expiration Date 06-30-23	
Texas	NE	ELAP	T104704400-22-25		
The following analytes	are included in this report, bu	t the laboratory is not certific	ed by the governing authority. This list ma	ay include analytes for	
The following analytes the agency does not o	• •	t the laboratory is not certific	ed by the governing authority. This list ma	ay include analytes for	
the agency does not o	ffer certification.	·	, , ,	ay include analytes for	
• ,	• •	t the laboratory is not certific Matrix	ed by the governing authority. This list ma Analyte	ay include analytes fo	

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#### **Method Summary**

Client: Ensolum

Project/Site: PLU 27 Brushy Draw 161H

Job ID: 890-3646-1 SDG: 03E11558091

Method **Method Description** Protocol Laboratory 8021B Volatile Organic Compounds (GC) SW846 EET MID **Total BTEX Calculation** Total BTEX 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 SW846 **EET MID** Closed System Purge and Trap 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

**Eurofins Carlsbad** 

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# Sample Summary

Client: Ensolum

Project/Site: PLU 27 Brushy Draw 161H

Job ID: 890-3646-1 SDG: 03E11558091

 Lab Sample ID
 Client Sample ID
 Matrix
 Collected
 Received
 Depth

 890-3646-1
 PH06B (W)
 Solid
 12/12/22 13:50
 12/13/22 15:30
 8'

3

4

5

9

10

12

IR

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 SiO2 Na Sr Tl Sn U V Zn

eurofins

Xenco

**Environment Testin** 

Phone:

City, State ZIP: ddress:

arisbad, NM 8822 989.854.0852

22 NAT 1

Parks Hr ラク

Ensolum

501

Project Manager:

Company Name:

Project Number:

roject Name:

PLU 27 Brushy Draw 1818

035155809

Routine

Rush

Code

Turn Around

SAMPLE RECEIPT

Temp Blank: e,

Wet Ice:

Yes No

Parameters

≥0

Sample Custody Seals: Cooler Custody Seals: samples Received Intact:

Yes

No CNA

Temperature Reading: Correction Factor: Thermometer ID: (res No

Chlondes

890-3646 Chain of Custody

Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>: NaSO 3

NaHSO 4: NABIS H3PO4:HP

NaOH+Ascorbic Acid: SAPC Zn Acetate+NaOH: Zn

Sample Comments

H2S04: H2 HCL: HC

NaOH: Na HNO 3: HN MeOH: Me

Cool: Cool None: NO

DI Water: H<sub>2</sub>O

BTEX

TPH

Corrected Temperature:

Yes No

Sample Identification PHC6 B

Matrix

Sampled

Depth

Comp Grab/

Cont

Time

12/12/22 Sampled

1350

1

JAN4

- Sample

Sey Je

"west" after ham

WEST

NAPP2218236445 NAPP2217546910

1666961001

incident#:

Sampler's Name:

roject Location:

32.10165, 703.87622 Due Date:

Meredith Koberts

TAT starts the day received by the lab, if received by 4:30pm

**13** 

# Chain of Custody

Turn Around	Email:	_	Y						<u>(0</u>
round	biscil	City, State ZIP:	Address:	Company Name:	Bill to: (if different)		Hobbs, NM (5	EL Paso, TX (9	Houston, TX (43) Midland, TX (43)
ANALYSIS REQUEST	bisci illeenscium wan	Carishad, NM 88220	3104 E Green St	XTO Energy	Garrett Green		Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199	EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296	Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300 Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EST	Deliverables: EDD ADa	Reporting: Level II   Level III   PST/UST   TRRP   Level IV	State of Project:	Program: UST/PST PRP Brownfields RRC Superfund	Work Order Comments	www.xenco.com			Work Order No:
Preservative Codes	ADaPT Other:	PST/UST TRRP Level IV		ownfields RRC Superfund	omments	n Page of	-		

Circle Method(s) and Metal(s) to be analyzed	TCLP / SPLP 6010 : 8RC	RA Sb As Ba Be Cd C	TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	Hg: 1631 / 245.1 / 7470 / 7471	7471
voice: Signature of this document and relinquishment of samples constitutes of samples and shall no service. Eurofins Xenco will be liable only for the cost of samples and shall not service.	a valid purchase order from client company of assume any responsibility for any losses o	to Eurofins Xenco, its affiliates and or expenses incurred by the client if the dead to Furrefine Yenco, but not analy	subcontractors. It assigns standard terms and conditions such losses are due to circumstances beyond the control track. These farms will be enforced unless previously negotiate.	red.	
Relinquished by: (Signature) Received	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
WOOD & A.	J. Stat	12/13/20 15	Ö		
			4		
			6		
ishment of sample of the cost of sample to will be applied to	a valid purchase order from client company of assume any responsibility for any losses o t and a charge of 55 for each sample submit by: (Signature)	r to Eurofins Xenco, its affiliates and or expenses incurred by the client if the do Eurofins Xenco, but not analy and Date/Time		eceived by: (Signature)	Date/Time

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220 Phone. 575-988-3199 Fax 575-988-3199

**Chain of Custody Record** 

Environment Testing

	elinquished by	elinquished by	elinquished by	mpty Kit Relinquished by	eliverable Requested I II II IV Other (specify)	Inconfirmed	ore. Since laboratory accremistrias are subject to criange, Euroinis Environment I esting South Central, LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the boratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC attention immediately.	to Since laboratory approximations are subject to change E							H06B (W) (890-3646-1)		ample Identification - Client ID (Lab ID)	ite	roject Name YLU 27 Brushy Draw 161H	mail	none 32-704-5440(Tel)	tate, Zip: 	ity Midland	ddress. 211 W Florida Ave,	ompany Lurofins Environment Testing South Centr	Shipping/Receiving	Client Information (Sub Contract Lab)
	Date/Time	Date/Time:	Date/Time:		Primary Deliverable Rank 2		Nuronment I esting South Cen I isted above for analysis/test South Central, LLC attention i								12/12/22	X	Sample Date	SSOW#:	Project #: 89000093	WO#	PO#		TAT Requested (days):	Due Date Requested 12/19/2022		Phone	Sampler
	198111111111111111111111111111111111111			Date	rable Rank 2		tral, LLC places s/matrix being a mmediately If a								13 50 Mountain	X	Sample Time						lays):	ted			
					10		the ownership on alyzed, the sail requested ac									100	Sample Type (C=comp, G=grab)										
	Company	Company	Company				of method analy nples must be a creditations are								Solid	on Code:	Watrix (W=water S=sold, O=waste/oll, BT=Tissue, A=Air)									E-Mail Jessi	Lab PM Krame
	72	- 2	- 7	Time.	Speci	Samp	yte & accre shipped bac current to c								<b>-</b>	X	Field Filtered Perform MS/N 8015MOD_NM/8	ISD (Y	es or	No)	,	TPU			Accreditations Required (See note): NELAP - Texas	E-Mail Jessica Kramer@et.eurofinsus com	Lab PM Kramer, Jessica
	Received by:	elived by			Special Instructions/QC Requirements	Returr	ditation o	-	+	-					×		8016MOD_Calc		_0		3) Full	irn.	-		ns Requ	et.e	အ
	š	×,	200	-	uctions	le Disposal ( A f Return To Client	omplian Eurofins im the si								×		300_ORGFM_20				e		$\Box$		ired (Se	eurofine	
Cooler Temperature (a) of and		ł	$\frac{1}{2}$		/QC R	A fee ent	ce upon Environ gned Ch	$\vdash$	+-			<u> </u>			×		8021B/5035FP_ Total_BTEX_GC		ОО) В	IEX			$\dashv$	Analys	e note):	sus cor	
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	Company	Company	Company			month) Months	ain-of-custody If the vided. Any changes to g South Central, LLC			**************************************							Special Instructions/Note		Y Trizma Z other (specify)	U Acetone V MCAA	S - H2SO4 T TSP Dodecahydrate	P Na2O4S Q - Na2SO3	O - AsNaO2	M - Heyane			

**Eurofins Carlsbad** 

1089 N Canal St

# Chain of Custody Record

eurofins

Environment Testing

State, Zip: TX, 79701 Note: Since laboratory accreditations are subject to change Eurofins Environment Testing South Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody if the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC. Project Name PLU 27 Brushy Draw Carlsbad, NM 88220 Phone 575-988-3199 Fax 575-988-3199 Empty Kit Relinquished by Deliverable Requested | II III, IV PH06B (W) (890-3646-1) Sample Identification - Client ID (Lab ID 432-704-5440(Tel) Midland 1211 W Florida Ave, Eurofins Environment Testing South Centr Shipping/Receiving ossible Hazard Identification Slient Information (Sub Contract Lab) elinquished by Custody Seals Intact.

∆ Yes ∆ No elinquished by linquished by 161H Custody Seal No Other (specify) Date/Time PO# Due Date Requested 12/19/2022 Date/Time: Primary Deliverable Rank. TAT Requested (days): Phone: Sampler Date/Time SOW# 39000093 Sample Date roject # 12/12/22 Date Mountain Sample 13 50 (C=comp, G=grab) Sample Type Preservation Code: Company Company Matrix Solid Jessica Kramer@et.eurofinsus com Kramer, Jessica E-Mai Field Filtered Sample (Yes or No) Ime NELAP - Texas Accreditations Required (See note) Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Month Perform MS/MSD (Yes or No) Special Instructions/QC Requirements 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH Cooler Temperature(s) °C and Other Remarks Received by: × Return To Client 8015MOD\_Calc 300\_ORGFM\_28D/DI\_LEACH Chloride × × 8021B/6035FP Calc (MOD) BTEX Analysis Requested Total\_BTEX\_GCV Disposal By Lab State of Origin.
New Mexico Carrier Tracking No(s). Method of Shipment: Date/Time Date/Time Date/Time Archive For Total Number of containers A - HCL
B NaOH
C - Zn Acetate
D Nitric Acid
E NaHSOA
F MeOH
G Amchlor
H Ascorbic Acid
I- loe
J DI Water
K EDTA
L EDA COC No: 890-1064 1 Preservation Page 1 of 1 890-3646-1 Special Instructions/Note: N. Hexane
N. None
O. AsNaO2
P. Na2O4S
Q. Na2SO3
R. Na2SC3
R. PSO4
T. TSP Dodecahydrate
U. Acetone
V. MCAA
W. pH.4-5
W. pH.4-5
Y. Tizma
Z. other (specify) Company Company Months 06/08/2021

## **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3646-1

SDG Number: 03E11558091

Login Number: 3646 List Source: Eurofins Carlsbad

List Number: 1

Creator: Stutzman, Amanda

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	
s 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.	N/A	Refer to Job Narrative for details.
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <a href="fam:46">&lt;6mm (1/4").</a>	True	

c 212 0j 272

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Login Number: 3646

## **Login Sample Receipt Checklist**

 Client: Ensolum
 Job Number: 890-3646-1

 SDG Number: 03E11558091

List Source: Eurofins Midland

List Number: 2
Creator: Teel, Brianna

List Creation: 12/15/22 11:29 AM

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

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<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Ben Belill Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 12/27/2022 8:39:16 AM

# **JOB DESCRIPTION**

PLU 27 Brushy Draw 161H SDG NUMBER 03E1558091

# **JOB NUMBER**

890-3648-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

# **Eurofins Carlsbad**

# **Job Notes**

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

# **Authorization**

Generated 12/27/2022 8:39:16 AM

Authorized for release by Jessica Kramer, Project Manager <u>Jessica.Kramer@et.eurofinsus.com</u> (432)704-5440

Eurofins Carlsbad is a laboratory within Eurofins Environment Testing South Central, LLC, a company within Eurofins Environment Testing Group of Companies

Page 2 of 23

Client: Ensolum
Project/Site: PLU 27 Brushy Draw 161H
Laboratory Job ID: 890-3648-1
SDG: 03E1558091

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## **Definitions/Glossary**

Client: Ensolum Job ID: 890-3648-1 Project/Site: PLU 27 Brushy Draw 161H

SDG: 03E1558091

## **Qualifiers**

## **GC VOA**

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

## GC Semi VOA

Qualifier Qualifier Description		
F2	MS/MSD RPD exceeds control limits	
S1+	Surrogate recovery exceeds control limits, high biased.	
U	Indicates the analyte was analyzed for but not detected.	

## **HPLC/IC**

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

## Glossary

<u> </u>	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	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 No	ot 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 (Radiochemis	stry)
----	-------------------------------------------------	-------

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: PLU 27 Brushy Draw 161H

Job ID: 890-3648-1

SDG: 03E1558091

Job ID: 890-3648-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3648-1

#### Receipt

The sample was received on 12/13/2022 3:30 PM. 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 9.0°C

#### **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: PH05B (890-3648-1).

#### **GC VOA**

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

#### GC Semi VOA

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-41930 and analytical batch 880-41982 was outside the upper control limits.

Method 8015MOD NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-41930 and analytical batch 880-41982 was outside control limits. Sample non-homogeneity is suspected.

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

#### HPLC/IC

Method 300 ORGFM 28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-41924 and analytical batch 880-42328 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits. The associated samples are: PH05B (890-3648-1), (890-3647-A-5-A) and (890-3647-A-5-B MS).

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

Matrix: Solid

Lab Sample ID: 890-3648-1

## **Client Sample Results**

 Client: Ensolum
 Job ID: 890-3648-1

 Project/Site: PLU 27 Brushy Draw 161H
 SDG: 03E1558091

**Client Sample ID: PH05B** 

Date Collected: 12/12/22 13:10 Date Received: 12/13/22 15:30

Sample Depth: 7'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/22/22 10:23	12/23/22 21:23	1
Toluene	<0.00199	U	0.00199	mg/Kg		12/22/22 10:23	12/23/22 21:23	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		12/22/22 10:23	12/23/22 21:23	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/22/22 10:23	12/23/22 21:23	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		12/22/22 10:23	12/23/22 21:23	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/22/22 10:23	12/23/22 21:23	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	132	S1+	70 - 130			12/22/22 10:23	12/23/22 21:23	1
1,4-Difluorobenzene (Surr)	88		70 - 130			12/22/22 10:23	12/23/22 21:23	1
Method: TAL SOP Total BTEX - T	otal BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/24/22 08:27	1
Method: SW846 8015 NM - Diese Analyte		ics (DRO) (	GC)	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/19/22 15:03	1
: Method: SW846 8015B NM - Dies Analyte	• •	nics (DRO) Qualifier	(GC)	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	- <del>&lt;49.9</del>		49.9	mg/Kg		12/15/22 14:22	12/16/22 22:06	1
(GRO)-C6-C10			.0.0	99			.2, .0,22 22.00	
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/16/22 22:06	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/16/22 22:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	96		70 - 130			12/15/22 14:22	12/16/22 22:06	1
o-Terphenyl	94		70 - 130			12/15/22 14:22	12/16/22 22:06	1
Method: MCAWW 300.0 - Anions	, Ion Chromato	graphy - So	oluble					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	795		24.8	mg/Kg			12/22/22 13:25	5

## **Surrogate Summary**

Client: Ensolum
Project/Site: PLU 27 Brushy Draw 161H
SDG: 03E1558091

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Re
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3646-A-1-E MS	Matrix Spike	120	85	
890-3646-A-1-F MSD	Matrix Spike Duplicate	111	87	
890-3648-1	PH05B	132 S1+	88	
LCS 880-42486/1-A	Lab Control Sample	107	85	
LCS 880-42486/2-A	Lab Control Sample	111	86	
LCSD 880-42483/2-A	Lab Control Sample Dup	94	95	
MB 880-42420/5-A	Method Blank	97	90	
MB 880-42483/5-A	Method Blank	101	86	
MB 880-42486/5-A	Method Blank	105	76	
Surrogate Legend				
BFB = 4-Bromofluorobe	nzene (Surr)			
DFBZ = 1,4-Difluoroben	zene (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)	
890-3646-A-1-C MS	Matrix Spike	98	88	
890-3646-A-1-D MSD	Matrix Spike Duplicate	84	78	
890-3648-1	PH05B	96	94	
LCS 880-41930/2-A	Lab Control Sample	114	122	
LCSD 880-41930/3-A	Lab Control Sample Dup	114	120	
MB 880-41930/1-A	Method Blank	133 S1+	131 S1+	

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Client: Ensolum Job ID: 890-3648-1 Project/Site: PLU 27 Brushy Draw 161H

SDG: 03E1558091

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

Lab Sample ID: MB 880-42420/5-A

**Matrix: Solid** Analysis Batch: 42466 Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42420

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/21/22 12:40	12/22/22 22:51	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/21/22 12:40	12/22/22 22:51	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/21/22 12:40	12/22/22 22:51	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/21/22 12:40	12/22/22 22:51	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/21/22 12:40	12/22/22 22:51	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/21/22 12:40	12/22/22 22:51	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	12/21/22 12:40	12/22/22 22:51	1
1,4-Difluorobenzene (Surr)	90		70 - 130	12/21/22 12:40	12/22/22 22:51	1

