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	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # *(assigned by OCD)*
Contact mailing address	

Location of Release Source

Latitude _____ Longitude _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# *(if applicable)*

Unit Letter	Section	Township	Range	County

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Release		

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Initial Response

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

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

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

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

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

Printed Name _____ Title: _____

Signature: __ _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Convert irregular shape into a series of rectangles	Length (ft.)	Width (ft.)	Average Depth (in.)	Estimated *Pool* Area (sq. ft.)	Estimated volume of each pool area (bbl.)	Penetration allowance (ft.)	Total Estimated Volume of Spill (bbl.)	Percentage of Oil if Spilled Fluid is a Mixture (%.)	Total Estimated Volume of Spilled Oil (bbl.)	Total Estimated Volume of Spilled Liquid other than Oil (bbl.)
Rectangle A	43.00	21.00	0.40	903.00	5.36	0.00	5.37	25%	1.34	4.03
Rectangle B				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle C				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle D				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle E				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle F				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle G				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle H				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle I				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle J				0.00	0.00	0.00	0.00		0.00	0.00
			Total Surface Pool Volume Released, Release to Soil/Caliche:				5.37		1.34	4.03

ENSOLUM

April 12, 2024

New Mexico Oil Conservation Division
New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Closure Request
Vast State 021H
Incident Number NAPP2313140440
Lea County, New Mexico

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of COG Operating, LLC (COG), has prepared the following *Closure Request* as a follow-up to the *Remediation Work Plan* (Work Plan) submitted to the New Mexico Oil Conservation Division (NMOCD) on July 31, 2023, and approved by NMOCD on October 24, 2023. This *Closure Request* documents the depth to groundwater determination and excavation activities performed at the Vast State 021H (Site), as outlined in the approved *Work Plan*. Based on the confirmed depth to groundwater and excavation soil sample laboratory analytical results, COG is requesting closure for Incident Number NAPP2313140440.

On October 24, 2023, the NMOCD approved the *Work Plan* with the following conditions:

> *Remediation plan is approved under the following conditions; 1. COG must provide supporting documentation toward the site assessment/characterization report and submit within its final closure report. 2. All other proposals approved as written. 3. Remediation Due date updated to January 22, 2024 (90-days) and to submit its appropriate or final closure report.*

Details regarding the release, Site characterization, assessment and delineation activities, and proposed remediation activities can be referenced in the original *Work Plan*, which is included as an attachment to this report.

BACKGROUND

The Site is located in Unit P, Section 17, Township 26 South, Range 33 East, in Lea County, New Mexico (32.0367°, 103.5889°) and is associated with oil and gas exploration and production operations on State Land managed by the New Mexico State Land Office (NMSLO).

On May 6, 2023, corrosion of the back pressure line resulted in the release of 4.03 barrels (bbls) of produced water and 1.34 bbls of crude oil onto the surface of the well pad. A vacuum truck was immediately dispatched to the Site to recover the free-standing fluids; approximately 1 bbl of produced water and 1 bbl of crude oil were recovered. COG reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification Form C-141 (Form C-141) on May 11, 2023. The release was assigned Incident Number NAPP2313140440.

DEPTH TO GROUNDWATER DETERMINATION

On March 12, 2024, a borehole (C-04810 POD 1) was advanced to a depth of 106 feet below ground surface (bgs) via air rotary drill rig. The borehole was located approximately 166 feet northeast of the Site and is depicted on Figure 1. A field geologist logged and described soils continuously. The borehole lithologic/soil sampling log is included in Appendix A. The borehole was left open for over 72 hours to allow for potential slow infill of groundwater. After the 72-hour waiting period, static groundwater was observed within the boring and it was confirmed that groundwater beneath the Site is 86.5 feet bgs. The borehole was properly abandoned using hydrated bentonite chips. Based on the confirmed depth to water between 51 feet and 100 feet bgs, 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 TPH-diesel range organics (DRO): 1,000 mg/kg
- TPH: 2,500 mg/kg
- Chloride: 10,000 mg/kg

EXCAVATION ACTIVITIES AND ANALYTICAL RESULTS

Between August 25, 2023, and April 1, 2024, Ensolum personnel were at the Site to oversee excavation activities based on laboratory analytical results for assessment soil sample SS07, as outlined in the approved *Work Plan*. Excavation activities were performed utilizing a hydrovac and back-hoe. To direct excavation activities, soil was screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride Hach® chloride QuanTab® test strips. The excavation was completed to a depth of 1-foot bgs.

Following removal of impacted soil, 5-point composite soil samples were collected every 200 square feet from the floor and sidewalls of the excavation. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Confirmation soil samples FS01 and FS02 were collected from the floor of the excavation at a depth of 1-foot bgs. Confirmation soil samples SW01 and SW02 were collected from the sidewalls of the excavation at depths ranging from the ground surface to 1-foot bgs. The excavation soil samples were field screened for VOCs and chloride. The excavation extent and excavation soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation was completed during the Site visit and a photographic log is included as Appendix B.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of the following constituents of concern (COC): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

Laboratory analytical results for excavation floor samples FS01 and FS02 indicated all COC concentrations were compliant with the Site Closure Criteria. Laboratory analytical results for excavation sidewall samples SW01 and SW02 indicated all COC concentrations were compliant with the most stringent Table I Closure Criteria. Additionally, as described in the *Work Plan*, the release was laterally

and vertically delineated to below the most stringent Table I Closure Criteria by assessment samples SS01, SS02, SS03A, and SS04 and borehole delineation samples BH01E, BH02D, and BH03A. Laboratory analytical results are summarized in Table 1 and laboratory analytical reports are included as Appendix C.

The excavation area measured approximately 330 square feet. A total of approximately 12 cubic yards of impacted soil were removed during the excavation activities. The impacted soil was transported and properly disposed of at the Lea Land Landfill in Hobbs, New Mexico. The excavation will be backfilled with non-waste containing soil and re-contoured to match the surrounding topography.