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42483

Lab Sample ID: MB 880-42483/5-A **Matrix: Solid** 

Analysis Batch: 42466

мв мв

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:22	12/23/22 09:36	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:22	12/23/22 09:36	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:22	12/23/22 09:36	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/22/22 09:22	12/23/22 09:36	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:22	12/23/22 09:36	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/22/22 09:22	12/23/22 09:36	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130	12/22/22 09:22	12/23/22 09:36	1
1,4-Difluorobenzene (Surr)	86		70 - 130	12/22/22 09:22	12/23/22 09:36	1

Lab Sample ID: LCSD 880-42483/2-A

**Matrix: Solid** 

**Analysis Batch: 42466** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 42483

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Benzene 0.100 0.08380 mg/Kg 84 70 - 130 20 35 Toluene 0.100 0.07951 mg/Kg 80 70 - 130 19 35 0.100 Ethylbenzene 0.07270 mg/Kg 73 70 - 130 21 35 0.200 77 m-Xylene & p-Xylene 0.1547 mg/Kg 70 - 130 22 35 0.100 0.07994 70 - 130 20 o-Xylene mg/Kg 80 35

LCSD LCSD

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	94	70 _ 130
1.4-Difluorobenzene (Surr)	95	70 - 130

Lab Sample ID: MB 880-42486/5-A

Released to Imaging: 5/19/2023 8:53:13 AM

**Matrix: Solid** 

Analysis Batch: 42466

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42486

MB MB

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/22/22 10:23	12/23/22 20:41	1

Client: Ensolum
Project/Site: PLU 27 Brushy Draw 161H

Job ID: 890-3648-1

SDG: 03E1558091

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

Lab Sample ID: MB 880-42486/5-A

Matrix: Solid

Analysis Batch: 42466

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42486

	IND	IVID						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	<0.00200	U	0.00200	mg/Kg		12/22/22 10:23	12/23/22 20:41	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/22/22 10:23	12/23/22 20:41	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/22/22 10:23	12/23/22 20:41	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/22/22 10:23	12/23/22 20:41	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/22/22 10:23	12/23/22 20:41	1

MB MB

MR MR

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105	70 - 130	12/22/22 10:23	12/23/22 20:41	1
1,4-Difluorobenzene (Surr)	76	70 - 130	12/22/22 10:23	12/23/22 20:41	1

Lab Sample ID: LCS 880-42486/1-A

Matrix: Solid

Analysis Batch: 42466

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 42486

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.09622		mg/Kg		96	70 - 130	
Toluene	0.100	0.1007		mg/Kg		101	70 - 130	
Ethylbenzene	0.100	0.1028		mg/Kg		103	70 - 130	
m-Xylene & p-Xylene	0.200	0.2274		mg/Kg		114	70 - 130	
o-Xylene	0.100	0.1119		mg/Kg		112	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	107	70 - 130
1,4-Difluorobenzene (Surr)	85	70 - 130

Lab Sample ID: LCS 880-42486/2-A

**Matrix: Solid** 

Analysis Batch: 42466

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 42486

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.09788		mg/Kg		98	70 - 130	
Toluene	0.100	0.1020		mg/Kg		102	70 - 130	
Ethylbenzene	0.100	0.1044		mg/Kg		104	70 - 130	
m-Xylene & p-Xylene	0.200	0.2327		mg/Kg		116	70 - 130	
o-Xylene	0.100	0.1151		mg/Kg		115	70 - 130	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits		
4-Bromofluorobenzene (Surr)			70 - 130		
1.4-Difluorobenzene (Surr)	86		70 - 130		

Lab Sample ID: 890-3646-A-1-E MS

**Matrix: Solid** 

Analysis Batch: 42466

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 42486

	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Benzene	<0.00201	U	0.0998	0.08133		mg/Kg		81	70 - 130
Toluene	<0.00201	U	0.0998	0.09387		mg/Kg		94	70 - 130
Ethylbenzene	<0.00201	U	0.0998	0.1032		mg/Kg		103	70 - 130

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Client: Ensolum

Project/Site: PLU 27 Brushy Draw 161H

Lab Sample ID: 890-3646-A-1-F MSD

Job ID: 890-3648-1 SDG: 03E1558091

Prep Type: Total/NA

Prep Batch: 42486

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

Lab Sample ID: 890-3646-A-1-E MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

**Matrix: Solid** 

o-Xylene

Analysis Batch: 42466

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2296		mg/Kg		115	70 - 130	
o-Xylene	<0.00201	U	0.0998	0.1123		mg/Kg		112	70 - 130	

MS MS %Recovery Limits Surrogate Qualifier 70 - 130 4-Bromofluorobenzene (Surr) 120 70 - 130 1,4-Difluorobenzene (Surr) 85

Client Sample ID: Matrix Spike Duplicate

70 - 130

95

Prep Type: Total/NA

Prep Batch: 42486 RPD

17

35

35

35

35

Analysis Batch: 42466 Sample Sample Spike MSD MSD %Rec Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit Benzene <0.00201 U 0.0990 0.08250 83 70 - 130 mg/Kg 1 Toluene <0.00201 U 0.0990 0.08671 mg/Kg 88 70 - 130 8 0.0990 88 Ethylbenzene <0.00201 0.08708 mg/Kg 70 - 130 17 m-Xylene & p-Xylene <0.00402 U 0.198 0.1918 97 70 - 130 mg/Kg 18

0.09425

mg/Kg

0.0990

MSD MSD

<0.00201 U

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	111	70 - 130
1,4-Difluorobenzene (Surr)	87	70 - 130

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

Lab Sample ID: MB 880-41930/1-A

**Matrix: Solid** 

Analysis Batch: 41982

Client Sa	mple	ID:	Method	Blank

Prep Type: Total/NA Prep Batch: 41930

мв мв Analyte Result Qualifier RL Unit Prepared Analyzed Dil Fac Gasoline Range Organics <50.0 U 50.0 mg/Kg 12/15/22 14:22 12/16/22 19:53 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 50.0 mg/Kg 12/15/22 14:22 12/16/22 19:53 C10-C28) Oll Range Organics (Over C28-C36) <50.0 U 50.0 mg/Kg 12/15/22 14:22 12/16/22 19:53

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	133	S1+	70 - 130	12/15/22 14:22	12/16/22 19:53	1
o-Terphenyl	131	S1+	70 - 130	12/15/22 14:22	12/16/22 19:53	1

Lab Sample ID: LCS 880-41930/2-A

Matrix: Solid

**Analysis Batch: 41982** 

Client Sample ID: Lab	<b>Control Sample</b>
-----------------------	-----------------------

Prep Type: Total/NA Prep Batch: 41930

7 maryoro Batom 11002								<b>D</b> ato	•
	Spike	LCS	LCS				%Rec		
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline Range Organics	1000	961.8		mg/Kg		96	70 - 130		_
(GRO)-C6-C10									
Diesel Range Organics (Over	1000	1013		mg/Kg		101	70 - 130		
C10-C28)									

C10-C28)

o-Terphenyl

Job ID: 890-3648-1

Client: Ensolum Project/Site: PLU 27 Brushy Draw 161H SDG: 03E1558091

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

Lab Sample ID: LCS 880-41930/2-A Client Sample ID: Lab Control Sample

**Matrix: Solid** Prep Type: Total/NA Analysis Batch: 41982 Prep Batch: 41930

LCS LCS Surrogate %Recovery Qualifier Limits 1-Chlorooctane 114 70 - 130 o-Terphenyl 122 70 - 130

Lab Sample ID: LCSD 880-41930/3-A Client Sample ID: Lab Control Sample Dup

**Matrix: Solid** Prep Type: Total/NA Analysis Batch: 41982 Prep Batch: 41930

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit 1000 979.2 98 70 - 1302 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 1008 101 mg/Kg 70 - 13020

LCSD LCSD Surrogate %Recovery Qualifier Limits 70 - 130 1-Chlorooctane 114 70 - 130 o-Terphenyl 120

Lab Sample ID: 890-3646-A-1-C MS Client Sample ID: Matrix Spike

**Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 41982** Prep Batch: 41930

MS MS Sample Sample Spike Added Analyte Result Qualifier Result Qualifier Unit %Rec Limits D

Gasoline Range Organics <50.0 U F2 999 1283 mg/Kg 128 70 - 130 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 999 1005 mg/Kg 101 70 - 130 C10-C28)

MS MS %Recovery Qualifier Surrogate Limits 70 - 130 1-Chlorooctane 98

88

Lab Sample ID: 890-3646-A-1-D MSD Client Sample ID: Matrix Spike Duplicate

70 - 130

**Matrix: Solid** Prep Type: Total/NA Analysis Batch: 41982 Prep Batch: 41930

Sample Sample MSD MSD RPD Spike Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits **RPD** Limit U F2 997 1006 F2 Gasoline Range Organics <50.0 101 70 - 130 24 20 mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 997 889.7 mg/Kg 89 70 - 130 12 20 C10-C28)

MSD MSD %Recovery Qualifier Surrogate Limits 1-Chlorooctane 84 70 - 130 78 70 - 130 o-Terphenyl

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%Rec

## QC Sample Results

Client: Ensolum Job ID: 890-3648-1 Project/Site: PLU 27 Brushy Draw 161H SDG: 03E1558091

Client Sample ID: Method Blank

**Prep Type: Soluble** 

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41924/1-A

**Matrix: Solid** 

Lab Sample ID: LCS 880-41924/2-A

**Analysis Batch: 42328** 

MB MB

Dil Fac Analyte Result Qualifier RL Unit D Prepared Analyzed Chloride <5.00 U 5.00 mg/Kg 12/22/22 12:07

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

> > Client Sample ID: Matrix Spike Duplicate

**Prep Type: Soluble** 

**Matrix: Solid Analysis Batch: 42328** 

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 274.8 mg/Kg 110 90 - 110

Lab Sample ID: LCSD 880-41924/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 42328

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 274.8 mg/Kg 110 90 - 110

Lab Sample ID: 890-3647-A-5-B MS Client Sample ID: Matrix Spike **Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 42328** 

MS MS Sample Sample Spike %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Chloride 198 F1 250 495.3 F1 119 90 - 110 mg/Kg

Lab Sample ID: 890-3647-A-5-C MSD

**Matrix: Solid** 

Analysis Batch: 42328

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit 198 F1 250 Chloride 469.1 mg/Kg 108 90 - 110 20

## **QC Association Summary**

Client: Ensolum

Project/Site: PLU 27 Brushy Draw 161H

Job ID: 890-3648-1 SDG: 03E1558091

## **GC VOA**

## Prep Batch: 42420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-42420/5-A	Method Blank	Total/NA	Solid	5035	

## **Analysis Batch: 42466**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3648-1	PH05B	Total/NA	Solid	8021B	42486
MB 880-42420/5-A	Method Blank	Total/NA	Solid	8021B	42420
MB 880-42483/5-A	Method Blank	Total/NA	Solid	8021B	42483
MB 880-42486/5-A	Method Blank	Total/NA	Solid	8021B	42486
LCS 880-42486/1-A	Lab Control Sample	Total/NA	Solid	8021B	42486
LCS 880-42486/2-A	Lab Control Sample	Total/NA	Solid	8021B	42486
LCSD 880-42483/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	42483
890-3646-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	42486
890-3646-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	42486

## Prep Batch: 42483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-42483/5-A	Method Blank	Total/NA	Solid	5035	
LCSD 880-42483/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

## Prep Batch: 42486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3648-1	PH05B	Total/NA	Solid	5035	
MB 880-42486/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-42486/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCS 880-42486/2-A	Lab Control Sample	Total/NA	Solid	5035	
890-3646-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
890-3646-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 42583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3648-1	PH05B	Total/NA	Solid	Total BTEX	

## **GC Semi VOA**

## Prep Batch: 41930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3648-1	PH05B	Total/NA	Solid	8015NM Prep	
MB 880-41930/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41930/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41930/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3646-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3646-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 41982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3648-1	PH05B	Total/NA	Solid	8015B NM	41930
MB 880-41930/1-A	Method Blank	Total/NA	Solid	8015B NM	41930
LCS 880-41930/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41930
LCSD 880-41930/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41930
890-3646-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	41930
890-3646-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41930

## **QC Association Summary**

Client: Ensolum

Project/Site: PLU 27 Brushy Draw 161H

Job ID: 890-3648-1 SDG: 03E1558091

## GC Semi VOA

## Analysis Batch: 42190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3648-1	PH05B	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 41924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3648-1	PH05B	Soluble	Solid	DI Leach	
MB 880-41924/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41924/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41924/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3647-A-5-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3647-A-5-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 42328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3648-1	PH05B	Soluble	Solid	300.0	41924
MB 880-41924/1-A	Method Blank	Soluble	Solid	300.0	41924
LCS 880-41924/2-A	Lab Control Sample	Soluble	Solid	300.0	41924
LCSD 880-41924/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41924
890-3647-A-5-B MS	Matrix Spike	Soluble	Solid	300.0	41924
890-3647-A-5-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41924

## **Lab Chronicle**

Client: Ensolum Job ID: 890-3648-1 Project/Site: PLU 27 Brushy Draw 161H SDG: 03E1558091

Client Sample ID: PH05B Lab Sample ID: 890-3648-1 Date Collected: 12/12/22 13:10

Matrix: Solid

Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	42486	12/22/22 10:23	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42466	12/23/22 21:23	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42583	12/24/22 08:27	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42190	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 22:06	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	42328	12/22/22 13:25	SMC	EET MID

#### **Laboratory References:**

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

## **Accreditation/Certification Summary**

 Client: Ensolum
 Job ID: 890-3648-1

 Project/Site: PLU 27 Brushy Draw 161H
 SDG: 03E1558091

**Laboratory: Eurofins Midland** 

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

Texas  The following analytes are included in this re the agency does not offer certification.	NELAP	T104704400-22-25	06-30-23
3 ,	rt but the laboratory is not certifi	ind by the governing outbority. This list m	
• ,	rt hut the laboratory is not certifi	iad by the governing outhority. This list m	
the agency does not offer certification.	it, but the laboratory is not certifi	ied by the governing authority. This list in	ay include analytes to
Analysis Method Prep Method	Matrix	Analyte	
Total BTEX	Solid	Total BTEX	

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## **Method Summary**

Client: Ensolum

Project/Site: PLU 27 Brushy Draw 161H

Job ID: 890-3648-1

SDG: 03E1558091

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: PLU 27 Brushy Draw 161H

Job ID: 890-3648-1

SDG: 03E1558091

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3648-1	PH05B	Solid	12/12/22 13:10	12/13/22 15:30	7'

# Chain of Custody

		0 1					
		(530	colsyle	Step 1.	appra	1	SAMORE
nature) Date/Time	e) Received by: (Signature)	Relinquished by: (Signature)	Date/Time	) @	Received by: (Signature)	re) R	Relinquished by: (Signature)
	nd conditions d the control reviously negotiated.	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	urofins Xenco, its affilia penses incurred by the to Eurofins Xenco, but	der from client company to I onsibility for any losses or ex s for each sample submitted	onstitutes a valid purchase or and shall not assume any resp ach project and a charge of \$	elinquishment of samples conly for the cost of samples a \$85.00 will be applied to ea	Signature of this document and nee. Eurofins Xenco will be liable of this Xenco. A minimum charge of
Ag SiO <sub>2</sub> Na Sr Tl Sn U V Zn Hg: 1631 / 245.1 / 7470 / 7471	Mn Mo Ni K Se Ag SiO <sub>2</sub> Na e Ag Tl U Hg: 1631 / 24:	a 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg NTCLP/SPLP6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se	Al Sb As Ba Be I CRA Sb As Ba Be	PM Texas 11 Al SPLP 6010 : 8RCRA	8RCR.	200.8 / 6020: tal(s) to be analyz	Total 200.7 / 6010 200.8 / 6020: Circle Method(s) and Metal(s) to be analyzed
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incident #s:							
name							
5							
sample jars			746				
WEST		X	XX	71 6	018/ 46/6/16	S	PHOSE
Sample Comments		TI	Cont Cl	Depth Grab/ #	Date Time Sampled Sampled	Matrix Sa	Sample Identification
NaOH+Ascorbic Acid: SAFC		H	ul TE	7.0	Corrected Temperature:	Co	Total Containers:
Zn Acetate+NaOH: Zn	ustody	890-3648 Chain of Ci		200	Temperature Reading:	Yes No N/A Te	Sample Custody Seals:
Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>				17	Correction Factor:	MAN	
NaHSO 4: NABIS				<u>/ 00-</u>	eter II		Samples Received Intact:
H <sub>3</sub> PO <sub>4</sub> : HP			eters	No Region	(Ye) No Wet Ice:	Temp Blank:	SAMPLE RECEIPT
N	-			the lab, if received by 4:30pm		MOVEMENT KNOWN	PO #:
					-	730.000	
None: NO DI Water: H <sub>2</sub> O			Code	Rush		03E1558091	1
ervative	1	ANALYSIS REQUEST		Turn Around	1	27 Brushy Dawleth	Project Name: PLW
ADaPT Other:	Deliverables: EDD	Malensolum.com	illaens	bbel	852 Email:	989-854-0852	Phone: 99
PST/UST   TRRP   Level IV	Level III L	8220	Caris	City, State ZIP:	88220	arispace, NM	City, State ZIP:
	State of Project:	Greene St	3104 E	Address:	Parks Hwy	-	31
Brownfields RRC Superfund	Program: UST/PST   PRP   Brownfields	To Greigh	X	Company Name:	1	msolum, LL	
Work Order Comments	Work Ord	2 smett Green	(	Bill to: (if different)		Ben Belill	Project Manager: 8
com Page   of	www.xenco.com	Hobbs, NM (575) 392-7550, Carisbad, NM (575) 988-3199	л (575) 392-7550, Са	Hobbs, Nr			
		EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296	K (915) 585-3443, Lul	EL Paso, T		Xenco	
No:	Work Order No:	Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334	(432) 704-5440, San	Midland, TX	<b>Environment Testing</b>		
		Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300	TX (281) 240-4200, I	Houston,			eurofins

Phone 575-988-3199 Fax: 575-988-3199

Carlsbad, NM 88220 1089 N Canal St.

**Eurofins Carlsbad** 

13 14

Chain of Custody Record

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eurofins 💸

Environment Testing

State Zip: TX, 79701 PLU 27 Brushy Draw 161H Empty Kit Relinquished by Note: Since laboratory accreditations are subject to change Eurofins Environment Testing South Central, LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the aboratory does not currently maintain accreditation in the State of Origin listed above for analysis/lestis/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central. LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central. LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central. LLC PH05B (W) (890-3648-1) Sample Identification - Client ID (Lab ID) Midland Deliverable Requested T II III IV, Other (specify) Possible Hazard Identification 132-704-5440(Tel) 1211 W Florida Ave, Eurofins Environment Testing South Cent Shipping/Receiving Client Information (Sub Contract Lab) telinquished by: elinquished by: elinquished by Custody Seals Intact: nconfirmed Yes g Z Q Custody Seal No Phone: Sampler Date/Time Primary Deliverable Rank PO# Due Date Requested Date/Time 39000093 TAT Requested (days): SOW# 12/19/2022 roject #: 12/12/22 Date Mountain Sample (C=Comp. Sample Туре Preservation Code: Company Company Company BT=Tissue, A=Ai Matrix Solid E-Mail Kramer, Jessica Jessica Kramer@et.eurofinsus.com Field Filtered Sample (Yes or No) Ime NELAP - Texas Perform MS/MSD (Yes or No) Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal Rul 1 ah Archive For Month Special Instructions/QC Requirements ditations Required (See note): Cooler Temperature(s) °C and Other Remarks. Received by 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH × Return To Client × 8015MOD\_Calc × 300 ORGFM 28D/DI LEACH Chloride × 8021B/5035FP\_Caic (MOD) BTEX Analysis Requested Total\_BTEX\_GCV × Disposal By Lab State of Origin: New Mexico Carrier Tracking No(s) Method of Shipment Date/Time Date/Time: Date/Time Archive For Total Number of containers A-HCL
B NacH
C Zn Acetate
D Nitric Acid
E MeNOH
F MeOH
G Amchior
H Ascorbic Acid
I-loe
J D) Water
K EDTA
L EDA Page 1 of 1 COC No: 890-1064 1 Preservation Codes. 890-3648-1 Special Instructions/Note U - Acetone
V MCAA
W - pH 4-5
Y Trizma
Z other (spe M - Hexane N None O - AsNaO2 P Na2O4S Q - Na2SO3 R Na2S2O3 S - H2SO4 T TSP Dodec Company Company Company TSP Dodecahydrate other (specify) Months

Ver: 06/08/2021

1089 N Canal St. Carlsbad NM 88220 Phone 575-988-3199 Fax: 575-988-3199

**Eurofins Carlsbad** 

**Chain of Custody Record** 

Environment Testing

CHETT HICHMAND CONTRACT LAD			Krame	Kramer Jessica			•			890-1064 1	
Chient Contact:	Phone:		E-Mail				State of Origin	3		Page:	
Company			Jessic	Jessica Kramer@et.eurofinsus	eurofinsus	com	New Mexico	8		Page 1 of 1	
Eurofins Environment Testing South Centr			<b>Z</b> ≥	Accreditations Required (See not NELAP - Texas	quired (See no s	te)				Job #: 800-3648-1	
Address. 1211 W Florida Ave	Due Date Requested 12/19/2022				An	alvsis	Remiested			Preservation Codes	
City Midland	TAT Requested (days):					_			- 7	A - HCL B - NaOH	N None O AsNaO2
State, Zip: TX 79701			746						7		P - Na204S Q Na2SO3
Phone: 432-704-5440(TeI)	PO#:				•				en everyn		R - Nazozo3 S H2SO4 T TSP Dodecahodrata
Email	WO#:		ar No	o) /						H Ascorbic Acid	U Acetone V MCAA
Project Name:	Project#:		'es c	or No					ers	K EDTA	W pH 4-5
PLU 27 Brushy Draw 161H	89000093		a (V	es o					tain	L EDA	Y Trizma Z other (specify)
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Sample Identification - Client ID (Lab ID)	Sample Date   Ti	Sample (C≃comp,	_	Perfe 015N	00_C	otal_			otal	)	
	7	4	Preservation Code:	X	1	1			X	opecial III	opecial instructions/Note:
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Note Since laboratory accreditations are subject to change Eurofins Environment Testing South Central LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central LLC.	Testing South Central LLC ove for analysis/tests/matrix ove for analysis/tests/matrix	places the ownership being analyzed the stelly if all requested a	of method, analyte amples must be sh accreditations are co	e & accreditation ipped back to th urrent to date re	compliance u e Eurofins Env	pon our subcor ironment Testi d Chain of Cust	tract laborator ng South Cent ody attesting t	ies. This sam ral LLC labora o said complia	ple shipment i itory or other i	s forwarded under cl nstructions will be pn s Environment Testi	hain-of-custody If the rovided Any changes to a South Central LLC
Possible Hazard Identification				Sample Di	sposal (A	Sample Disposal ( A fee may be assessed if samples are retained longer	assessed i	fsamples	are retaine	d longer than 1	than 1 month)
Deliverable Requested I II III IV Other (specify)	Primary Deliverable Rank	Rank 2		Special Instructions/QC	al Instructions/QC	Requirements	ints.	Lab	Archi	Archive For	Months
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Relinquished by:	Date/Time.		Company	Received by	by:			Date/Time	ē		Company
Custody Seals Intact. Custody Seal No				Cooler Te	Cooler Temperature(s) °C	°C and Other Remarks:	emarks:				
					-						

Ver 06/08/2021

## **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3648-1 SDG Number: 03E1558091

Login Number: 3648 List Source: Eurofins Carlsbad

List Number: 1

Creator: Stutzman, Amanda

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

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## **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3648-1 SDG Number: 03E1558091

**List Source: Eurofins Midland** 

List Creation: 12/15/22 11:29 AM

List Number: 2 Creator: Teel, Brianna

Login Number: 3648

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

<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

## PREPARED FOR

Attn: Ben Belill

Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 12/23/2022 9:50:20 PM

## **JOB DESCRIPTION**

PLU 27 BRUSHY DRAW 161H SDG NUMBER 03E1558091

## **JOB NUMBER**

890-3649-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

Released to Imaging: 5/19/2023 8:53:13 AM

## **Eurofins Carlsbad**

## **Job Notes**

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

## **Authorization**

Generated 12/23/2022 9:50:20 PM

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

Released to Imaging: 5/19/2023 8:53:13 AM

Client: Ensolum
Project/Site: PLU 27 BRUSHY DRAW 161H

Laboratory Job ID: 890-3649-1 SDG: 03E1558091

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## **Definitions/Glossary**

Job ID: 890-3649-1 Client: Ensolum Project/Site: PLU 27 BRUSHY DRAW 161H

SDG: 03E1558091

#### **Qualifiers**

**GC VOA** Qualifier

**Qualifier Description** F1 MS and/or MSD recovery exceeds control limits. F2 MS/MSD RPD exceeds control limits

S1-Surrogate recovery exceeds control limits, low biased.

U Indicates the analyte was analyzed for but not detected.

#### **GC Semi VOA**

Qualifier **Qualifier Description** F2 MS/MSD RPD exceeds control limits S1+ Surrogate recovery exceeds control limits, high biased. U Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier **Qualifier Description** 

U Indicates the analyte was analyzed for but not detected.

## **Glossary**

Abbreviation These commonly used abbreviations may or may not be present in this report. Listed under the "D" column to designate that the result is reported on a dry weight basis %R Percent Recovery

**CFL** Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac **Dilution Factor** 

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

Decision Level Concentration (Radiochemistry) DLC

EDL Estimated Detection Limit (Dioxin) Limit of Detection (DoD/DOE) LOD LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" Minimum Detectable Activity (Radiochemistry) MDA Minimum Detectable Concentration (Radiochemistry) MDC

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** 

Presumptive **PRES** QC **Quality Control** 

RER Relative Error Ratio (Radiochemistry) Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

Toxicity Equivalent Factor (Dioxin) TEF Toxicity Equivalent Quotient (Dioxin) TFO

**TNTC** Too Numerous To Count

#### **Case Narrative**

Client: Ensolum

Project/Site: PLU 27 BRUSHY DRAW 161H

Job ID: 890-3649-1

SDG: 03E1558091

Job ID: 890-3649-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3649-1

#### Receipt

The samples were received on 12/13/2022 3:30 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 9.0°C

#### **GC VOA**

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-42485 and analytical batch 880-42557 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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

#### GC Semi VOA

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-41930 and analytical batch 880-41982 was outside the upper control limits.

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-41930 and analytical batch 880-41982 was outside control limits. Sample non-homogeneity is suspected.

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

## HPLC/IC

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-41924 and 880-41924 and analytical batch 880-42328 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits. The associated samples are: PH01 (890-3649-1), PH01A (890-3649-2), PH02 (890-3649-3), PH03 (890-3649-4) and PH04 (890-3649-5).

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

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Job ID: 890-3649-1 SDG: 03E1558091

Client: Ensolum
Project/Site: PLU 27 BRUSHY DRAW 161H

Client Sample ID: PH01

Date Collected: 12/12/22 09:45

Lab Sample ID: 890-3649-1

Matrix: Solid

Date Received: 12/13/22 15:30

Sample Depth: 1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 02:39	1
Toluene	< 0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 02:39	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 02:39	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/22/22 09:49	12/23/22 02:39	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 02:39	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/22/22 09:49	12/23/22 02:39	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130			12/22/22 09:49	12/23/22 02:39	1
1,4-Difluorobenzene (Surr)	108		70 - 130			12/22/22 09:49	12/23/22 02:39	1
Method: TAL SOP Total BTEX -	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/23/22 09:19	1
Method: SW846 8015 NM - Diese			GC)					
Method: SW846 8015 NM - Diese Analyte	Result	Qualifier	GC)	Unit	D	Prepared	Analyzed	Dil Fac
Analyte		Qualifier	•	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 12/19/22 15:03	Dil Fac
Analyte Total TPH	Result   <49.9	Qualifier U	RL 49.9		<u>D</u>	Prepared		
	Result <49.9  sel Range Orga	Qualifier U	RL 49.9		D_	Prepared Prepared		1
Analyte Total TPH  Method: SW846 8015B NM - Die	Result <49.9  sel Range Orga	Qualifier Unics (DRO) Qualifier	RL 49.9	mg/Kg			12/19/22 15:03	1
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics	Result <49.9  sel Range Orga Result	Qualifier U  nics (DRO) Qualifier U	RL 49.9 (GC)	mg/Kg		Prepared	12/19/22 15:03  Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <49.9  sel Range Orga Result <49.9	Qualifier U  nics (DRO) Qualifier U	(GC) RL 49.9	mg/Kg  Unit  mg/Kg		Prepared 12/15/22 14:22	12/19/22 15:03  Analyzed 12/16/22 22:29	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result <49.9  sel Range Orga Result <49.9  <49.9	Qualifier U  nics (DRO) Qualifier U  U	RL 49.9  (GC)  RL 49.9  49.9	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22	12/19/22 15:03  Analyzed 12/16/22 22:29 12/16/22 22:29	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result	Qualifier U  nics (DRO) Qualifier U  U	RL 49.9 (GC) RL 49.9 49.9	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22	12/19/22 15:03  Analyzed 12/16/22 22:29 12/16/22 22:29	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U	RL 49.9 (GC) RL 49.9 49.9 Limits	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22 Prepared	Analyzed 12/16/22 22:29 12/16/22 22:29 Analyzed	Dil Fac  1  1  Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 49.9 (GC) RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22  Prepared 12/15/22 14:22	Analyzed 12/16/22 22:29 12/16/22 22:29 Analyzed 12/16/22 22:29	1 Dil Fac 1 1 1 1 Dil Fac 1
Analyte Total TPH  Method: SW846 8015B NM - Die Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 49.9 (GC) RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22  Prepared 12/15/22 14:22	Analyzed 12/16/22 22:29 12/16/22 22:29 Analyzed 12/16/22 22:29	Dil Fac  1  1  1  Dil Fac  1

Client Sample ID: PH01A Lab Sample ID: 890-3649-2

Date Collected: 12/12/22 10:15 Date Received: 12/13/22 15:30

Released to Imaging: 5/19/2023 8:53:13 AM

Sample Depth: 3

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 03:06	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 03:06	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 03:06	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		12/22/22 09:49	12/23/22 03:06	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 03:06	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		12/22/22 09:49	12/23/22 03:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130			12/22/22 09:49	12/23/22 03:06	1

Eurofins Carlsbad

**Matrix: Solid** 

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Job ID: 890-3649-1

Matrix: Solid

Client: Ensolum Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

Client Sample ID: PH01A Lab Sample ID: 890-3649-2

Date Collected: 12/12/22 10:15 Date Received: 12/13/22 15:30

Sample Depth: 3

Method: SW846 8021B - Volatile (	Organic Compounds	(GC)	(Continued)
modification of the country to the country to	rigariio Compoundo		( Continuou)

Surrogate	%Recovery Quali	lifier Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	99	70 - 130	12/22/22 09:49	12/23/22 03:06	1

Mothod: TAL SOP	Total RTFY - Tota	I BTEX Calculation
Method. TAL OUT	TOTAL DIEX - TOTA	I DIEA Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	< 0.00399	U	0.00399	mg/Kg			12/23/22 09:19	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (0	н						
	ı	Mothod: CIMOAC ODAE NIM	Discal Bangs	Organica	(DDO)		١.
	н	MELITOU. SYVO40 OUTS INIVI-	· Diesei Kaliue	Organics	IURUI	uu	

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			12/19/22 15:03	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/15/22 14:22	12/16/22 22:51	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/15/22 14:22	12/16/22 22:51	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/15/22 14:22	12/16/22 22:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	117	70 - 130	12/15/22 14:22	12/16/22 22:51	1
o-Terphenyl	109	70 - 130	12/15/22 14:22	12/16/22 22:51	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	725		5.01	mg/Kg			12/22/22 14:00	1

**Client Sample ID: PH02** Lab Sample ID: 890-3649-3

Date Collected: 12/12/22 10:35 Date Received: 12/13/22 15:30

Sample Depth: 1

Markland, CIMO 40 00	21B - Volatile Organic	O
IVIATOON' SVVXAN XII	21B - Volatile Circanic	L.Omnollings (Lat.)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 04:55	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 04:55	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 04:55	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		12/22/22 09:49	12/23/22 04:55	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 04:55	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		12/22/22 09:49	12/23/22 04:55	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130			12/22/22 09:49	12/23/22 04:55	1
4.45% 4 (6.1)			<b>70</b> 400			10/00/00 00 10	10/00/00 01 55	

Surrogate	%Recovery Quality	er Limits	Prepared	Anaiyzea	DII Fac
4-Bromofluorobenzene (Surr)	94	70 - 130	12/22/22 09:49	12/23/22 04:55	1
1,4-Difluorobenzene (Surr)	99	70 - 130	12/22/22 09:49	12/23/22 04:55	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			12/23/22 09:19	1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/19/22 15:03	1

**Eurofins Carlsbad** 

**Matrix: Solid** 

Matrix: Solid

**Matrix: Solid** 

Lab Sample ID: 890-3649-3

## **Client Sample Results**

Client: Ensolum Job ID: 890-3649-1 Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

**Client Sample ID: PH02** 

Date Collected: 12/12/22 10:35 Date Received: 12/13/22 15:30

Sample Depth: 1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/16/22 23:13	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/16/22 23:13	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/16/22 23:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	98		70 - 130			12/15/22 14:22	12/16/22 23:13	1
o-Terphenyl -	96		70 - 130			12/15/22 14:22	12/16/22 23:13	1
- Method: MCAWW 300.0 - Anions	. Ion Chromato	ography - So	oluble					
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac

Analyzed Chloride 25.0 12/22/22 14:09 812 mg/Kg **Client Sample ID: PH03** Lab Sample ID: 890-3649-4

Date Collected: 12/12/22 10:55 Date Received: 12/13/22 15:30

Sample Depth: 1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		12/22/22 09:49	12/23/22 05:22	1
Toluene	<0.00201	U	0.00201	mg/Kg		12/22/22 09:49	12/23/22 05:22	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		12/22/22 09:49	12/23/22 05:22	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		12/22/22 09:49	12/23/22 05:22	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		12/22/22 09:49	12/23/22 05:22	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		12/22/22 09:49	12/23/22 05:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130			12/22/22 09:49	12/23/22 05:22	1
1,4-Difluorobenzene (Surr)	95		70 - 130			12/22/22 09:49	12/23/22 05:22	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			12/23/22 09:19	
Total DT LX				9,9				•
• •				9/9				
: Method: SW846 8015 NM - Diese	el Range Organ	ics (DRO) (	GC)					·
Method: SW846 8015 NM - Diese Analyte	el Range Organ Result	ics (DRO) (		Unit	<u>D</u>	Prepared	Analyzed	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH	el Range Organ	ics (DRO) (	GC)		<u>D</u>	Prepared		Dil Fac
Method: SW846 8015 NM - Diese Analyte	Result <50.0	ics (DRO) ( Qualifier	RL 50.0	Unit	<u>D</u>	Prepared	Analyzed	
Method: SW846 8015 NM - Diese Analyte Total TPH	el Range Organ Result <50.0 sel Range Organ	ics (DRO) ( Qualifier	RL 50.0	Unit	D_	Prepared Prepared	Analyzed	
Method: SW846 8015 NM - Diese Analyte Total TPH Method: SW846 8015B NM - Dies	el Range Organ Result <50.0 sel Range Organ	ics (DRO) ( Qualifier U nics (DRO) Qualifier	RL 50.0	<mark>Unit</mark> mg/Kg		<u> </u>	Analyzed 12/19/22 15:03	1
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10	el Range Organ Result <50.0 sel Range Orga Result	ics (DRO) ( Qualifier U nics (DRO) Qualifier	GC)  RL  50.0  (GC)  RL	Unit mg/Kg		Prepared	Analyzed 12/19/22 15:03 Analyzed	1 Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	el Range Organ Result <50.0 sel Range Orga Result	ics (DRO) (( Qualifier U  nics (DRO) Qualifier U	GC)  RL  50.0  (GC)  RL	Unit mg/Kg		Prepared	Analyzed 12/19/22 15:03 Analyzed	1 Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	el Range Organ Result <50.0 sel Range Orga Result <50.0 <50.0	ics (DRO) (( Qualifier U  nics (DRO) Qualifier U	GC) RL 50.0  (GC) RL 50.0  50.0	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22	Analyzed 12/19/22 15:03  Analyzed 12/16/22 23:35 12/16/22 23:35	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	el Range Organ Result <50.0 sel Range Orga Result <50.0	ics (DRO) (( Qualifier U  nics (DRO) Qualifier U	(GC)  RL  50.0  RL  50.0	Unit mg/Kg  Unit mg/Kg		Prepared 12/15/22 14:22	Analyzed 12/19/22 15:03  Analyzed 12/16/22 23:35	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	el Range Organ Result <50.0 sel Range Orga Result <50.0 <50.0	ics (DRO) (( Qualifier U  nics (DRO) Qualifier U  U	GC) RL 50.0  (GC) RL 50.0  50.0	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22	Analyzed 12/19/22 15:03  Analyzed 12/16/22 23:35 12/16/22 23:35	1 Dil Fac 1
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	el Range Organ Result <50.0 sel Range Orga Result <50.0 <50.0 <50.0	ics (DRO) (( Qualifier U  nics (DRO) Qualifier U  U	GC) RL 50.0  (GC) RL 50.0  50.0  50.0	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22	Analyzed 12/19/22 15:03  Analyzed 12/16/22 23:35 12/16/22 23:35	Dil Fac

**Matrix: Solid** 

Job ID: 890-3649-1

Client: Ensolum Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

**Client Sample ID: PH03** Lab Sample ID: 890-3649-4

Date Collected: 12/12/22 10:55 Matrix: Solid Date Received: 12/13/22 15:30

Sample Depth: 1

Method: MCAWW 300.0 - Anions, I	on Chromatography - So	luble					
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	714	24.8	mg/Kg			12/22/22 14:18	5

**Client Sample ID: PH04** Lab Sample ID: 890-3649-5

Date Collected: 12/12/22 12:10 Date Received: 12/13/22 15:30

Sample Depth: 1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 05:50	1
Toluene	<0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 05:50	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 05:50	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/22/22 09:49	12/23/22 05:50	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 05:50	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/22/22 09:49	12/23/22 05:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130			12/22/22 09:49	12/23/22 05:50	1
1,4-Difluorobenzene (Surr)	95		70 - 130			12/22/22 09:49	12/23/22 05:50	1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/23/22 09:19	1

Method: SW846 8015 NM - Diesel Range	Organ	ics (DRO) (G	C)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/19/22 15:03	1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/16/22 23:58	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/16/22 23:58	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/16/22 23:58	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130			12/15/22 14:22	12/16/22 23:58	1
o-Terphenyl	103		70 - 130			12/15/22 14:22	12/16/22 23:58	1

Method: MCAWW 300.0 - Anions, I	on Chromatog	graphy - Sol	uble					
Analyte	Result (	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4220		49.6	mg/Kg			12/22/22 14:27	10

## **Client Sample Results**

Client: Ensolum Job ID: 890-3649-1 Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

Client Sample ID: PH04A

Lab Sample ID: 890-3649-6 Date Collected: 12/12/22 12:20 Matrix: Solid

Date Received: 12/13/22 15:30 Sample Depth: 3

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	<0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 06:17	
Toluene	< 0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 06:17	
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 06:17	
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/22/22 09:49	12/23/22 06:17	
o-Xylene	< 0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 06:17	
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/22/22 09:49	12/23/22 06:17	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)			70 - 130			12/22/22 09:49	12/23/22 06:17	
1,4-Difluorobenzene (Surr)	99		70 - 130			12/22/22 09:49	12/23/22 06:17	1
- Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/23/22 09:19	1
Method: SW846 8015 NM - Diese		ics (DRO) (	•	Unit	D	Prepared	Analyzed	Dil Fac
Analyte	Result	Qualifier	RL	Unit				
T-4-1 TD11	4F0.0	11						
Total TPH	<50.0	U	50.0	mg/Kg			12/19/22 15:03	1
Total TPH : Method: SW846 8015B NM - Dies								
-	sel Range Orga				<u></u> D	Prepared		
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	sel Range Orga	nics (DRO) Qualifier	(GC)	mg/Kg			12/19/22 15:03	1
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	sel Range Orga Result	nics (DRO) Qualifier	(GC)	mg/Kg		Prepared	12/19/22 15:03  Analyzed	Dil Fac
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10	sel Range Orga Result <50.0	nics (DRO) Qualifier U	(GC) RL 50.0	mg/Kg  Unit  mg/Kg		Prepared 12/15/22 14:22	12/19/22 15:03  Analyzed  12/17/22 00:21	Dil Fac
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	sel Range Orga Result <50.0	nics (DRO) Qualifier U U	(GC) RL 50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22	12/19/22 15:03  Analyzed 12/17/22 00:21 12/17/22 00:21	Dil Fac
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	sel Range Orga Result <50.0 <50.0	nics (DRO) Qualifier U U	(GC) RL 50.0 50.0 50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22	Analyzed 12/17/22 00:21 12/17/22 00:21 12/17/22 00:21	Dil Fac
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Name	nics (DRO) Qualifier U U	(GC) RL 50.0 50.0 50.0 Limits	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22 Prepared	Analyzed 12/17/22 00:21 12/17/22 00:21 12/17/22 00:21 Analyzed	Dil Fac
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Sel Range Orga   Result	U  Qualifier  U  Qualifier	RL 50.0 50.0 50.0 50.0 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22  Prepared 12/15/22 14:22	Analyzed 12/17/22 00:21 12/17/22 00:21 12/17/22 00:21 Analyzed 12/17/22 00:21	Dil Fac
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Sel Range Orga   Result   <50.0   <50.0   <50.0 	U  Qualifier  U  Qualifier	RL 50.0 50.0 50.0 50.0 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22  Prepared 12/15/22 14:22	Analyzed 12/17/22 00:21 12/17/22 00:21 12/17/22 00:21 Analyzed 12/17/22 00:21	Dil Fac

**Client Sample ID: PH05** Lab Sample ID: 890-3649-7

Date Collected: 12/12/22 14:35 Date Received: 12/13/22 15:30

Sample Depth: 1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		12/22/22 09:49	12/23/22 06:44	1
Toluene	<0.00198	U	0.00198	mg/Kg		12/22/22 09:49	12/23/22 06:44	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		12/22/22 09:49	12/23/22 06:44	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		12/22/22 09:49	12/23/22 06:44	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		12/22/22 09:49	12/23/22 06:44	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		12/22/22 09:49	12/23/22 06:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)			70 - 130			12/22/22 09:49	12/23/22 06:44	1

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Matrix: Solid

## **Client Sample Results**

 Client: Ensolum
 Job ID: 890-3649-1

 Project/Site: PLU 27 BRUSHY DRAW 161H
 SDG: 03E1558091

Client Sample ID: PH05 Lab Sample ID: 890-3649-7

Date Collected: 12/12/22 14:35

Matrix: Solid

Date Received: 12/13/22 15:30

Sample Depth: 1

Method: SW846 8021B	- Volatile Organic	Compounds (	(GC) (Continued)
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Surrogate	%Recovery Q	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	101		70 - 130	12/22/22 09:49	12/23/22 06:44	1

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

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396 U	0.00396	ma/Ka			12/23/22 09:19	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/19/22 15:03	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/17/22 00:43	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/17/22 00:43	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/17/22 00:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	107	70 - 130	12/15/22 14:22	12/17/22 00:43	1
o-Terphenyl	103	70 - 130	12/15/22 14:22	2 12/17/22 00:43	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5380		50.5	mg/Kg			12/22/22 15:01	10

Client Sample ID: PH05A Lab Sample ID: 890-3649-8

Date Collected: 12/12/22 14:55 Date Received: 12/13/22 15:30

Sample Depth: 5

Mothodi CIMOAC 0004D	Valatila Organia Campaunda //	CCI

Method: SW846 8021B - Volati	ile Organic Comp	ounds (GC	)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 07:11	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 07:11	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 07:11	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		12/22/22 09:49	12/23/22 07:11	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 07:11	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		12/22/22 09:49	12/23/22 07:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		70 - 130			12/22/22 09:49	12/23/22 07:11	1
1,4-Difluorobenzene (Surr)	103		70 - 130			12/22/22 09:49	12/23/22 07:11	1

ı	Mothod:	TAI	SOB	Total	DTE	- Total	DTEY	Calculation	

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	< 0.00401	U	0.00401	ma/Ka			12/23/22 09:19	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/19/22 15:03	1

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**Matrix: Solid** 

Matrix: Solid

Lab Sample ID: 890-3649-8

12/22/22 15:10

## **Client Sample Results**

Client: Ensolum Job ID: 890-3649-1 Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

Client Sample ID: PH05A

Date Collected: 12/12/22 14:55 Date Received: 12/13/22 15:30

Sample Depth: 5

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/17/22 01:05	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/17/22 01:05	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/17/22 01:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	123		70 - 130			12/15/22 14:22	12/17/22 01:05	1
o-Terphenyl	115		70 - 130			12/15/22 14:22	12/17/22 01:05	1

**Client Sample ID: PH06** Lab Sample ID: 890-3649-9 Matrix: Solid

3690

25.2

mg/Kg

Date Collected: 12/12/22 12:40 Date Received: 12/13/22 15:30

Sample Depth: 1

Chloride

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 07:38	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 07:38	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 07:38	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		12/22/22 09:49	12/23/22 07:38	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 07:38	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		12/22/22 09:49	12/23/22 07:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130			12/22/22 09:49	12/23/22 07:38	1
1,4-Difluorobenzene (Surr)	102		70 - 130			12/22/22 09:49	12/23/22 07:38	1
Method: SW846 8015 NM - Diese								
Analyte		ics (DRO) ( Qualifier	GC) RL	Unit	D	Prepared	Analyzed	Dil Fac
		Qualifier	•	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 12/19/22 15:03	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies	Result  <50.0 sel Range Orga	Qualifier U	RL 50.0	mg/Kg			12/19/22 15:03	1
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte	Result <50.0 sel Range Orga	Qualifier U unics (DRO) Qualifier	RL 50.0 (GC)	mg/Kg	<u>D</u>	Prepared	12/19/22 15:03  Analyzed	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	Result  <50.0 sel Range Orga	Qualifier U unics (DRO) Qualifier	RL 50.0	mg/Kg			12/19/22 15:03	1
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <50.0 sel Range Orga	Qualifier U  unics (DRO) Qualifier U	RL 50.0 (GC)	mg/Kg		Prepared	12/19/22 15:03  Analyzed	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10	Result <50.0  sel Range Orga Result <50.0	Qualifier U unics (DRO) Qualifier U	(GC) RL 50.0	mg/Kg  Unit  mg/Kg		Prepared 12/15/22 14:22	12/19/22 15:03  Analyzed  12/17/22 01:50	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result	Qualifier U unics (DRO) Qualifier U U	RL 50.0 (GC) RL 50.0 50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22	12/19/22 15:03  Analyzed 12/17/22 01:50 12/17/22 01:50	1 Dil Fac 1
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result   <50.0	Qualifier U unics (DRO) Qualifier U U	RL 50.0  (GC)  RL 50.0  50.0  50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22	Analyzed 12/17/22 01:50 12/17/22 01:50 12/17/22 01:50	1 Dil Fac 1 1

Job ID: 890-3649-1

Client: Ensolum Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

**Client Sample ID: PH06** Lab Sample ID: 890-3649-9

Date Collected: 12/12/22 12:40 Matrix: Solid Date Received: 12/13/22 15:30

Sample Depth: 1

Method: MCAWW 300.0 - Anions, I	on Chromatography - So	oluble					
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7980	100	mg/Kg			12/22/22 15:36	20

Client Sample ID: PH06A Lab Sample ID: 890-3649-10

Date Collected: 12/12/22 13:10 Date Received: 12/13/22 15:30

Sample Depth: 5

C10-C28)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 08:06	1
Toluene	<0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 08:06	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 08:06	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/22/22 09:49	12/23/22 08:06	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 08:06	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/22/22 09:49	12/23/22 08:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130			12/22/22 09:49	12/23/22 08:06	1
4.4.0%	102		70 - 130			12/22/22 09:49	12/23/22 08:06	1
1,4-Difluorobenzene (Surr)  Method: TAL SOP Total BTEX		culation	70 - 130			12/22/22 09.49	12/23/22 00.00	,
• • • • • • • • • • • • • • • • • • • •	- Total BTEX Cald	culation Qualifier	70 - 730 RL	Unit	D	Prepared	Analyzed	Dil Fac
Method: TAL SOP Total BTEX	- Total BTEX Cald	Qualifier		Unit mg/Kg	<u>D</u>			Dil Fac
Method: TAL SOP Total BTEX Analyte	- Total BTEX Cald Result <0.00398 esel Range Organ	<b>Qualifier</b> U	RL 0.00398		<u>D</u>		Analyzed	Dil Fac
Method: TAL SOP Total BTEX Analyte Total BTEX  Method: SW846 8015 NM - Die Analyte	- Total BTEX Cald Result <0.00398 esel Range Organ Result	Qualifier U ics (DRO) (Qualifier	RL 0.00398 GC)	mg/Kg		Prepared	Analyzed  12/23/22 09:19  Analyzed	
Method: TAL SOP Total BTEX Analyte Total BTEX  Method: SW846 8015 NM - Die Analyte Total TPH	- Total BTEX Calc Result <0.00398 esel Range Organ Result <50.0	Qualifier U ics (DRO) ( Qualifier U	RL 0.00398  GC)  RL 50.0	mg/Kg		Prepared	Analyzed 12/23/22 09:19	
Method: TAL SOP Total BTEX Analyte Total BTEX  Method: SW846 8015 NM - Die Analyte Total TPH  Method: SW846 8015B NM - D	- Total BTEX Calc Result <0.00398 esel Range Organ Result <50.0 iesel Range Orga	Qualifier U ics (DRO) (Qualifier U nics (DRO)	RL 0.00398  GC)  RL 50.0	mg/Kg  Unit  mg/Kg		Prepared	Analyzed  12/23/22 09:19  Analyzed	Dil Fac
Method: TAL SOP Total BTEX Analyte Total BTEX  Method: SW846 8015 NM - Die Analyte Total TPH	- Total BTEX Calc Result <0.00398 esel Range Organ Result <50.0 iesel Range Orga	Qualifier U ics (DRO) ( Qualifier U	RL 0.00398  GC)  RL 50.0	mg/Kg		Prepared	Analyzed  12/23/22 09:19  Analyzed	1
Method: TAL SOP Total BTEX Analyte Total BTEX  Method: SW846 8015 NM - Die Analyte Total TPH  Method: SW846 8015B NM - D	- Total BTEX Calc Result <0.00398 esel Range Organ Result <50.0 iesel Range Orga	Qualifier U  ics (DRO) ( Qualifier U  nics (DRO) Qualifier	RL 0.00398  GC)  RL 50.0	mg/Kg  Unit  mg/Kg	<u>D</u>	Prepared Prepared	Analyzed 12/23/22 09:19  Analyzed 12/19/22 15:03	Dil Fac

Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg	12/15/22 14:22	12/17/22 02:12	1
Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1-Chlorooctane	124		70 - 130		12/15/22 14:22	12/17/22 02:12	1
o-Terphenyl	117		70 - 130		12/15/22 14:22	12/17/22 02:12	1

Method: MCAWW 300.0 - Anions, I	lethod: MCAWW 300.0 - Anions, Ion Chromatography - Soluble								
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	1560		25.1	mg/Kg			12/22/22 15:45	5	

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**Matrix: Solid** 

Matrix: Solid

Lab Sample ID: 890-3649-11

Job ID: 890-3649-1

Client: Ensolum Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

**Client Sample ID: PH07** 

Date Collected: 12/12/22 14:05 Date Received: 12/13/22 15:30

Sample Depth: 0.5

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 08:33	1
Toluene	< 0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 08:33	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 08:33	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/22/22 09:49	12/23/22 08:33	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		12/22/22 09:49	12/23/22 08:33	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/22/22 09:49	12/23/22 08:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		70 - 130			12/22/22 09:49	12/23/22 08:33	1
1,4-Difluorobenzene (Surr)	102		70 - 130			12/22/22 09:49	12/23/22 08:33	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	ulation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/23/22 09:19	1
Method: SW846 8015 NM - Diese	el Range Organ	ics (DRO) (	GC)					
Method: SW846 8015 NM - Diese Analyte	•	ics (DRO) (G	GC)	Unit	D	Prepared	Analyzed	Dil Fac
	•	Qualifier	,	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 12/19/22 15:03	Dil Fac
Analyte Total TPH	Result   <50.0	Qualifier U			<u>D</u>	Prepared		
Analyte	Result <50.0	Qualifier U			<u>D</u>	Prepared Prepared		1
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	Result <50.0	Qualifier U nics (DRO) Qualifier	RL 50.0	mg/Kg			12/19/22 15:03	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10	Result sel Range Orga Result <50.0	Qualifier U  nics (DRO) Qualifier U	RL 50.0 (GC) RL 50.0	mg/Kg  Unit  mg/Kg		Prepared 12/15/22 14:22	12/19/22 15:03  Analyzed  12/17/22 02:35	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	Result <50.0  sel Range Orga Result	Qualifier U  nics (DRO) Qualifier U	RL	mg/Kg		Prepared	12/19/22 15:03  Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result sel Range Orga Result <50.0	Qualifier U  nics (DRO) Qualifier U	RL 50.0 (GC) RL 50.0	mg/Kg  Unit  mg/Kg		Prepared 12/15/22 14:22	12/19/22 15:03  Analyzed  12/17/22 02:35	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result <50.0  sel Range Orga Result <50.0 <50.0	Qualifier U  nics (DRO) Qualifier U  U	RL 50.0 (GC) RL 50.0 50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22	12/19/22 15:03  Analyzed 12/17/22 02:35 12/17/22 02:35	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result	Qualifier U  nics (DRO) Qualifier U  U	RL 50.0 (GC) RL 50.0 50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22	Analyzed 12/17/22 02:35 12/17/22 02:35	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result	Qualifier U  nics (DRO) Qualifier U  U	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22 Prepared	Analyzed 12/17/22 02:35 12/17/22 02:35 12/17/22 02:35 Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 50.0 (GC) RL 50.0 50.0 50.0 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22  Prepared 12/15/22 14:22	Analyzed 12/17/22 02:35 12/17/22 02:35 12/17/22 02:35 Analyzed 12/17/22 02:35	Dil Fac  1  1  Dil Fac  1  Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 50.0 (GC) RL 50.0 50.0 50.0 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 12/15/22 14:22 12/15/22 14:22 12/15/22 14:22  Prepared 12/15/22 14:22	Analyzed 12/17/22 02:35 12/17/22 02:35 12/17/22 02:35 Analyzed 12/17/22 02:35	1 Dil Fac

**Client Sample ID: PH07A** Lab Sample ID: 890-3649-12

Date Collected: 12/12/22 14:20 Date Received: 12/13/22 15:30

Sample Depth: 4

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 09:00	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 09:00	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 09:00	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		12/22/22 09:49	12/23/22 09:00	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/23/22 09:00	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		12/22/22 09:49	12/23/22 09:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130			12/22/22 09:49	12/23/22 09:00	1

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**Matrix: Solid** 

## **Client Sample Results**

Client: Ensolum Job ID: 890-3649-1
Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

Client Sample ID: PH07A Lab Sample ID: 890-3649-12

Date Collected: 12/12/22 14:20
Date Received: 12/13/22 15:30
Matrix: Solid

Sample Depth: 4

Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	101		70 - 130			12/22/22 09:49	12/23/22 09:00	1
Method: TAL SOP Total BTEX - T	otal BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			12/23/22 09:20	1
Method: SW846 8015 NM - Diese	l Range Organ	ics (DRO) (	GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/19/22 15:03	-
Analyte Gasoline Range Organics (GRO)-C6-C10	<49.9	Qualifier U	49.9	mg/Kg	D	Prepared 12/15/22 14:22	Analyzed 12/17/22 02:57	Dil Fa
Gasoline Range Organics	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/17/22 02:57	
Diesel Range Organics (Over C10-C28)	<49.9		49.9	mg/Kg		12/15/22 14:22	12/17/22 02:57	
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/15/22 14:22	12/17/22 02:57	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
1-Chlorooctane	102		70 - 130			12/15/22 14:22	12/17/22 02:57	
o-Terphenyl	101		70 - 130			12/15/22 14:22	12/17/22 02:57	
. '								
Method: MCAWW 300.0 - Anions	, Ion Chromato	graphy - So	oluble					
Method: MCAWW 300.0 - Anions Analyte		graphy - So Qualifier	oluble RL	Unit	D	Prepared	Analyzed	Dil Fac

## **Surrogate Summary**

 Client: Ensolum
 Job ID: 890-3649-1

 Project/Site: PLU 27 BRUSHY DRAW 161H
 SDG: 03E1558091

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3629-A-1-C MS	Matrix Spike	93	104	
890-3629-A-1-D MSD	Matrix Spike Duplicate	91	0.2 S1-	
390-3649-1	PH01	106	108	
390-3649-2	PH01A	105	99	
890-3649-3	PH02	94	99	
890-3649-4	PH03	98	95	
890-3649-5	PH04	99	95	
890-3649-6	PH04A	110	99	
890-3649-7	PH05	107	101	
890-3649-8	PH05A	111	103	
890-3649-9	PH06	103	102	
890-3649-10	PH06A	115	102	
890-3649-11	PH07	107	102	
890-3649-12	PH07A	106	101	
LCS 880-42485/1-A	Lab Control Sample	94	93	
	Method Blank	67 S1-	94	

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)	
890-3646-A-1-C MS	Matrix Spike	98	88	
890-3646-A-1-D MSD	Matrix Spike Duplicate	84	78	
890-3649-1	PH01	98	95	
890-3649-2	PH01A	117	109	
890-3649-3	PH02	98	96	
890-3649-4	PH03	102	100	
890-3649-5	PH04	105	103	
890-3649-6	PH04A	104	101	
890-3649-7	PH05	107	103	
890-3649-8	PH05A	123	115	
890-3649-9	PH06	99	97	
890-3649-10	PH06A	124	117	
890-3649-11	PH07	103	100	
890-3649-12	PH07A	102	101	
LCS 880-41930/2-A	Lab Control Sample	114	122	
LCSD 880-41930/3-A	Lab Control Sample Dup	114	120	
MB 880-41930/1-A	Method Blank	133 S1+	131 S1+	
Surrogate Legend				

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

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2

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4.0

10

13

14

e· Total/NA

Client: Ensolum Job ID: 890-3649-1 SDG: 03E1558091 Project/Site: PLU 27 BRUSHY DRAW 161H

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-42485/5-A

**Matrix: Solid** Analysis Batch: 42557 Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 42485

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/22/22 22:35	1
Toluene	< 0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/22/22 22:35	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/22/22 22:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/22/22 09:49	12/22/22 22:35	1
o-Xylene	< 0.00200	U	0.00200	mg/Kg		12/22/22 09:49	12/22/22 22:35	1
Xylenes, Total	< 0.00400	U	0.00400	mg/Kg		12/22/22 09:49	12/22/22 22:35	1

MB MB

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	67	S1-	70 - 130	12/	/22/22 09:49	12/22/22 22:35	1
1,4-Difluorobenzene (Surr)	94		70 - 130	12/	/22/22 09:49	12/22/22 22:35	1

Client Sample ID: Lab Control Sample Lab Sample ID: LCS 880-42485/1-A

Matrix: Solid

Analysis Batch: 42557

Prep Type: Total/NA

Prep Batch: 42485

	<b>Бріке</b>	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.07863		mg/Kg		79	70 - 130	
Toluene	0.100	0.07872		mg/Kg		79	70 - 130	
Ethylbenzene	0.100	0.09193		mg/Kg		92	70 - 130	
m-Xylene & p-Xylene	0.200	0.1868		mg/Kg		93	70 - 130	
o-Xylene	0.100	0.09522		mg/Kg		95	70 - 130	

LCS LCS

Surrogate	%Recovery Quali	fier Limits
4-Bromofluorobenzene (Surr)	94	70 - 130
1,4-Difluorobenzene (Surr)	93	70 - 130

Lab Sample ID: 890-3629-A-1-C MS Client Sample ID: Matrix Spike

Matrix: Solid

Analysis Batch: 42557

Prep Type: Total/NA

Prep Batch: 42485

	Sample	Sample	Spike	IVIO	IVIO				70Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00201	U F1	0.0996	0.08128		mg/Kg		82	70 - 130	
Toluene	< 0.00201	U F1	0.0996	0.07219		mg/Kg		72	70 - 130	
Ethylbenzene	< 0.00201	U	0.0996	0.08223		mg/Kg		83	70 - 130	
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.199	0.1020	F1	mg/Kg		51	70 - 130	
o-Xylene	<0.00201	U	0.0996	0.08745		mg/Kg		88	70 - 130	

MS MS

Surrogate	%Recovery Qua	lifier Limits
4-Bromofluorobenzene (Surr)	93	70 - 130
1.4-Difluorobenzene (Surr)	104	70 - 130

Lab Sample ID: 890-3629-A-1-D MSD

**Matrix: Solid** 

Analysis Batch: 42557

Client	t Sampl	e ID:	Matrix	Spike	Duplicat	е

Prep Type: Total/NA

Prep Batch: 42485

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00201	U F1	0.0990	0.05757	F1	mg/Kg		58	70 - 130	34	35
Toluene	<0.00201	U F1	0.0990	0.06333	F1	mg/Kg		64	70 - 130	13	35

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Job ID: 890-3649-1 Client: Ensolum Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

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

Lab Sample ID: 890-3629-A-1-D MSD

**Matrix: Solid** Analysis Batch: 42557 Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA Prep Batch: 42485

Sample Sample Spike MSD MSD %Rec **RPD** Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits **RPD** Limit D Ethylbenzene <0.00201 U 0.0990 0.07534 76 70 - 130 35 mg/Kg 9 m-Xylene & p-Xylene <0.00402 U F1 F2 0.198 0.1539 F2 mg/Kg 78 70 - 130 41 35 0.0990 o-Xylene <0.00201 U 0.07738 78 70 - 130 mg/Kg 12

MSD MSD

мв мв

<50.0 U

Surrogate	%Recovery	Qualifier	Limits				
4-Bromofluorobenzene (Surr)	91		70 - 130				
1,4-Difluorobenzene (Surr)	0.2	S1-	70 - 130				

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

Lab Sample ID: MB 880-41930/1-A

**Matrix: Solid** 

**Analysis Batch: 41982** 

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

12/16/22 19:53

Prep Batch: 41930

Analyte Result Qualifier RL Unit D Prepared Analyzed Dil Fac Gasoline Range Organics <50.0 U 50.0 12/15/22 14:22 12/16/22 19:53 mg/Kg (GRO)-C6-C10 <50.0 U 50.0 12/15/22 14:22 12/16/22 19:53 Diesel Range Organics (Over mg/Kg

50.0

mg/Kg

C10-C28) OII Range Organics (Over C28-C36)

Surrogate

o-Terphenyl

1-Chlorooctane

MB MB %Recovery Qualifier Limits

133 S1+ 70 - 130 131 S1+ 70 - 130

Prepared Dil Fac Analyzed 12/15/22 14:22 12/16/22 19:53 12/15/22 14:22 12/16/22 19:53

12/15/22 14:22

Lab Sample ID: LCS 880-41930/2-A

**Matrix: Solid** 

Analysis Batch: 41982

Client Sample ID: Lab Control Sample

Prep Type: Total/NA Prep Batch: 41930

Spike LCS LCS %Rec Added Result Qualifier %Rec Analyte Unit Limits 1000 Gasoline Range Organics 961.8 96 70 - 130mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 1013 mg/Kg 101 70 - 130

C10-C28)

LCS LCS

Surrogate	%Recovery Qualifier	Limits
1-Chlorooctane	114	70 - 130
o-Terphenyl	122	70 - 130

Lab Sample ID: LCSD 880-41930/3-A

Matrix: Solid

Analysis Batch: 41982

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41930

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	1000	979.2		mg/Kg		98	70 - 130	2	20
(GRO)-C6-C10									
Diesel Range Organics (Ov	er 1000	1008		mg/Kg		101	70 - 130	1	20
C10-C28)									

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Job ID: 890-3649-1 Client: Ensolum Project/Site: PLU 27 BRUSHY DRAW 161H

SDG: 03E1558091

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

Lab Sample ID: LCSD 880-41930/3-A **Matrix: Solid** 

Analysis Batch: 41982

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41930

Surrogate %Recovery Qualifier

1-Chlorooctane 114 70 - 130 o-Terphenyl 120 70 - 130

Lab Sample ID: 890-3646-A-1-C MS Client Sample ID: Matrix Spike

Limits

**Matrix: Solid** 

Analysis Batch: 41982

Lab Sample ID: 890-3646-A-1-D MSD

Prep Type: Total/NA

Prep Batch: 41930

Sample Sample Spike MS MS %Rec Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits <50.0 U F2 999 1283 128 70 - 130Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 999 1005 101 <50.0 U mg/Kg 70 - 130C10-C28)

> MS MS

LCSD LCSD

%Recovery Surrogate Qualifier Limits 70 - 130 1-Chlorooctane 98 88 70 - 130 o-Terphenyl

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41930

MSD MSD Sample Sample Spike Result Qualifier Analyte Result Qualifier hahhA Unit I imits RPD Limit D %Rec Gasoline Range Organics <50.0 U F2 997 1006 F2 mg/Kg 101 70 - 130 24 20 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 997 889.7 mg/Kg 89 70 - 130 12 20

C10-C28)

**Matrix: Solid** 

**Analysis Batch: 41982** 

MSD MSD %Recovery Qualifier Surrogate Limits 70 - 130 1-Chlorooctane 84 70 - 130 o-Terphenyl 78

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41924/1-A Client Sample ID: Method Blank **Matrix: Solid Prep Type: Soluble** 

Analyte

Chloride

**Analysis Batch: 42328** 

мв мв Dil Fac Result Qualifier RL Unit D Prepared Analyzed

mg/Kg

5.00 Lab Sample ID: LCS 880-41924/2-A **Client Sample ID: Lab Control Sample** 

**Matrix: Solid** 

Released to Imaging: 5/19/2023 8:53:13 AM

Analysis Batch: 42328

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit Limits Chloride 250 274.8 mg/Kg 110 90 - 110

<5.00 U

**Eurofins Carlsbad** 

**Prep Type: Soluble** 

12/22/22 12:07

# QC Sample Results

Client: Ensolum Job ID: 890-3649-1 Project/Site: PLU 27 BRUSHY DRAW 161H

SDG: 03E1558091

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 880-41924/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid Prep Type: Soluble** Analysis Batch: 42328