CLOSURE REQUEST

Site assessment and excavation activities were conducted at the Site to address the May 6, 2023, release of produced water and crude oil onto the well pad. Laboratory analytical results for the excavation soil samples, collected from the final excavation extent, indicated all COC concentrations were compliant with the Site Closure Criteria. Additionally, the release was laterally and vertically delineated to below the most stringent Table I Closure Criteria. Any soil remaining in place below the Site Closure Criteria but exceeding the reclamation requirements of NMAC 19.15.29.13.D (1) will be removed during plugging and abandonment of the wells and final reclamation of the well pad. Based on confirmed depth to groundwater between 51 feet and 100 feet bgs, and excavation and soil sampling activities completed as outlined in the approved *Work Plan*, no further remediation is required.

Initial response efforts and excavation of impacted soil have mitigated impacts at this Site. Depth to groundwater is greater than 51 feet bgs and no sensitive receptors were identified near the release extent. COG believes the remedial actions completed are protective of human health, the environment, and groundwater and respectfully requests closure for Incident Number NAPP2313140440.

If you have any questions or comments, please contact Ms. Hadlie Green at (432) 557-8895 or hgreen@ensolum.com.

Sincerely,
Ensolum, LLC

Hadlie Green
Project Geologist

Aimee Cole
Senior Managing Scientist

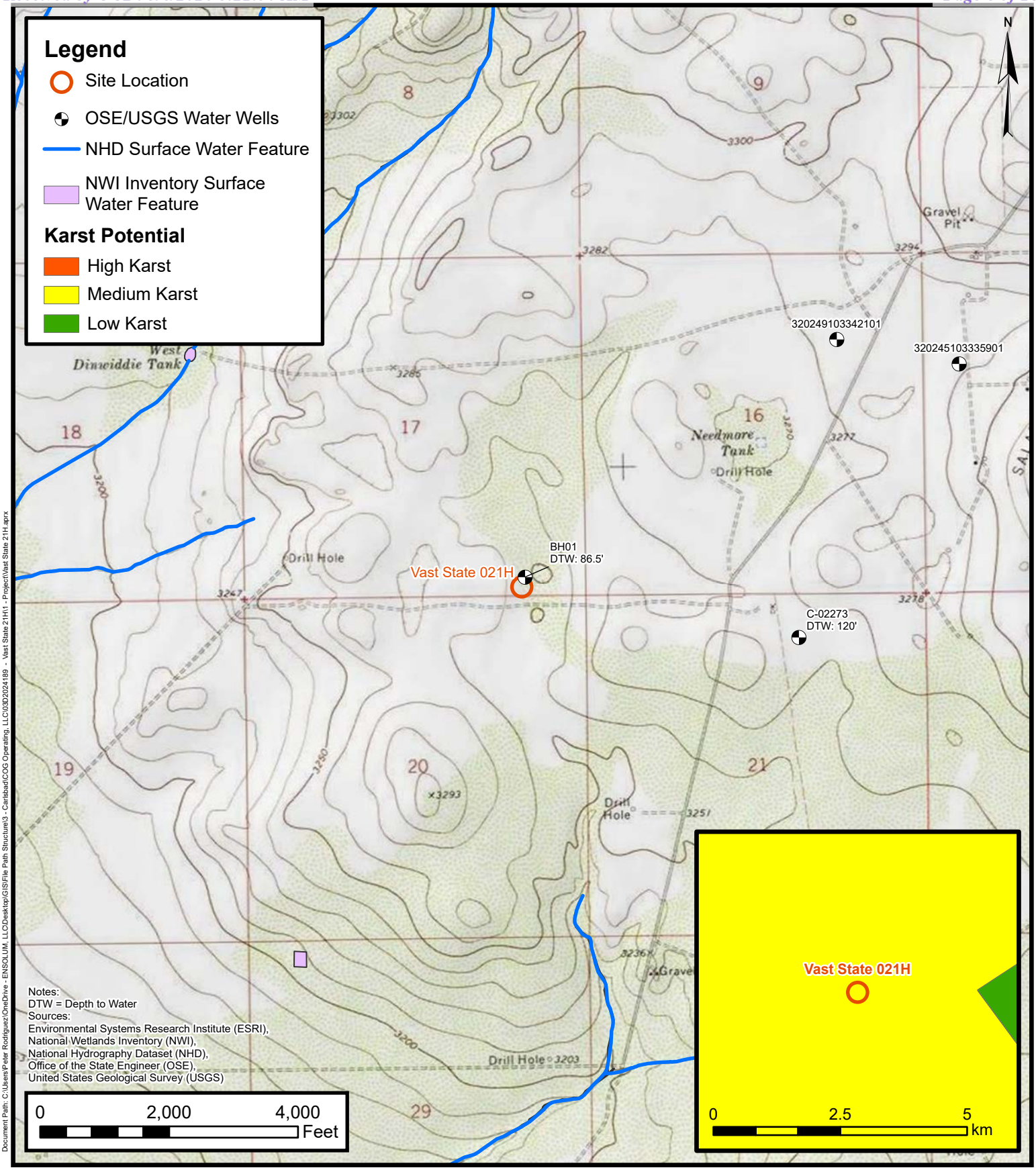
cc: Jacob Laird, COG
New Mexico State Land Office

Appendices:

Figure 1	Site Receptor Map
Figure 2	Excavation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Lithologic Soil Sampling Log
Appendix B	Photographic Log
Appendix C	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix D	July 31, 2023, *Remediation Work Plan*