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 274.8 mg/Kg 110 90 - 110

Lab Sample ID: 890-3649-6 MS Client Sample ID: PH04A **Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 42328 Sample Sample Spike MS MS %Rec Result Qualifier Added Analyte Result Qualifier Unit D %Rec Limits

248

Chloride 635 881.9 mg/Kg 100 90 - 110 Lab Sample ID: 890-3649-6 MSD Client Sample ID: PH04A

**Matrix: Solid Prep Type: Soluble** Analysis Batch: 42328

Sample Sample MSD MSD %Rec RPD Spike Analyte Result Qualifier Added Result Qualifier Unit Limits **RPD** Limit Chloride 635 248 863.1 90 - 110 20 mg/Kg

# **QC Association Summary**

 Client: Ensolum
 Job ID: 890-3649-1

 Project/Site: PLU 27 BRUSHY DRAW 161H
 SDG: 03E1558091

**GC VOA** 

Prep Batch: 42485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3649-1	PH01	Total/NA	Solid	5035	
890-3649-2	PH01A	Total/NA	Solid	5035	
890-3649-3	PH02	Total/NA	Solid	5035	
890-3649-4	PH03	Total/NA	Solid	5035	
890-3649-5	PH04	Total/NA	Solid	5035	
890-3649-6	PH04A	Total/NA	Solid	5035	
890-3649-7	PH05	Total/NA	Solid	5035	
890-3649-8	PH05A	Total/NA	Solid	5035	
890-3649-9	PH06	Total/NA	Solid	5035	
890-3649-10	PH06A	Total/NA	Solid	5035	
890-3649-11	PH07	Total/NA	Solid	5035	
890-3649-12	PH07A	Total/NA	Solid	5035	
MB 880-42485/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-42485/1-A	Lab Control Sample	Total/NA	Solid	5035	
890-3629-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3629-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 42557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3649-1	PH01	Total/NA	Solid	8021B	42485
890-3649-2	PH01A	Total/NA	Solid	8021B	42485
890-3649-3	PH02	Total/NA	Solid	8021B	42485
890-3649-4	PH03	Total/NA	Solid	8021B	42485
890-3649-5	PH04	Total/NA	Solid	8021B	42485
890-3649-6	PH04A	Total/NA	Solid	8021B	42485
890-3649-7	PH05	Total/NA	Solid	8021B	42485
890-3649-8	PH05A	Total/NA	Solid	8021B	42485
890-3649-9	PH06	Total/NA	Solid	8021B	42485
890-3649-10	PH06A	Total/NA	Solid	8021B	42485
890-3649-11	PH07	Total/NA	Solid	8021B	42485
890-3649-12	PH07A	Total/NA	Solid	8021B	42485
MB 880-42485/5-A	Method Blank	Total/NA	Solid	8021B	42485
LCS 880-42485/1-A	Lab Control Sample	Total/NA	Solid	8021B	42485
890-3629-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	42485
890-3629-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	42485

Analysis Batch: 42566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3649-1	PH01	Total/NA	Solid	Total BTEX	-
890-3649-2	PH01A	Total/NA	Solid	Total BTEX	
890-3649-3	PH02	Total/NA	Solid	Total BTEX	
890-3649-4	PH03	Total/NA	Solid	Total BTEX	
890-3649-5	PH04	Total/NA	Solid	Total BTEX	
890-3649-6	PH04A	Total/NA	Solid	Total BTEX	
890-3649-7	PH05	Total/NA	Solid	Total BTEX	
890-3649-8	PH05A	Total/NA	Solid	Total BTEX	
890-3649-9	PH06	Total/NA	Solid	Total BTEX	
890-3649-10	PH06A	Total/NA	Solid	Total BTEX	
890-3649-11	PH07	Total/NA	Solid	Total BTEX	
890-3649-12	PH07A	Total/NA	Solid	Total BTEX	

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# **QC Association Summary**

Client: Ensolum Job ID: 890-3649-1 Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

GC Semi VOA

Prep Batch: 41930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3649-1	PH01	Total/NA	Solid	8015NM Prep	
890-3649-2	PH01A	Total/NA	Solid	8015NM Prep	
890-3649-3	PH02	Total/NA	Solid	8015NM Prep	
890-3649-4	PH03	Total/NA	Solid	8015NM Prep	
890-3649-5	PH04	Total/NA	Solid	8015NM Prep	
890-3649-6	PH04A	Total/NA	Solid	8015NM Prep	
890-3649-7	PH05	Total/NA	Solid	8015NM Prep	
890-3649-8	PH05A	Total/NA	Solid	8015NM Prep	
890-3649-9	PH06	Total/NA	Solid	8015NM Prep	
890-3649-10	PH06A	Total/NA	Solid	8015NM Prep	
890-3649-11	PH07	Total/NA	Solid	8015NM Prep	
890-3649-12	PH07A	Total/NA	Solid	8015NM Prep	
MB 880-41930/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41930/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41930/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3646-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3646-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 41982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3649-1	PH01	Total/NA	Solid	8015B NM	41930
890-3649-2	PH01A	Total/NA	Solid	8015B NM	41930
890-3649-3	PH02	Total/NA	Solid	8015B NM	41930
890-3649-4	PH03	Total/NA	Solid	8015B NM	41930
890-3649-5	PH04	Total/NA	Solid	8015B NM	41930
890-3649-6	PH04A	Total/NA	Solid	8015B NM	41930
890-3649-7	PH05	Total/NA	Solid	8015B NM	41930
890-3649-8	PH05A	Total/NA	Solid	8015B NM	41930
890-3649-9	PH06	Total/NA	Solid	8015B NM	41930
890-3649-10	PH06A	Total/NA	Solid	8015B NM	41930
890-3649-11	PH07	Total/NA	Solid	8015B NM	41930
890-3649-12	PH07A	Total/NA	Solid	8015B NM	41930
MB 880-41930/1-A	Method Blank	Total/NA	Solid	8015B NM	41930
LCS 880-41930/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41930
LCSD 880-41930/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41930
890-3646-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	41930
890-3646-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41930

Analysis Batch: 42191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3649-1	PH01	Total/NA	Solid	8015 NM	
890-3649-2	PH01A	Total/NA	Solid	8015 NM	
890-3649-3	PH02	Total/NA	Solid	8015 NM	
890-3649-4	PH03	Total/NA	Solid	8015 NM	
890-3649-5	PH04	Total/NA	Solid	8015 NM	
890-3649-6	PH04A	Total/NA	Solid	8015 NM	
890-3649-7	PH05	Total/NA	Solid	8015 NM	
890-3649-8	PH05A	Total/NA	Solid	8015 NM	
890-3649-9	PH06	Total/NA	Solid	8015 NM	
890-3649-10	PH06A	Total/NA	Solid	8015 NM	
890-3649-11	PH07	Total/NA	Solid	8015 NM	

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# **QC Association Summary**

Client: Ensolum Job ID: 890-3649-1 Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

# GC Semi VOA (Continued)

# **Analysis Batch: 42191 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3649-12	PH07A	Total/NA	Solid	8015 NM	

# HPLC/IC

# Leach Batch: 41924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
890-3649-1	PH01	Soluble	Solid	DI Leach	
890-3649-2	PH01A	Soluble	Solid	DI Leach	
890-3649-3	PH02	Soluble	Solid	DI Leach	
890-3649-4	PH03	Soluble	Solid	DI Leach	
890-3649-5	PH04	Soluble	Solid	DI Leach	
890-3649-6	PH04A	Soluble	Solid	DI Leach	
890-3649-7	PH05	Soluble	Solid	DI Leach	
890-3649-8	PH05A	Soluble	Solid	DI Leach	
890-3649-9	PH06	Soluble	Solid	DI Leach	
890-3649-10	PH06A	Soluble	Solid	DI Leach	
890-3649-11	PH07	Soluble	Solid	DI Leach	
890-3649-12	PH07A	Soluble	Solid	DI Leach	
MB 880-41924/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41924/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41924/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3649-6 MS	PH04A	Soluble	Solid	DI Leach	
890-3649-6 MSD	PH04A	Soluble	Solid	DI Leach	

# Analysis Batch: 42328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3649-1	PH01	Soluble	Solid	300.0	41924
890-3649-2	PH01A	Soluble	Solid	300.0	41924
890-3649-3	PH02	Soluble	Solid	300.0	41924
890-3649-4	PH03	Soluble	Solid	300.0	41924
890-3649-5	PH04	Soluble	Solid	300.0	41924
890-3649-6	PH04A	Soluble	Solid	300.0	41924
890-3649-7	PH05	Soluble	Solid	300.0	41924
890-3649-8	PH05A	Soluble	Solid	300.0	41924
890-3649-9	PH06	Soluble	Solid	300.0	41924
890-3649-10	PH06A	Soluble	Solid	300.0	41924
890-3649-11	PH07	Soluble	Solid	300.0	41924
890-3649-12	PH07A	Soluble	Solid	300.0	41924
MB 880-41924/1-A	Method Blank	Soluble	Solid	300.0	41924
LCS 880-41924/2-A	Lab Control Sample	Soluble	Solid	300.0	41924
LCSD 880-41924/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41924
890-3649-6 MS	PH04A	Soluble	Solid	300.0	41924
890-3649-6 MSD	PH04A	Soluble	Solid	300.0	41924

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8015NM Prep

8015B NM

DI Leach

300.0

SDG: 03E1558091

Job ID: 890-3649-1

Client Sample ID: PH01 Lab Sample ID: 890-3649-1 Date Collected: 12/12/22 09:45

**Matrix: Solid** 

Date Received: 12/13/22 15:30 Batch Batch Dil Initial Final Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab Prep Total/NA 5035 5.03 g 5 mL 42485 12/22/22 09:49 MNR **EET MID** Total/NA Analysis 8021B 1 5 mL 5 mL 42557 12/23/22 02:39 ΑJ EET MID Total/NA Analysis Total BTEX 42566 12/23/22 09:19 ΑJ **EET MID** Total/NA Analysis 8015 NM 1 42191 12/19/22 15:03 SM **EET MID** 

Lab Sample ID: 890-3649-2

DM

SM

KS

SMC

Client Sample ID: PH01A Date Collected: 12/12/22 10:15 Matrix: Solid

10.02 g

1 uL

4.97 g

50 mL

5

10 mL

1 uL

50 mL

50 mL

41930

41982

41924

42328

12/15/22 14:22

12/16/22 22:29

12/15/22 14:15

12/22/22 13:52

EET MID

**EET MID** 

FFT MID

**EET MID** 

Date Received: 12/13/22 15:30

Prep

Analysis

Analysis

Leach

Total/NA

Total/NA

Soluble

Soluble

Dil Initial Final Batch Batch Batch Prepared Prep Type Туре Method Factor Amount Amount Number or Analyzed Lab Run **Analyst** Total/NA Prep 5035 5.01 g 5 mL 42485 12/22/22 09:49 MNR EET MID 8021B Total/NA Analysis 1 5 mL 5 mL 42557 12/23/22 03:06 ΑJ EET MID Total/NA Total BTEX 12/23/22 09:19 Analysis 42566 A.I **EET MID** 1 Total/NA Analysis 8015 NM 42191 12/19/22 15:03 SM **EET MID** Total/NA 8015NM Prep 10.00 g 41930 12/15/22 14:22 DM **EET MID** Prep 10 mL Total/NA Analysis 8015B NM 1 uL 1 uL 41982 12/16/22 22:51 SM **EET MID** Soluble 50 mL DI Leach 4.99 g 41924 12/15/22 14:15 KS **EET MID** Leach Soluble Analysis 300.0 50 mL 50 mL 42328 12/22/22 14:00 SMC **EET MID** 

**Client Sample ID: PH02** Lab Sample ID: 890-3649-3

Date Collected: 12/12/22 10:35 **Matrix: Solid** Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	42485	12/22/22 09:49	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42557	12/23/22 04:55	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			42566	12/23/22 09:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42191	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 23:13	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	42328	12/22/22 14:09	SMC	EET MID

Lab Sample ID: 890-3649-4 **Client Sample ID: PH03** 

Date Collected: 12/12/22 10:55 **Matrix: Solid** Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	42485	12/22/22 09:49	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42557	12/23/22 05:22	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			42566	12/23/22 09:19	AJ	EET MID

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Released to Imaging: 5/19/2023 8:53:13 AM

# **Lab Chronicle**

 Client: Ensolum
 Job ID: 890-3649-1

 Project/Site: PLU 27 BRUSHY DRAW 161H
 SDG: 03E1558091

Client Sample ID: PH03 Lab Sample ID: 890-3649-4

Date Collected: 12/12/22 10:55

Date Received: 12/13/22 15:30

Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			42191	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 23:35	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	42328	12/22/22 14:18	SMC	EET MID

Client Sample ID: PH04 Lab Sample ID: 890-3649-5

Date Collected: 12/12/22 12:10

Matrix: Solid

Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	42485	12/22/22 09:49	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42557	12/23/22 05:50	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			42566	12/23/22 09:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42191	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/16/22 23:58	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	42328	12/22/22 14:27	SMC	EET MID

Client Sample ID: PH04A Lab Sample ID: 890-3649-6

Date Collected: 12/12/22 12:20 Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	42485	12/22/22 09:49	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42557	12/23/22 06:17	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			42566	12/23/22 09:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42191	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/17/22 00:21	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	42328	12/22/22 14:35	SMC	EET MID

Client Sample ID: PH05 Lab Sample ID: 890-3649-7

Date Collected: 12/12/22 14:35 Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	42485	12/22/22 09:49	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42557	12/23/22 06:44	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			42566	12/23/22 09:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42191	12/19/22 15:03	SM	EET MID
Total/NA Total/NA	Prep Analysis	8015NM Prep 8015B NM		1	10.03 g 1 uL	10 mL 1 uL	41930 41982	12/15/22 14:22 12/17/22 00:43	DM SM	EET MID EET MID

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**Matrix: Solid** 

**Matrix: Solid** 

Job ID: 890-3649-1

Client: Ensolum Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

**Client Sample ID: PH05** Lab Sample ID: 890-3649-7

Date Collected: 12/12/22 14:35 Matrix: Solid Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	42328	12/22/22 15:01	SMC	EET MID

Client Sample ID: PH05A Lab Sample ID: 890-3649-8

Date Collected: 12/12/22 14:55 **Matrix: Solid** 

Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	42485	12/22/22 09:49	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42557	12/23/22 07:11	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			42566	12/23/22 09:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42191	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/17/22 01:05	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	42328	12/22/22 15:10	SMC	EET MID

**Client Sample ID: PH06** Lab Sample ID: 890-3649-9

Date Collected: 12/12/22 12:40 **Matrix: Solid** Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	42485	12/22/22 09:49	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42557	12/23/22 07:38	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			42566	12/23/22 09:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42191	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/17/22 01:50	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		20	50 mL	50 mL	42328	12/22/22 15:36	SMC	EET MID

Client Sample ID: PH06A Lab Sample ID: 890-3649-10 Date Collected: 12/12/22 13:10 **Matrix: Solid** 

Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	42485	12/22/22 09:49	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42557	12/23/22 08:06	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			42566	12/23/22 09:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42191	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/17/22 02:12	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	42328	12/22/22 15:45	SMC	EET MID

**Eurofins Carlsbad** 

 Client: Ensolum
 Job ID: 890-3649-1

 Project/Site: PLU 27 BRUSHY DRAW 161H
 SDG: 03E1558091

Client Sample ID: PH07 Lab Sample ID: 890-3649-11

Date Collected: 12/12/22 14:05

Date Received: 12/13/22 15:30

Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	42485	12/22/22 09:49	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42557	12/23/22 08:33	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			42566	12/23/22 09:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42191	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/17/22 02:35	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		20	50 mL	50 mL	42328	12/22/22 15:54	SMC	EET MID

Client Sample ID: PH07A

Date Collected: 12/12/22 14:20

Lab Sample ID: 890-3649-12

Matrix: Solid

Date Received: 12/13/22 15:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	42485	12/22/22 09:49	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	42557	12/23/22 09:00	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			42566	12/23/22 09:20	AJ	EET MID
Total/NA	Analysis	8015 NM		1			42191	12/19/22 15:03	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	41930	12/15/22 14:22	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41982	12/17/22 02:57	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	41924	12/15/22 14:15	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	42328	12/22/22 16:03	SMC	EET MID

**Laboratory References:** 

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

**Eurofins Carlsbad** 

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# **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3649-1 Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

**Laboratory: Eurofins Midland** 

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

Authority	Pr	ogram	Identification Number	Expiration Date	
Texas	NE	ELAP	T104704400-22-25	06-30-23	
The following analytes	are included in this report, bu	it the laboratory is not certifi	ed by the governing authority. This list ma	av include analytes fo	
the agency does not of	fer certification.	•	, , ,	.,	
the agency does not of Analysis Method	fer certification .  Prep Method	Matrix	Analyte	.,	
0 ,		Matrix Solid			