ENSOLUM

FIGURES



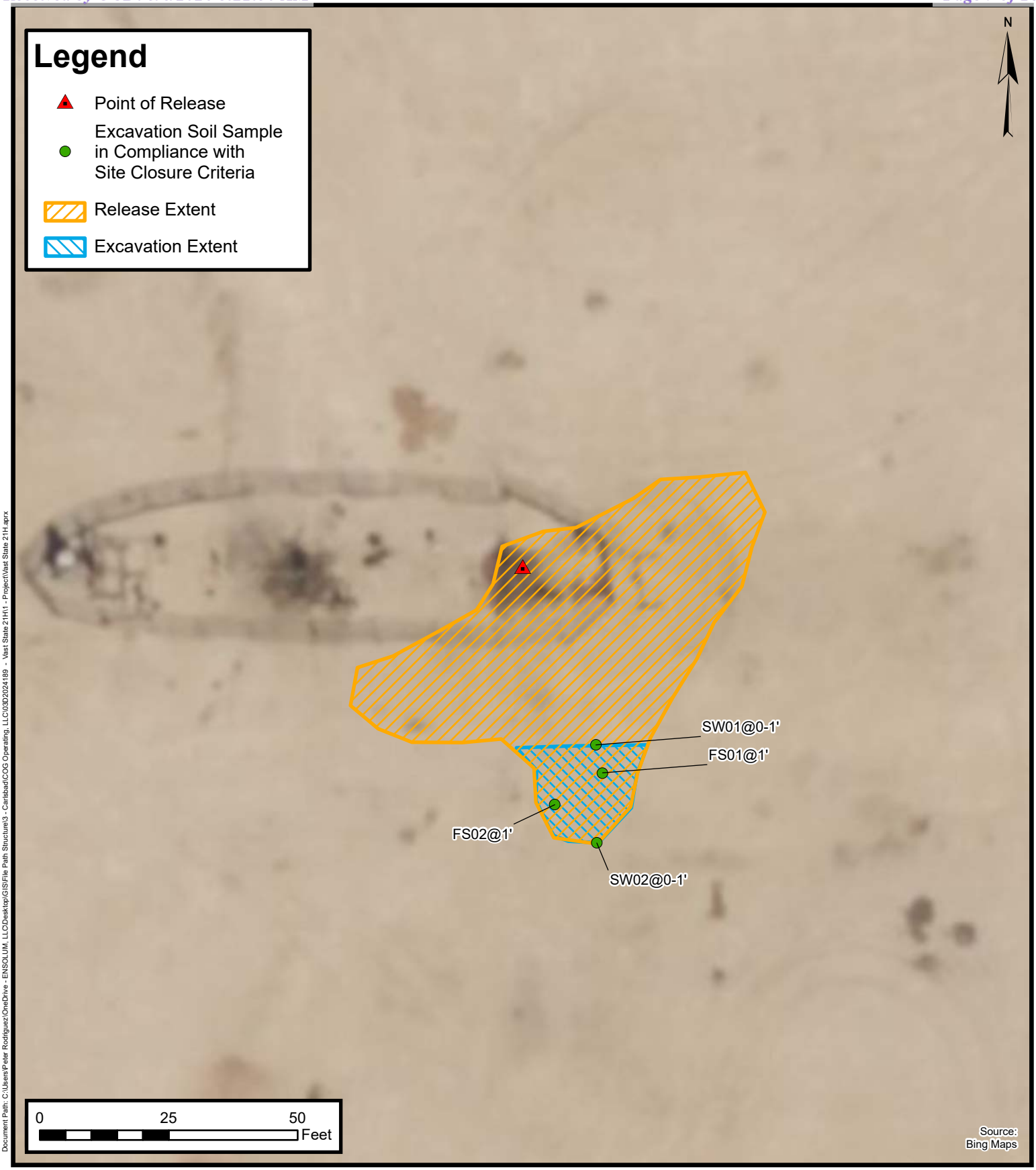
Document Path: C:\Users\Peter Rodriguez\OneDrive - ENSOLUM, LLC\Desktop\GIS\File Path Structure\3 - Carlsbad\COG Operating, LLC\03D20241189 - Vast State 21H\1 - Project\Vast State 21H.aprx

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Site Receptor Map

COG Operating, LLC
Vast State 021H
Incident Number: NAPP2313140440
Unit P, Section 17, T26S, R33E
Lea County,New Mexico

FIGURE
1



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Excavation Soil Sample Locations

COG Operating, LLC
Vast State 021H
Incident Number: NAPP2313140440
Unit P, Section 17, T26S, R33E
Lea County,New Mexico

FIGURE
2

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TABLES

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Vast State 021H
COG Operating, LLC
Lea County, New Mexico

Sample Designation	Date	Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			**10**	**50**	**NE**	**NE**	**NE**	**1,000**	**2,500**	**10,000**
Assessment Soil Samples										
SS01	05/22/2023	0.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	565
SS02	05/22/2023	0.5	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	571
SS03	05/22/2023	0.5	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	1,050
SS03A	06/08/2023	0.5	<0.00199	<0.00398	<49.9	27.9	<49.9	27.9	27.9	159
SS04	05/22/2023	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	477
SS05	05/22/2023	0.5	<0.00198	<0.00396	<49.8	550	<49.8	550	550	282
SS06	05/22/2023	0.5	<0.00199	<0.00398	<50.0	684	<50.0	684	684	3,440
SS07	05/22/2023	0.5	<0.00200	<0.00399	<50.0	1,920	<50.0	**1,920**	1,920	3,530
SS08	05/22/2023	0.5	<0.00201	<0.00402	<49.9	903	<49.9	903	903	1,530
Delineation Soil Samples										
BH01A	06/08/2023	1	<0.0020	<0.00400	<49.9	<49.9	<49.9	<49.9	<49.9	3,670
BH01D	06/08/2023	4	<0.0200	<0.00399	<49.8	<49.8	<49.8	<49.8	<49.8	1,240
BH01E	06/09/2023	5	<0.00198	<0.00397	<49.8	<49.8	<49.8	<49.8	<49.8	404
BH02A	06/08/2023	1	<0.00201	<0.00402	<50.0	156	<50.0	156	156	1,560
BH02D	06/09/2023	4	<0.00202	<0.00404	<49.9	<49.9	<49.9	<49.9	<49.9	246
BH03A	06/09/2023	1	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	551
BH03B	06/09/2023	2	<0.00200	<0.00400	<50.0	<50.0	<50.0	<50.0	<50.0	250
Excavation Soil Samples										
FS01	08/25/2023	1	<0.00198	0.0416	<50.0	200	<50.0	200	200	5,080
FS02	08/25/2023	1	<0.00202	<0.00403	<49.9	200	<49.9	200	200	4,950
SW01	04/01/2024	0 - 1	<0.00200	<0.00399	<49.8	<49.8	<49.8	<49.8	<49.8	146
SW02	04/01/2024	0 - 1	<0.00202	<0.00404	<50.0	56.8	<50.0	56.8	56.8	219

Notes:

bgs: below ground surface
mg/kg: milligrams per kilogram
NMOCD: New Mexico Oil Conservation Division
NMAC: New Mexico Administrative Code
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
GRO: Gasoline Range Organics
DRO: Diesel Range Organics
ORO: Oil Range Organics
TPH: Total Petroleum Hydrocarbon

*Concentrations in **bold** exceed the NMOCD Table I Closure Criteria or reclamation standard where applicable.*
Grey text represents samples that have been excavated

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APPENDIX A

Lithologic Soil Sampling Log

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	Sample Name: BH01	Date: 03/12/2024
	Site Name: Vast State 21H	
	Incident Number: NAPP2313140440	
	Job Number: 03D2024189	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: KS	Method: Air Rotary
Coordinates: 32.037106, -103.588733	Hole Diameter: 6.5"	Total Depth: 106'

Comments: Soil boring was advanced to a total depth of 106' bgs. Static water was observed within the soil boring at 86.5' after at least 72 hours. On 11/14/2022 the soil boring was plugged and abandoned using hydrated bentonite chips.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0	SM	(0-30'), SAND, dry, tan, medium to fine grain, poorly graded with silt, no stain, no odor.
Dry	-	-	N	-	-	10		
Dry	-	-	N	-	-	20		
								@25' color change to brown.
Dry	-	-	N	-	-	30	SW-SM	(30-60'), SAND, dry, brown, medium to fine grain, poorly graded with clay, non-plastic, noncohesive, some subround small gravel, no stain, no odor.
Dry	-	-	N	-	-	40		
Dry	-	-	N	-	-	50	SW-SC	(60-106'), SAND, dry, reddish brown, medium to fine grain, poorly graded with silt, no stain, no odor.
Dry	-	-	N	-	-	60		
Dry	-	-	N	-	-	70		@70' color change to reddish brown, few caliche nodules,
Dry	-	-	N	-	-	80		
Dry	-	-	N	-	-	90		
Dry	-	-	N	-	-	100		
Dry	-	-	N	-	-	106		

Total Depth @ 106 feet bgs

ENSOLUM

APPENDIX B

Photographic Log

ENSOLUM

Photographic Log
COG Operating, LLC
Vast State 021H
Incident Number NAPP2313140440

Photograph 1 Date: June 8, 2023

Description: View of excavation activities facing north.

Photograph 2 Date: April 1, 2024

Description: View of excavation facing northwest.

ENSOLUM

APPENDIX C

Laboratory Analytical Reports & Chain of Custody Documentation

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Hadlie Green
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 8/31/2023 4:49:36 PM

JOB DESCRIPTION

Vast State 021H
SDG NUMBER 03D2024189

JOB NUMBER

890-5160-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

See page two for job notes and contact information.

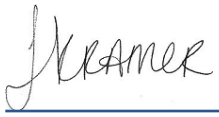
Eurofins Carlsbad

Job Notes

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

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

Authorization



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8/31/2023 4:49:36 PM

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

Client: Ensolum
Project/Site: Vast State 021H

Laboratory Job ID: 890-5160-1
SDG: 03D2024189

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

Job ID: 890-5160-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-5160-1

Receipt
The samples were received on 8/25/2023 1:07 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: FS01 (890-5160-1) and FS02 (890-5160-2).

GC VOA
Method 8021B: CCV was biased low for benzene. Another CCV was analyzed and acceptable within the method derived 12 hour window; therefore, the data was qualified and reported.(CCV 880-61519/33)

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-61602 and analytical batch 880-61519 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 880-61457 and analytical batch 880-61504 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: FS01 (890-5160-1), FS02 (890-5160-2), (890-5162-A-1-A), (890-5162-A-1-B MS) and (890-5162-A-1-C MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-61504/20) and (CCV 880-61504/5). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: The matrix spike duplicate (MSD) recoveries for preparation batch 880-61457 and analytical batch 880-61504 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

Client Sample ID: FS01

Lab Sample ID: 890-5160-1
Matrix: Solid

Date Collected: 08/25/23 10:20
Date Received: 08/25/23 13:07
Sample Depth: 1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		08/30/23 08:35	08/31/23 01:35	1
Toluene	<0.00198	U	0.00198		mg/Kg		08/30/23 08:35	08/31/23 01:35	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		08/30/23 08:35	08/31/23 01:35	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		08/30/23 08:35	08/31/23 01:35	1
o-Xylene	**0.0416**		0.00198		mg/Kg		08/30/23 08:35	08/31/23 01:35	1
Xylenes, Total	**0.0416**		0.00396		mg/Kg		08/30/23 08:35	08/31/23 01:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*	*08/30/23 08:35*	*08/31/23 01:35*	*1*
1,4-Difluorobenzene (Surr)	*67*	*S1-*	*70 - 130*	*08/30/23 08:35*	*08/31/23 01:35*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.0416**		0.00396		mg/Kg			08/31/23 10:48	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**200**		50.0		mg/Kg			08/31/23 10:35	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		08/29/23 12:00	08/30/23 14:01	1
Diesel Range Organics (Over C10-C28)	**200**		50.0		mg/Kg		08/29/23 12:00	08/30/23 14:01	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/29/23 12:00	08/30/23 14:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*145*	*S1+*	*70 - 130*	*08/29/23 12:00*	*08/30/23 14:01*	*1*
o-Terphenyl	*133*	*S1+*	*70 - 130*	*08/29/23 12:00*	*08/30/23 14:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5080**		25.1		mg/Kg			08/31/23 05:11	5

Client Sample ID: FS02

Lab Sample ID: 890-5160-2
Matrix: Solid

Date Collected: 08/25/23 10:30
Date Received: 08/25/23 13:07
Sample Depth: 1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		08/30/23 08:35	08/31/23 01:56	1
Toluene	<0.00202	U	0.00202		mg/Kg		08/30/23 08:35	08/31/23 01:56	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		08/30/23 08:35	08/31/23 01:56	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		08/30/23 08:35	08/31/23 01:56	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		08/30/23 08:35	08/31/23 01:56	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		08/30/23 08:35	08/31/23 01:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*08/30/23 08:35*	*08/31/23 01:56*	*1*