# **Method Summary**

Client: Ensolum

Job ID: 890-3649-1 Project/Site: PLU 27 BRUSHY DRAW 161H SDG: 03E1558091

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

**Eurofins Carlsbad** 

# **Sample Summary**

Client: Ensolum

890-3649-12

Project/Site: PLU 27 BRUSHY DRAW 161H

PH07A

Job ID: 890-3649-1

SDG: 03E1558091

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3649-1	PH01	Solid	12/12/22 09:45	12/13/22 15:30	1
890-3649-2	PH01A	Solid	12/12/22 10:15	12/13/22 15:30	3
890-3649-3	PH02	Solid	12/12/22 10:35	12/13/22 15:30	1
890-3649-4	PH03	Solid	12/12/22 10:55	12/13/22 15:30	1
890-3649-5	PH04	Solid	12/12/22 12:10	12/13/22 15:30	1
890-3649-6	PH04A	Solid	12/12/22 12:20	12/13/22 15:30	3
890-3649-7	PH05	Solid	12/12/22 14:35	12/13/22 15:30	1
890-3649-8	PH05A	Solid	12/12/22 14:55	12/13/22 15:30	5
890-3649-9	PH06	Solid	12/12/22 12:40	12/13/22 15:30	1
890-3649-10	PH06A	Solid	12/12/22 13:10	12/13/22 15:30	5
890-3649-11	PH07	Solid	12/12/22 14:05	12/13/22 15:30	0.5

Solid

eurofins

Xenco

**Environment Testing** 

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# Chain of Custody

Deliverables: EDD ADaPI LI Other:	bbelilleensoium.com	bbelill
≡	Carlsbad, NM 88220	City, State ZIP:
State of Project:	3104 E Gircene St	Address:
Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	XTO Energy	Company Name:
Work Order Comments	Garrett Green	Bill to; (if different)
www.xenco.com Page of of		
	Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199	Hobbs, NM (5)
	EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296	EL Paso, TX (91
Work Order No:	Houston, TX (281) 240-4200, Dalias, TX (214) 902-0300 Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334	Houston, TX (43:

32-10165, 103.8 7622 Due Date:

Project Location: Project Number: Phone:

Project Name:

PLU 27 Brushy Daw IHH

0361558091

Routine

Rush

Code

ANALYSIS REQUEST

Cool: Cool

MeOH: Me HNO 3: HN NaOH: Na

None: NO

DI Water: H<sub>2</sub>O

Preservative Codes

Turn Around

989.854.0852

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3122 Nati Parks Ensolum, LLC Ben Bellil

City, State ZIP:

Address:

Project Manager:

Company Name:

	Date Of 25/25/2010 Bay 2010 C			6					5
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			,	12-13-22 153	13:13		C(1/1) x	X ( )E	ALCONA.
	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	D.		Received by: (Signature	>	Relinguished by: (Signature
		ons ol gotiated.	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.	Xenco, its affiliates and suncurred by the client if suns Xenco, but not analyz	y to Eurofins > or expenses is tted to Eurofi	r from client compani sibility for any losses or each sample submi	s constitutes a valid purchase orde es and shall not assume any respon seach project and a charge of \$5 fo	d relinquishment of sample le only for the cost of sample e of \$85.00 will be applied to	Notice: Signature of this document and of service. Eurofins Xenco will be liab of Eurofins Xenco. A minimum chargo
	7470 / 7471	U Hg: 1631/245.1/7470/7471	TCLP/SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U	As Ba Be Cd Cr	RA Sb	LP 6010 : 8RC	yzed TCLP / SP	letal(s) to be analy	Circle Method(s) and Metal(s) to be analyzed
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	MESI			X X X	- V	1, 6	1/1/22 0945	S	PHOI
	Sample Comments			Chi B	Cont C	Depth Comp	Date Time Sampled Sampled	Matrix	Sample Identification
	NaOH+Ascorbic Acid: SAPC	2		TE		9.0	Corrected Temperature:		Total Containers:
	Zn Acetate+NaOH: Zn	21	890-3649 Chain of Custody	_	_	9.00	Temperature Reading:	Yes No N/A	Sample Custody Seals:
	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>	2		le		6 is	Correction Factor:	Yes No N/A	Cooler Custody Seals:
	NaHSO 4: NABIS	2		2		Munocid	Thermometer ID:	(Yes) No	Samples Received Intact:
	H <sub>3</sub> PO <sub>4</sub> : HP	H			neter	(Yes)No	(Ye) No Wet Ice:	Temp Blank:	SAMPLE RECEIPT
	H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na	Н		_	s	ved by 4:30pm	the lab, if received by 4:30pm		PO #:
				_		day received by		Mercaith Robert	Sampler's Name:

Company Name:

Ensolum, LLC

Behill

Bill to: (if different) Company Name:

XTO Energy Garrett Green

Program:

UST/PST PRP Brownfields

RRC

Superfund |

Work Order Comments

www.xenco.com

Page

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# Chain of Custody

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

Xenco

**Environment Testing** 

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ure) Date/Time	re) Received by: (Signature)	Relinquished by: (Signature)	Date/Time		Received by: (Signature)	(Signature)	Relinduished by: (Signature)
	s and conditions ond the control previously negotiated.	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.	i Xenco, its affiliates an incurred by the client fins Xenco, but not an	rom client company to Eurofins bility for any losses or expenses each sample submitted to Euro	s constitutes a valid purchase order I s and shall not assume any responsi each project and a charge of \$5 for	ument and relinquishment of samples rill be liable only for the cost of samples im charge of \$85.00 will be applied to	ke: Signature of this doc ervice. Eurofins Xenco w urofins Xenco. A minimu
Ag SIO <sub>2</sub> Na Sr II Sn O V Zn Hg: 1631 / 245.1 / 7470 / 7471	g Mn Mo Ni K se Ag siO <sub>2</sub> Na sr ii sn O v zn Se Ag Ti U Hg: 1631/245.1/7470/7471	A 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg TCLP/SPLP6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni S	CRA Sb As Ba Be Cd	P6010 : 8RCRA Sb	8RCR/	Total 200.7 / 6010 200.8 / 6020: Circle Method(s) and Metal(s) to be analyzed	Total 200.7 / 6010 rcle Method(s) ar
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Cost Center:							
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Sample Comments			Ch B1	Depth Grab/ # of Comp Cont	Date Time I	Matrix	Sample Identification
NaOH+Ascorbic Acid: SAPC			E		Corrected Temperature:		Total Containers:
Zn Acetate+NaOH: Zn					Temperature Readings	Yes No N/A	Sample Custody Seals:
Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>			de		correction ractor:	Yes No N/A	Cooler Custody Seals:
NaHSO 4: NABIS			3		Thermopecter ID	Yes No	Samples Received Intact:
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H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> NaOH: Na			_	_	the lab, if received by 4:30pm		PO #:
				y received by	TAT starts the day received by	Meredith Roberts	Sampler's Name:
Cool: Cool MeOH: Me					Due Date:	32.10165, 703.87622 Due Date:	Project Location:
None: NO DI Water: H <sub>2</sub> O				Rush Code	Proutine	03E1558091	Project Number:
Preservative Codes	JEST	ANALYSIS REQUE		bund	Draw 1611 Turn Around	PLW 27 Brushul	Project Name:
ADaPT U Other:	Deliverables: EDD AD	ensolum-com	11 Censon	ppciille	852 Email:	989.854.0852	Phone:
ST	Reporting: Level II Level III	02288 WN 1	Carlshad	City, State ZIP:	NM 88220 C	Carlsbad, Nr	City, State ZIP:
]	State of Project:	Green St	3104 E	Address:	Parks Huy A	3122 NATI P	Address:

**Eurofins Carlsbad** 

1089 N Canal St.

# **Chain of Custody Record**

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Carlsbad NM 88220	<u>c</u>	Chain of Custody Record	ustody K	ecora										Standard Standard	Environment Testing
Client Information (Sub Confract Lab)	Sampler		Lab PM. Krame	Lab PM. Kramer, Jessica	1			1.	Carrier	Carrier Tracking No(s)	g No(s)			COC No.	
Client Contact Shipping/Receiving	Phone:		E-Mail Jessi	E-Mail Jessica Kramer@et eurofinsus com	Øet eu	rofinsu	Scom		State	State of Origin:				Page:	
Company: Eurofins Environment Testing South Centr				Accreditations Required (See note) NELAP - Texas	s Require	d (See r	note)		Ī			1		Job # 890-3649-1	
Address 1211 W Florida Ave	Due Date Requested 12/19/2022				l	,	Analysis		Requested	<u>e</u>				Code	
City Midland Midland	TAT Requested (days):	÷		PH .		{								A HCL B NaOH C Zn Acetate D Nitric Acid	N None  O AsNaO2  P Na2O4S  D - Na2SO3
Phone 432-704-5440(Tel)	PO#:					e 		<u>-</u>					<del>1900 - 1900</del>	MeOH Amchlor	R Na2S2O3 S H2SO4 T TSP Dodecahydrate
Email	WO#			lo)				<del></del>						Ascorbic Acid Ice DI Water	U - Acetone V - MCAA
Project Name. PLU 27 BRUSHY DRAW 161H	Project #: 89000093			s or h									ainer	K EDTA L-EDA	VV - PH 4-5 Y Trizma Z other (specify)
Site	SSOW#:			ISD (Ye			v				<del></del>		of cont	Other	
(ul 4e i) Ul taoil uoiteolitaopi olumes		Sample C=comp.	Matrix (W=water S=solid, O=waste/oil,	ield Filtered : erform MS/M 015MOD_NM/8	015MOD_Calc	00_ORGFM_28  021B/5035FP_0	otal_BTEX_GC	· · · · · · · · · · · · · · · · · · ·		······································			otal Number		
		Pres	ation Code:	X					1		100		XI.	Operation in	oppositi ilion dononionione.
PH01 W (890-3649-1)	12/12/22 N	09 45 Mountain	Solid	×	×	×	×						-4		
PH01A W (890-3649-2)	12/12/22	10 15 Mountain	Solid	×	×	×	×					$\Box$	-4		
PH02 W (890-3649-3)	12/12/22	10 35 Mountain	Solid	×	×	×	×	$\dashv$		-	7				
PH03 W (890-3649-4)	12/12/22	10 55 Mountain	Solid	×	×	×	×	$\dashv$			$\dashv$				
PH04 W (890-3649-5)	12/12/22	12 10 Mountain	Solid	×	×	×	×	$\dashv$		$\dashv$			4		
PH04A W (890-3649-6)	12/12/22	12 20 Mountain	Solid	×	×	×	×				7				
PH05 W (890-3649-7)	12/12/22	14 35 Mountain	Solid	×	×	×	×	-			$\dashv$		44		
PH05A W (890-3649-8)	12/12/22	14 55 Mountain	Solid	×	×	×	×	$\dashv$		$\dashv$	$\dashv$		gast 1		
РН06 W (890-3649-9)	12/12/22	12 40 Mountain	Solid	×	×	×	×				$\vdash \vdash$				
Note Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.	it Testing South Central, sove for analysis/tests/ma intral, LLC attention immu	LLC places the owne atrix being analyzed is ediately. If all request	rship of method analy the samples must be a ded accreditations are	te & accredishipped back	itation cor to the Ex ate, return	npliance urofins E	upon ou nvironme ed Chain	r subcont nt Testin of Custo	ract labor g South ody attes	oratories Central ting to s	This s LLC la	sample s boratory	hipmen or othe to Euro	nt is forwarded under cha r instructions will be pro- fins Environment Testiny	ain-of-custody If the vided Any changes to g South Central LLC.
Possible Hazard Identification Unconfirmed				Samp	Sample Disposal ( A fee	sal (A	fee m	□ be a	assessed if san	ed if	ampl	es are	retair	may be assessed if samples are retained longer than 1 month)  Disposal By Lah  Archive For	month)
Deliverable Requested I, II III IV Other (specify)	Primary Deliverable Rank. 2	le Rank. 2		Specia	Special Instructions/QC	tions/C		Requirements	nts .	ŀ	1	-			
Empty Kit Relinquished by	٥	Date		Time			)			Method of Shipment:	of Shipn	nent:	1		
Relinquished by MU	Date/Time:		Company	TP 00	alived by:	51		X			Date	Date/Time.	1		Company
Relinquished by	Date/Time		Company	Rebai		1	\$				Date	Date/Time:			Company
Relinquished by	Date/Time:		Company	Rec	Received by:						Date	Date/Time <sup>.</sup>			Company
Custody Seals Infact. Custody Seal No				Coo	Cooler Temperature(s) °C	erature(s		and Other Remarks	emarks.	1	ŀ		1		
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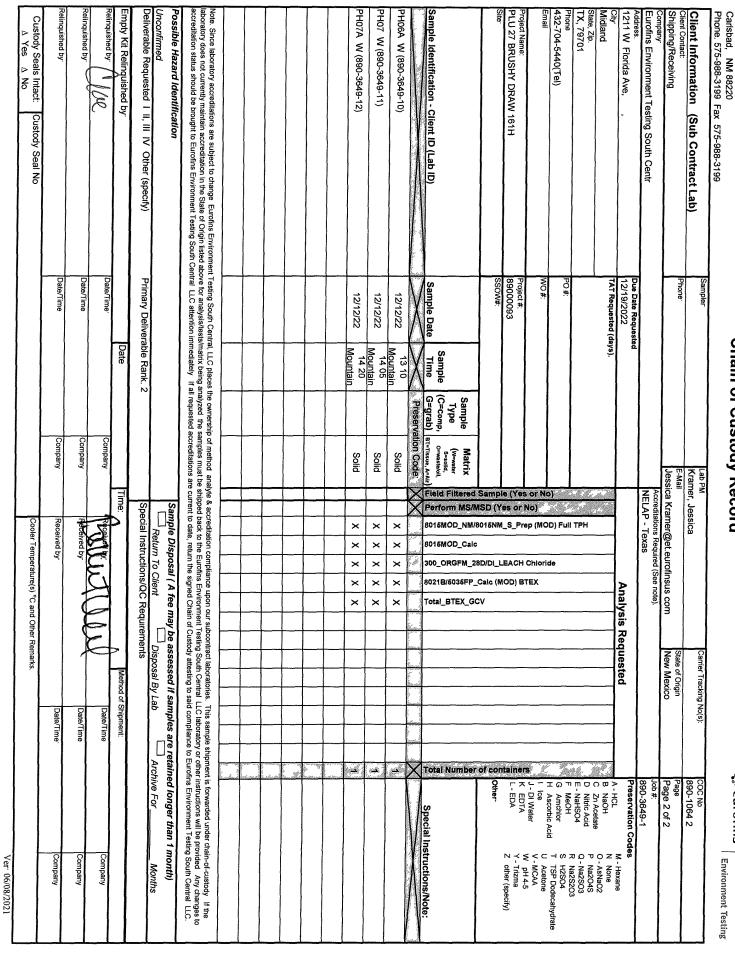
**Eurofins Carlsbad** 

1089 N Canal St

Chain of Custody Record

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Environment Testing



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# **Chain of Custody Record**

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Environment Testing

Midland State Zip: TX, 79701 PH06 W (890-3649-9) PH05A W (890-3649-8) PH02 W (890-3649-3) PH05 W (890-3649-7) PH04A W (890-3649-6) PH04 W (890-3649-5) PH03 W (890-3649-4) PH01A W (890-3649-2) PH01 W (890-3649-1) Sample Identification - Client ID (Lab ID) Project Name: PLU 27 BRUSHY DRAW 161H Carlsbad, NM 88220 Phone: 575-988-3199 Fax: 575-988-3199 Client Information (Sub Contract Lab) ossible Hazard Identification ote. Since laboratory accreditations are subject to change Eurofins Environment Testing South Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody if the boratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided. Any changes to careditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC. 32-704-5440(Tel) 211 W Florida Ave, eliverable Requested I II III, IV Other (specify) urofins Environment Testing South Centr linquished by linquished by npty Kit Relinquished by hipping/Receiving Custody Seals Intact. nquished by: Yes N<sub>O</sub> S Custody Seal No Project #: 89000093 Phone: Date/Time Date/Time Date/Time Primary Deliverable Rank WO# PO# TAT Requested (days): Due Date Requested: 12/19/2022 Sample Date 12/12/22 12/12/22 12/12/22 12/12/22 12/12/22 12/12/22 12/12/22 12/12/22 12/12/22 Mountain 12 20 Mountain 10 55 Date Mountain 12 40 Mountain 14 55 Mountain 14 35 Mountain 12 10 Mountain 10:35 Mountain 10 15 Sample 09 45 (C=comp, G=grab) Sample Preservation Code: Type Company Company Matrix Solid Solid Solid Solid Solid Solid Solid Solid Solid Kramer, Jessica Jessica Kramer@et.eurofinsus com Ime. NELAP - Texas Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mon Perform MS/MSD (Yes or No) Special Instructions/QC Requirements Cooler Temperature(s) °C and Other Remarks Received by × × × ×  $\times$ × × 8016MOD\_NM/8015NM\_\$\_Prep (MOD) Full TPH × × × × × × × × × 8015MOD\_Calc × ×  $\times$ × × × × × × 300\_ORGFM\_28D/DI\_LEACH Chloride × × × × × × × × × 8021B/5035FP\_Calc (MOD) BTEX Analysis Requested × × × × × × × Total BTEX GCV State of Origin New Mexico Carrier Tracking No(s): Date/Time Date/Time Total Number of containers A HCL
B. NaOH
C Zn Acetate
D Nitic Acid
F NaHSO4
F NaHSO4
F NaHSO4
F Nacholic
G Amchlor
H Ascorbic Acid
J Di Water
K EDTA
L EDA COC No 890-1064 1 Preservation Codes Page 1 of 2 390-3649-1 M Hexane
N-None
O AsNac/2
P-Na2O4S
Q Na2SO3
R Na2SO3
R Na2SO3
R Na2SO4
T TSP Dodecahydrate
U Acetone
V MCAA
W pH 4-5
W pH 4-5
Y Trizma
Z other (specify) Company Ver. 06/08/202 ompany Months