Client Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

Client Sample ID: FS02

Date Collected: 08/25/23 10:30
Date Received: 08/25/23 13:07
Sample Depth: 1

Lab Sample ID: 890-5160-2

Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*58*	*S1-*	*70 - 130*	*08/30/23 08:35*	*08/31/23 01:56*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403		mg/Kg			08/31/23 10:48	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**200**		49.9		mg/Kg			08/31/23 10:35	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		08/29/23 12:00	08/30/23 14:22	1
Diesel Range Organics (Over C10-C28)	**200**		49.9		mg/Kg		08/29/23 12:00	08/30/23 14:22	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/29/23 12:00	08/30/23 14:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*146*	*S1+*	*70 - 130*	*08/29/23 12:00*	*08/30/23 14:22*	*1*
o-Terphenyl	*134*	*S1+*	*70 - 130*	*08/29/23 12:00*	*08/30/23 14:22*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4950**		25.0		mg/Kg			08/31/23 05:17	5

Surrogate Summary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

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)										
880-32558-A-1-C MS	Matrix Spike	87	76										
880-32558-A-1-D MSD	Matrix Spike Duplicate	90	73										
890-5160-1	FS01	107	67 S1-										
890-5160-2	FS02	101	58 S1-										
LCS 880-61602/1-A	Lab Control Sample	140 S1+	112										
LCSD 880-61602/2-A	Lab Control Sample Dup	146 S1+	113										
MB 880-61572/5-A	Method Blank	76	81										
MB 880-61602/5-A	Method Blank	80	80										

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)											
		1CO1	OTPH1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
890-5160-1	FS01	145 S1+	133 S1+										
890-5160-2	FS02	146 S1+	134 S1+										
890-5162-A-1-B MS	Matrix Spike	137 S1+	114										
890-5162-A-1-C MSD	Matrix Spike Duplicate	141 S1+	118										
LCS 880-61457/2-A	Lab Control Sample	109	123										
LCSD 880-61457/3-A	Lab Control Sample Dup	111	116										
MB 880-61457/1-A	Method Blank	136 S1+	137 S1+										

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-61572/5-A
Matrix: Solid
Analysis Batch: 61519

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 61572

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/30/23 12:38	08/30/23 12:57	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/30/23 12:38	08/30/23 12:57	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/30/23 12:38	08/30/23 12:57	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/30/23 12:38	08/30/23 12:57	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/30/23 12:38	08/30/23 12:57	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/30/23 12:38	08/30/23 12:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*76*		*70 - 130*	*08/30/23 12:38*	*08/30/23 12:57*	*1*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*	*08/30/23 12:38*	*08/30/23 12:57*	*1*

Lab Sample ID: MB 880-61602/5-A
Matrix: Solid
Analysis Batch: 61519

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 61602

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/30/23 08:35	08/31/23 00:13	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/30/23 08:35	08/31/23 00:13	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/30/23 08:35	08/31/23 00:13	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/30/23 08:35	08/31/23 00:13	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/30/23 08:35	08/31/23 00:13	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/30/23 08:35	08/31/23 00:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*70 - 130*	*08/30/23 08:35*	*08/31/23 00:13*	*1*
1,4-Difluorobenzene (Surr)	*80*		*70 - 130*	*08/30/23 08:35*	*08/31/23 00:13*	*1*

Lab Sample ID: LCS 880-61602/1-A
Matrix: Solid
Analysis Batch: 61519

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 61602

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.07135		mg/Kg		71	70 - 130		
Toluene			0.100	0.08583		mg/Kg		86	70 - 130		
Ethylbenzene			0.100	0.09784		mg/Kg		98	70 - 130		
m-Xylene & p-Xylene			0.200	0.2168		mg/Kg		108	70 - 130		
o-Xylene			0.100	0.1101		mg/Kg		110	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*140*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*112*		*70 - 130*

Lab Sample ID: LCSD 880-61602/2-A
Matrix: Solid
Analysis Batch: 61519

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 61602

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.07676		mg/Kg		77	70 - 130	7	35

QC Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

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

Lab Sample ID: LCSD 880-61602/2-A
Matrix: Solid
Analysis Batch: 61519

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 61602

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.09134		mg/Kg		91	70 - 130	6	35
Ethylbenzene			0.100	0.1034		mg/Kg		103	70 - 130	6	35
m-Xylene & p-Xylene			0.200	0.2307		mg/Kg		115	70 - 130	6	35
o-Xylene			0.100	0.1170		mg/Kg		117	70 - 130	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*146*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*113*		*70 - 130*

Lab Sample ID: 880-32558-A-1-C MS
Matrix: Solid
Analysis Batch: 61519

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 61602

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00198	U F1 F2	0.0996	0.02565	F1	mg/Kg		25	70 - 130
Toluene	<0.00198	U F1 F2	0.0996	0.03751	F1	mg/Kg		38	70 - 130
Ethylbenzene	<0.00198	U F1 F2	0.0996	0.02878	F1	mg/Kg		29	70 - 130
m-Xylene & p-Xylene	<0.00397	U F1 F2	0.199	0.05253	F1	mg/Kg		26	70 - 130
o-Xylene	<0.00198	U F1 F2	0.0996	0.02722	F1	mg/Kg		27	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*
1,4-Difluorobenzene (Surr)	*76*		*70 - 130*

Lab Sample ID: 880-32558-A-1-D MSD
Matrix: Solid
Analysis Batch: 61519

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 61602

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00198	U F1 F2	0.101	0.01712	F1 F2	mg/Kg		16	70 - 130	40	35
Toluene	<0.00198	U F1 F2	0.101	0.01883	F1 F2	mg/Kg		19	70 - 130	66	35
Ethylbenzene	<0.00198	U F1 F2	0.101	0.01036	F1 F2	mg/Kg		10	70 - 130	94	35
m-Xylene & p-Xylene	<0.00397	U F1 F2	0.202	0.01892	F1 F2	mg/Kg		9	70 - 130	94	35
o-Xylene	<0.00198	U F1 F2	0.101	0.01024	F1 F2	mg/Kg		10	70 - 130	91	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*
1,4-Difluorobenzene (Surr)	*73*		*70 - 130*

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

Lab Sample ID: MB 880-61457/1-A
Matrix: Solid
Analysis Batch: 61504

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 61457

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		08/29/23 12:00	08/30/23 08:32	1

QC Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

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

Lab Sample ID: MB 880-61457/1-A
Matrix: Solid
Analysis Batch: 61504

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 61457

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/29/23 12:00	08/30/23 08:32	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/29/23 12:00	08/30/23 08:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*136*	*S1+*	*70 - 130*	*08/29/23 12:00*	*08/30/23 08:32*	*1*
o-Terphenyl	*137*	*S1+*	*70 - 130*	*08/29/23 12:00*	*08/30/23 08:32*	*1*

Lab Sample ID: LCS 880-61457/2-A
Matrix: Solid
Analysis Batch: 61504

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 61457

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	954.7		mg/Kg		95	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	982.2		mg/Kg		98	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*109*		*70 - 130*
o-Terphenyl	*123*		*70 - 130*

Lab Sample ID: LCSD 880-61457/3-A
Matrix: Solid
Analysis Batch: 61504

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 61457

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	927.4		mg/Kg		93	70 - 130	3	20
Diesel Range Organics (Over C10-C28)			1000	918.9		mg/Kg		92	70 - 130	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*111*		*70 - 130*
o-Terphenyl	*116*		*70 - 130*

Lab Sample ID: 890-5162-A-1-B MS
Matrix: Solid
Analysis Batch: 61504

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 61457

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	1010	930.3		mg/Kg		89	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U F1	1010	1335		mg/Kg		130	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*137*	*S1+*	*70 - 130*
o-Terphenyl	*114*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

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

Lab Sample ID: 890-5162-A-1-C MSD
Matrix: Solid
Analysis Batch: 61504

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 61457

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	1010	951.7		mg/Kg		91	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.9	U F1	1010	1375	F1	mg/Kg		134	70 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*141*	*S1+*	*70 - 130*
o-Terphenyl	*118*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-61436/1-A
Matrix: Solid
Analysis Batch: 61601

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			08/31/23 01:58	1

Lab Sample ID: LCS 880-61436/2-A
Matrix: Solid
Analysis Batch: 61601

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	258.1		mg/Kg		103	90 - 110		

Lab Sample ID: LCSD 880-61436/3-A
Matrix: Solid
Analysis Batch: 61601

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	256.8		mg/Kg		103	90 - 110	1	20

Lab Sample ID: 890-5157-A-13-C MS
Matrix: Solid
Analysis Batch: 61601

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	251		251	495.2		mg/Kg		97	90 - 110		

Lab Sample ID: 890-5157-A-13-D MSD
Matrix: Solid
Analysis Batch: 61601

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	251		251	494.4		mg/Kg		97	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

GC VOA

Analysis Batch: 61519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5160-1	FS01	Total/NA	Solid	8021B	61602
890-5160-2	FS02	Total/NA	Solid	8021B	61602
MB 880-61572/5-A	Method Blank	Total/NA	Solid	8021B	61572
MB 880-61602/5-A	Method Blank	Total/NA	Solid	8021B	61602
LCS 880-61602/1-A	Lab Control Sample	Total/NA	Solid	8021B	61602
LCSD 880-61602/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	61602
880-32558-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	61602
880-32558-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	61602

Prep Batch: 61572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-61572/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 61602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5160-1	FS01	Total/NA	Solid	5035	
890-5160-2	FS02	Total/NA	Solid	5035	
MB 880-61602/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-61602/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-61602/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-32558-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
880-32558-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 61630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5160-1	FS01	Total/NA	Solid	Total BTEX	
890-5160-2	FS02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 61457

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5160-1	FS01	Total/NA	Solid	8015NM Prep	
890-5160-2	FS02	Total/NA	Solid	8015NM Prep	
MB 880-61457/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-61457/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-61457/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5162-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-5162-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 61504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5160-1	FS01	Total/NA	Solid	8015B NM	61457
890-5160-2	FS02	Total/NA	Solid	8015B NM	61457
MB 880-61457/1-A	Method Blank	Total/NA	Solid	8015B NM	61457
LCS 880-61457/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	61457
LCSD 880-61457/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	61457
890-5162-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	61457
890-5162-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	61457

QC Association Summary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

GC Semi VOA

Analysis Batch: 61651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5160-1	FS01	Total/NA	Solid	8015 NM	
890-5160-2	FS02	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 61436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5160-1	FS01	Soluble	Solid	DI Leach	
890-5160-2	FS02	Soluble	Solid	DI Leach	
MB 880-61436/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-61436/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-61436/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-5157-A-13-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-5157-A-13-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 61601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5160-1	FS01	Soluble	Solid	300.0	61436
890-5160-2	FS02	Soluble	Solid	300.0	61436
MB 880-61436/1-A	Method Blank	Soluble	Solid	300.0	61436
LCS 880-61436/2-A	Lab Control Sample	Soluble	Solid	300.0	61436
LCSD 880-61436/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	61436
890-5157-A-13-C MS	Matrix Spike	Soluble	Solid	300.0	61436
890-5157-A-13-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	61436

Lab Chronicle

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

Client Sample ID: FS01
Date Collected: 08/25/23 10:20
Date Received: 08/25/23 13:07

Lab Sample ID: 890-5160-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	61602	08/30/23 08:35	AJ	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	61519	08/31/23 01:35	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			61630	08/31/23 10:48	AJ	EET MID
Total/NA	Analysis	8015 NM		1			61651	08/31/23 10:35	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	61457	08/29/23 12:00	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	61504	08/30/23 14:01	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	61436	08/29/23 10:08	SMC	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	61601	08/31/23 05:11	SMC	EET MID

Client Sample ID: FS02
Date Collected: 08/25/23 10:30
Date Received: 08/25/23 13:07