Eurorins Carisbad

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Phone 575-988-3199 Fax. 575-988-3199																	
Client Information (Sub Contract Lab)	Sampler:			Lab PM. Kramer,	л. er, Jessica	a		l		Can	Carrier Tracking No(s):	king N	)(s):			COC No: 890-1064 2	
Shipping/Receiving	Phone.			E-Mail Jessic	E-Mail Jessica.Kramer@et.eurofinsus	@et.eu	rofinsu	s com		Ne Stat	State of Origin	g g				Page Page 2 of 2	
Company: Eurofins Environment Testing South Centr					Accreditations Requ NELAP - Texas	creditations Required (See note). ELAP ~ Texas	d (See i			}		1		١		Job#: 890-3649-1	
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City Midland	TAT Requested (days).	ys).				$\exists$	$\dashv$		_	$\dashv$		_	$\dashv$	ㅓ			N - None O AsNaO2
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Note. Since laboratory accreditations are subject to change. Eurofins Environment Testing South Central LLC places the ownership of method analyte accreditation compliance upon our subject to change. Eurofins Environment Testing South Central LLC places the ownership of method analyte accreditation compliance upon our subject to change. This sample shipment is tonwarded under chain-of-custody. If the liaboratory does not currently maintain accreditation in the State of Origin isted above for analysis/hests/marry being analyzed the samples must be shipment to the Environment Testing South Central LLC places the ownership of method analyzed the samples for analyzed the samples for the Environment Testing South Central LLC places the ownership of method analyzed the samples for the Environment Testing South Central LLC places the ownership of method analyzed the samples for the Environment Testing South Central LLC places the ownership of method analyzed the samples for the Environment Testing South Central LLC places the ownership of method analyzed the samples for the Environment Testing South Central LLC places the ownership of method analyzed the samples for the Environment Testing South Central LLC places the ownership of method analyzed the samples for the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the ownership of the South Central LLC places the o	ment Testing South Central	al LLC places the	ne ownership of	f method analy	yte & accred	itation con	npliance	upon o	ur subco	ontract I	aborato	mes.	nis sam	ple shi	ment	s forwarded under cha	in-of-custody If the
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# **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3649-1 SDG Number: 03E1558091

List Source: Eurofins Carlsbad Login Number: 3649

List Number: 1 Creator: Clifton, Cloe

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

# **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3649-1

SDG Number: 03E1558091

Login Number: 3649 **List Source: Eurofins Midland** List Number: 2 List Creation: 12/15/22 11:29 AM

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



APPENDIX E

**NMOCD Notifications** 

# Collins, Melanie

From: Green, Garrett J

**Sent:** Wednesday, June 22, 2022 5:52 PM

To: ocd.enviro@state.nm.us; Bratcher, Mike, EMNRD; Hamlet, Robert, EMNRD; Nobui,

Jennifer, EMNRD

Cc: DelawareSpills /SM; Pennington, Shelby G
Subject: XTO 24 Hour Notification - PLU 27 BD 102H

All,

This is notification of a release greater than 25 barrels that occurred today at the PLU 27 BD 102H near the GPS coordinates given below. Most of the fluids remained in containment and all standing fluids were recovered by vacuum truck. Details will be provided with a form C-141. Please contact us with any questions or concerns.

GPS: 32.10129,-103.87592

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

# **Tacoma Morrissey**

From: Kalei Jennings

Sent: Monday, September 12, 2022 9:31 AM

**To:** Tacoma Morrissey

Subject: FW: (Extension Approval) - XTO - PLU 27 Brushy Draw 161H (Incident Numbers NAPP2217546910,

NAPP2218236445, NAPP2218943007)

FYI



From: Hamlet, Robert, EMNRD < Robert. Hamlet@state.nm.us>

Sent: Monday, September 12, 2022 8:59 AM

To: Collins, Melanie < melanie.collins@exxonmobil.com >

**Cc:** DelawareSpills /SM <DelawareSpills@exxonmobil.com>; Kalei Jennings <kjennings@ensolum.com>; Green, Garrett J <garrett.green@exxonmobil.com>; Pennington, Shelby G <shelby.g.pennington@exxonmobil.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us>; Harimon, Jocelyn,

EMNRD <Jocelyn.Harimon@state.nm.us>

Subject: (Extension Approval) - XTO - PLU 27 Brushy Draw 161H (Incident Numbers NAPP2217546910,

NAPP2218236445, NAPP2218943007)

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

RE: Incident #NAPP2217546910, NAPP2218236445, NAPP2218943007

#### Melanie,

Your request for an extension to **December 9th, 2022** is approved. Please include this e-mail correspondence in the remediation and/or closure reports.

Robert Hamlet • Environmental Specialist - Advanced

Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave.| Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/



From: Collins, Melanie < melanie.collins@exxonmobil.com >

Sent: Friday, September 9, 2022 3:12 PM

To: Enviro, OCD, EMNRD < OCD.Enviro@state.nm.us >; Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us >; Hamlet,

Robert, EMNRD < <a href="mailto:Robert.Hamlet@state.nm.us">Robert.Hamlet@state.nm.us</a>>

**Cc:** DelawareSpills /SM <<u>DelawareSpills@exxonmobil.com</u>>; Kalei Jennings <<u>kjennings@ensolum.com</u>>; Green, Garrett J

<garrett.green@exxonmobil.com>; Pennington, Shelby G <<u>shelby.g.pennington@exxonmobil.com</u>>

Subject: [EXTERNAL] XTO - Extension Requests PLU 27 Brushy Draw 161H (Incident Numbers NAPP2217546910,

NAPP2218236445, NAPP2218943007)

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

All,

# PLU 27 Brushy Draw 161H (Incident Numbers NAPP2217546910, NAPP2218236445, NAPP2218943007)

XTO is requesting an extension for the current deadlines of September 10, 2022, September 20, 2022, and September 23, 2022 for submitting a remediation work plan, closure, or deferral report required in 19.15.29.12.B.(1) NMAC at the PLU 27 Brush Draw 161H (Incident Numbers NAPP2217546910, NAPP2218236445, NAPP2218943007). The releases occurred on June 12, 2022, June 22, 2022, and June 25, 2022, respectively. Fluids were released into containment and onto pad during frac operations. Initial assessment of the releases has not been completed. Remediation activities cannot proceed until frac operations are complete. XTO operations will provide status updates and indicate when the Site is clear for remediation activities to commence.

Due to all three releases occurring on the same pad, delineation and remediation activities are scheduled to be completed concurrently. XTO requests to extend the deadline to complete remediation activities and submit a closure or deferral report for Incident Numbers NAPP2217546910, NAPP2218236445, NAPP2218943007 to December 9, 2022, which is a 90-day extension of the due date for the first release.

Thank you,

Melanie Collins



Environmental Technician melanie.collins@exxonmobil.com 432-556-3756

# **Tacoma Morrissey**

From: Green, Garrett J < garrett.green@exxonmobil.com>

Sent: Thursday, December 8, 2022 10:38 AM

To: ocd.enviro@emnrd.nm.gov; Bratcher, Michael, EMNRD; Harimon, Jocelyn, EMNRD; Hamlet, Robert,

**EMNRD** 

**Cc:** DelawareSpills /SM; Tacoma Morrissey

**Subject:** XTO - Sampling Notification (Week of 12/12/22 - 12/16/22)

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

All,

XTO plans to complete final sampling activities at the following sites the week of Dec 12, 2022.

- PLU 27 BD 161H / nAPP2217546910, nAPP2218236445, nAPP2218943007
- PLU 18 TWR Sat Battery/ nAPP2230551957
- Pickett Draw Federal #001/ NAB1919955454

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

# **Tacoma Morrissey**

From: Hamlet, Robert, EMNRD < Robert.Hamlet@emnrd.nm.gov>

Sent: Thursday, December 29, 2022 10:35 AM

**To:** Green, Garrett J; Collins, Melanie

Cc: DelawareSpills /SM; Ashley Ager; Tacoma Morrissey; Ben Belill; Kalei Jennings; Stuart Hyde; Bratcher,

Michael, EMNRD; Nobui, Jennifer, EMNRD; Harimon, Jocelyn, EMNRD

Subject: (Extension Denied) XTO -PLU 27 Brush Draw 161H (Incident Numbers NAPP2217546910,

NAPP2218236445, and NAPP2218943007)

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

RE: Incident #NAPP2217546910

### Garrett,

An extension for these releases have already been granted. Your request for another extension is **denied**. Include this e-mail correspondence in the remediation and/or closure report.

Robert Hamlet • Environmental Specialist - Advanced

Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave.| Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/



From: Green, Garrett J <garrett.green@exxonmobil.com>

Sent: Wednesday, December 28, 2022 8:52 AM

To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Collins, Melanie <melanie.collins@exxonmobil.com>
Cc: DelawareSpills /SM <DelawareSpills@exxonmobil.com>; Ashley Ager <aager@ensolum.com>; Tacoma Morrissey
<tmorrissey@ensolum.com>; bbelill@ensolum.com; Kalei Jennings <kjennings@ensolum.com>; shyde@ensolum.com;

Pratisher Mishael EMNRD <mike bratsher@emnrd nm gov>; Nebui Jennifer EMNRD

Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Nobui, Jennifer, EMNRD

<Jennifer.Nobui@emnrd.nm.gov>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>

Subject: [EXTERNAL] RE: XTO-Extension Request-PLU 27 Brush Draw 161H (Incident Numbers NAPP2217546910,

NAPP2218236445, and NAPP2218943007)

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

Mr. Hamlet,

As requested, please see the attached laboratory analytical reports and the Form C-141 detailing the Site Characterization. The analytical reports include results from soil samples collected from the release extent during the initial site assessment conducted on December 7, 2022, immediately following the completion of XTO flowback

operations. More extensive delineation activities were conducted on December 12, 2022 and December 13, 2022, but analytical data is currently pending.

NMOCD should note that there were multiple releases, all of which occurred on pad. Initial surface samples collected within one release extent met the most stringent closure criteria. Initial samples from a second release contained chloride concentrations ranging from 621 mg/kg to 6,580 mg/kg, which met Table I closure criteria.

As explained above, we have not received all delineation analytical results but results from the initial assessment indicate four lateral delineation samples were below the most stringent closure criteria and the release stayed on pad.

In order to review pending laboratory analytical results from the delineation event and submit a Closure Request or Remediation Work Plan for Incident Numbers NAPP2217546910, NAPP2218236445, and NAPP2218943007, XTO requests a shorter, 30-day extension until January 22, 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 [mailto:Robert.Hamlet@emnrd.nm.gov]

Sent: Friday, December 9, 2022 10:37 AM

To: Collins, Melanie < melanie.collins@exxonmobil.com >

Cc: DelawareSpills /SM < DelawareSpills@exxonmobil.com >; Green, Garrett J < garrett.green@exxonmobil.com >; Ashley Ager < aager@ensolum.com >; Tacoma Morrissey < tmorrissey@ensolum.com >; bbelill@ensolum.com; Kalei Jennings < kjennings@ensolum.com >; shyde@ensolum.com; Bratcher, Michael, EMNRD < mike.bratcher@emnrd.nm.gov >; Nobui, Jennifer, EMNRD < Jennifer.Nobui@emnrd.nm.gov >; Harimon, Jocelyn, EMNRD < Jocelyn.Harimon@emnrd.nm.gov > Subject: XTO-Extension Request-PLU 27 Brush Draw 161H (Incident Numbers NAPP2217546910, NAPP2218236445, and NAPP2218943007)

# External Email - Think Before You Click

# Melanie,

An extension for these releases has already been granted. We are almost at 180 days from the release dates. The OCD requests a Site Assessment/Characterization before another extension can be granted. Please email the Site Assessment with soil sample results after the lab samples come back. At that point we can take a look at granting another extension.

Regards,

**Robert Hamlet** • Environmental Specialist - Advanced Environmental Bureau

EMNRD - Oil Conservation Division 506 W. Texas Ave.| Artesia, NM 88210 575.909.0302 | robert.hamlet@state.nm.us http://www.emnrd.state.nm.us/OCD/



From: Collins, Melanie <melanie.collins@exxonmobil.com>

Sent: Friday, December 9, 2022 10:18 AM

**To:** Enviro, OCD, EMNRD < <a href="mailto:emnrd.nm.gov">CD.Enviro@emnrd.nm.gov">CD.Enviro@emnrd.nm.gov</a>; Hamlet, Robert, EMNRD < <a href="mailto:emnrd.nm.gov">Robert.Hamlet@emnrd.nm.gov</a>;

Bratcher, Michael, EMNRD < mike.bratcher@emnrd.nm.gov >

Cc: DelawareSpills /SM <DelawareSpills@exxonmobil.com>; Green, Garrett J <garrett.green@exxonmobil.com>; Ashley

Ager <a href="mailto:aager@ensolum.com">aager@ensolum.com</a>; Tacoma Morrissey <a href="mailto:aterative-sep-age-nsolum.com">aterative-sep-age-nsolum.com</a>; belill@ensolum.com; Kalei Jennings

<kjennings@ensolum.com>; shyde@ensolum.com

Subject: [EXTERNAL] XTO-Extension Request-PLU 27 Brush Draw 161H (Incident Numbers NAPP2217546910,

NAPP2218236445, and NAPP2218943007)

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

All,

# PLU 27 Brush Draw 161H (Incident Numbers NAPP2217546910, NAPP2218236445, and NAPP2218943007)

XTO is requesting an extension for the current deadline of December 9, 2022 for submitting a remediation work plan, closure, or deferral report required in 19.15.29.12.B.(1) NMAC at the PLU 27 Brush Draw 161H (Incident Numbers NAPP2217546910, NAPP2218236445, and NAPP2218943007). The releases occurred on June 12, 2022, June 22, 2022, and June 25, 2022, respectively. Fluids were released into a temporary containment and onto the well pad during frac operations. Remediation activities have been delayed due to XTO flowback operations onsite. XTO flowback operations cleared the site on December 5, 2022. An initial site assessment of the releases was completed on December 6, 2022 and analytical data is currently pending. Excavation activities are scheduled to begin December 12, 2022. XTO requests to extend the deadline to complete remediation activities and submit a closure or deferral report for Incident Numbers NAPP2217546910, NAPP2218236445, and NAPP2218943007 to February 7, 2022, which is a 60-day extension of the current due date.

Thank you,

Melanie Collins



Environmental Technician melanie.collins@exxonmobil.com

432-556-3756



**APPENDIX F** 

Friction Reducer SDS



# 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 Manufacturer Address

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

EN / AGHS Page 1/8

Revision Date 01-Aug-2019

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	

<sup>\*</sup>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.

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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.

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# 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
Partition coefficient
No data available
None known
Autoignition temperature
No data available
None known
No data available
None known
No data available
None known
No data available
None known

Kinematic viscosity ≥150 mm²/s

Dynamic viscosity No data available None known

Dynamic viscosity

No data available

None known

Explosive properties

No information available

Oxidizing properties

No information available

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Other Information

Softening point

Molecular weight

VOC Content (%)

Liquid Density

No information available
No information available
No information available
No information available
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.

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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

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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

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

CONDITIONS

Action 178046

# **CONDITIONS**

Operator:	OGRID:
XTO ENERGY, INC	5380
6401 Holiday Hill Road	Action Number:
Midland, TX 79707	178046
	Action Type:
	[C-141] Release Corrective Action (C-141)

#### CONDITIONS

Created	By Condition	Condition Date
rhamle	The Remediation Plan is Conditionally Approved. All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards for site assessment/characterization/proven depth to water determination. Sidewall samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. Confirmation samples should be collected every 200 ft2. Please, include in the closure report the driller's log for the borehole to 105 feet for depth to groundwater determination. All off pad areas must meet reclamation standards set forth in the OCD Spill Rule. The work will need to occur in 90 days after the work plan has been reviewed.	5/19/2023