Lab Sample ID: 890-5160-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	61602	08/30/23 08:35	AJ	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	61519	08/31/23 01:56	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			61630	08/31/23 10:48	AJ	EET MID
Total/NA	Analysis	8015 NM		1			61651	08/31/23 10:35	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	61457	08/29/23 12:00	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	61504	08/30/23 14:22	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	61436	08/29/23 10:08	SMC	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	61601	08/31/23 05:17	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
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

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

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 890-5160-1
SDG: 03D2024189

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5160-1	FS01	Solid	08/25/23 10:20	08/25/23 13:07	1
890-5160-2	FS02	Solid	08/25/23 10:30	08/25/23 13:07	1

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Chain of Custody

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

Work Order No: _____

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Project Manager:	Hadlie Green	Bill to: (if different)	Hadlie Green
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address:	601 N Marienfeld St Suite 400	Address:	601 N Marienfeld St Suite 400
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Midland, TX 79701
Phone:	432-557-8895	Email:	hgreen@ensolum.com

Work Order Comments

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

Project Name:	Vast State 021H	Turn Around	☑ Routine ☐ Rush
Project Number:	03D2024189	Due Date:	
Project Location:	32.0367,-103.5889	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Peter Van Patten		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Samples Received Intact:	Yes No	Thermometer ID:	IR#007
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	3.8
Total Containers:		Corrected Temperature:	3.6

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2S0_4: H_2 | NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)	Sample Comments
FS01	Soil	8/25/2023	1020	1	Comp	1		x	x	x	
FS02	Soil	8/25/2023	1030	1	Comp	1		x	x	x	

890-5160 Chain of Custody

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Peter Van Patten		8.25.23 1307	4		
3			6		
5					

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-5160-1
SDG Number: 03D2024189

Login Number: 5160
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	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: 890-5160-1
SDG Number: 03D2024189

Login Number: 5160
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 08/28/23 09:44 AM

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

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ANALYTICAL REPORT

PREPARED FOR

Attn: Hadlie Green
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 4/10/2024 1:22:28 PM Revision 1

JOB DESCRIPTION

Vast State 021H
Lea County, New Mexico

JOB NUMBER

880-41651-1

Eurofins Midland
1211 W. Florida Ave
Midland TX 79701

See page two for job notes and contact information.

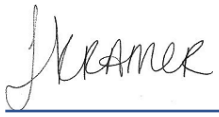
Eurofins Midland

Job Notes

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

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

Authorization



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4/10/2024 1:22:28 PM
Revision 1

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

Client: Ensolum
Project/Site: Vast State 021H

Laboratory Job ID: 880-41651-1
SDG: Lea County, New Mexico

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project: Vast State 021H

Job ID: 880-41651-1

Job ID: 880-41651-1 Eurofins Midland

Job Narrative
880-41651-1

REVISION

The report being provided is a revision of the original report sent on 4/8/2024. The report (revision 1) is being revised due to Per client email, requesting BTEX to be added to report.

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

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

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

Receipt
The samples were received on 4/1/2024 3:00 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 2.2°C.

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: SW01 (880-41651-1) and SW02 (880-41651-2).

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 880-77174 and analytical batch 880-77162 was outside the upper control limits.

Method 8015MOD_NM: The method blank for preparation batch 880-77174 and analytical batch 880-77162 contained Diesel Range Organics (Over C10-C28) above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; 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
Method 300_ORGFM_28D - Soluble: The Chloride matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-77123 and analytical batch 880-77316 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.

SW01 (880-41651-1)

Method 300_ORGFM_28D - Soluble: The Chloride matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-77123 and analytical batch 880-77316 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.

SW02 (880-41651-2), (880-41651-A-2-B MS) and (880-41651-A-2-C MSD)

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

Case Narrative

Client: Ensolum
Project: Vast State 021H

Job ID: 880-41651-1

Job ID: 880-41651-1 (Continued)

Eurofins Midland

Client Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

Client Sample ID: SW01
Date Collected: 04/01/24 10:20
Date Received: 04/01/24 15:00
Sample Depth: 0-1'

Lab Sample ID: 880-41651-1
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		04/09/24 09:21	04/09/24 11:49	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/09/24 09:21	04/09/24 11:49	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/09/24 09:21	04/09/24 11:49	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		04/09/24 09:21	04/09/24 11:49	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/09/24 09:21	04/09/24 11:49	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		04/09/24 09:21	04/09/24 11:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*70 - 130*	*04/09/24 09:21*	*04/09/24 11:49*	*1*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*	*04/09/24 09:21*	*04/09/24 11:49*	*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			04/09/24 11:49	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			04/03/24 13:40	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		04/03/24 08:52	04/03/24 13:40	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		04/03/24 08:52	04/03/24 13:40	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		04/03/24 08:52	04/03/24 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*111*		*70 - 130*	*04/03/24 08:52*	*04/03/24 13:40*	*1*
o-Terphenyl	*98*		*70 - 130*	*04/03/24 08:52*	*04/03/24 13:40*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**146**		4.99		mg/Kg			04/06/24 06:55	1

Client Sample ID: SW02
Date Collected: 04/01/24 10:25
Date Received: 04/01/24 15:00
Sample Depth: 0-1'

Lab Sample ID: 880-41651-2
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		04/09/24 09:21	04/09/24 12:10	1
Toluene	<0.00202	U	0.00202		mg/Kg		04/09/24 09:21	04/09/24 12:10	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		04/09/24 09:21	04/09/24 12:10	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		04/09/24 09:21	04/09/24 12:10	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		04/09/24 09:21	04/09/24 12:10	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		04/09/24 09:21	04/09/24 12:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*	*04/09/24 09:21*	*04/09/24 12:10*	*1*

Client Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

Client Sample ID: SW02
Date Collected: 04/01/24 10:25
Date Received: 04/01/24 15:00
Sample Depth: 0-1'

Lab Sample ID: 880-41651-2
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*	*04/09/24 09:21*	*04/09/24 12:10*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404		mg/Kg			04/09/24 12:10	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**56.8**		50.0		mg/Kg			04/03/24 14:02	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		04/03/24 08:52	04/03/24 14:02	1
Diesel Range Organics (Over C10-C28)	**56.8**		50.0		mg/Kg		04/03/24 08:52	04/03/24 14:02	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		04/03/24 08:52	04/03/24 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*112*		*70 - 130*	*04/03/24 08:52*	*04/03/24 14:02*	*1*
o-Terphenyl	*100*		*70 - 130*	*04/03/24 08:52*	*04/03/24 14:02*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**219**	**F1**	5.02		mg/Kg			04/06/24 07:01	1

Surrogate Summary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

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)
880-41651-1	SW01	84	89
880-41651-1 MS	SW01	106	121
880-41651-1 MSD	SW01	103	113
880-41651-2	SW02	94	90
LCS 880-77712/1-A	Lab Control Sample	111	119
LCSD 880-77712/2-A	Lab Control Sample Dup	113	114
MB 880-77712/5-A	Method Blank	75	99

Surrogate Legend

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

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-41651-1	SW01	111	98
880-41651-2	SW02	112	100
LCS 880-77174/2-A	Lab Control Sample	106	111
LCSD 880-77174/3-A	Lab Control Sample Dup	105	105
MB 880-77174/1-A	Method Blank	184 S1+	179 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-77712/5-A
Matrix: Solid
Analysis Batch: 77703

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 77712

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		04/09/24 09:21	04/09/24 11:28	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/09/24 09:21	04/09/24 11:28	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/09/24 09:21	04/09/24 11:28	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		04/09/24 09:21	04/09/24 11:28	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/09/24 09:21	04/09/24 11:28	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		04/09/24 09:21	04/09/24 11:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*75*		*70 - 130*	*04/09/24 09:21*	*04/09/24 11:28*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*04/09/24 09:21*	*04/09/24 11:28*	*1*

Lab Sample ID: LCS 880-77712/1-A
Matrix: Solid
Analysis Batch: 77703

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 77712

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09546		mg/Kg		95	70 - 130		
Toluene			0.100	0.09038		mg/Kg		90	70 - 130		
Ethylbenzene			0.100	0.08439		mg/Kg		84	70 - 130		
m-Xylene & p-Xylene			0.200	0.1758		mg/Kg		88	70 - 130		
o-Xylene			0.100	0.08727		mg/Kg		87	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*
1,4-Difluorobenzene (Surr)	*119*		*70 - 130*

Lab Sample ID: LCSD 880-77712/2-A
Matrix: Solid
Analysis Batch: 77703

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 77712

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09794		mg/Kg		98	70 - 130	3	35
Toluene			0.100	0.09999		mg/Kg		100	70 - 130	10	35
Ethylbenzene			0.100	0.1009		mg/Kg		101	70 - 130	18	35
m-Xylene & p-Xylene			0.200	0.2284		mg/Kg		114	70 - 130	26	35
o-Xylene			0.100	0.1122		mg/Kg		112	70 - 130	25	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*
1,4-Difluorobenzene (Surr)	*114*		*70 - 130*

Lab Sample ID: 880-41651-1 MS
Matrix: Solid
Analysis Batch: 77703

Client Sample ID: SW01
Prep Type: Total/NA
Prep Batch: 77712

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U	0.0996	0.07093		mg/Kg		70	70 - 130		
Toluene	<0.00200	U	0.0996	0.07743		mg/Kg		77	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

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

Lab Sample ID: 880-41651-1 MS
Matrix: Solid
Analysis Batch: 77703

Client Sample ID: SW01
Prep Type: Total/NA
Prep Batch: 77712

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.0996	0.08423		mg/Kg		85	70 - 130
m-Xylene & p-Xylene	<0.00399	U	0.199	0.1676		mg/Kg		84	70 - 130
o-Xylene	<0.00200	U	0.0996	0.08396		mg/Kg		84	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
1,4-Difluorobenzene (Surr)	*121*		*70 - 130*

Lab Sample ID: 880-41651-1 MSD
Matrix: Solid
Analysis Batch: 77703

Client Sample ID: SW01
Prep Type: Total/NA
Prep Batch: 77712

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.101	0.07430		mg/Kg		73	70 - 130	5	35
Toluene	<0.00200	U	0.101	0.08390		mg/Kg		83	70 - 130	8	35
Ethylbenzene	<0.00200	U	0.101	0.09302		mg/Kg		92	70 - 130	10	35
m-Xylene & p-Xylene	<0.00399	U	0.202	0.1785		mg/Kg		89	70 - 130	6	35
o-Xylene	<0.00200	U	0.101	0.09019		mg/Kg		89	70 - 130	7	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
1,4-Difluorobenzene (Surr)	*113*		*70 - 130*

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

Lab Sample ID: MB 880-77174/1-A
Matrix: Solid
Analysis Batch: 77162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 77174

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		04/03/24 08:52	04/03/24 09:39	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		04/03/24 08:52	04/03/24 09:39	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		04/03/24 08:52	04/03/24 09:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*184*	*S1+*	*70 - 130*	*04/03/24 08:52*	*04/03/24 09:39*	*1*
o-Terphenyl	*179*	*S1+*	*70 - 130*	*04/03/24 08:52*	*04/03/24 09:39*	*1*

Lab Sample ID: LCS 880-77174/2-A
Matrix: Solid
Analysis Batch: 77162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 77174

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	934.1		mg/Kg		93	70 - 130
Diesel Range Organics (Over C10-C28)			1000	980.5		mg/Kg		98	70 - 130

Eurofins Midland

QC Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

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

Lab Sample ID: LCS 880-77174/2-A
Matrix: Solid
Analysis Batch: 77162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 77174

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*106*		*70 - 130*
o-Terphenyl	*111*		*70 - 130*

Lab Sample ID: LCSD 880-77174/3-A
Matrix: Solid
Analysis Batch: 77162

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 77174

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	998.8		mg/Kg		100	70 - 130	7	20
Diesel Range Organics (Over C10-C28)			1000	1027		mg/Kg		103	70 - 130	5	20

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

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-77123/1-A
Matrix: Solid
Analysis Batch: 77316

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			04/06/24 05:13	1

Lab Sample ID: LCS 880-77123/2-A
Matrix: Solid
Analysis Batch: 77316

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	273.0		mg/Kg		109	90 - 110		

Lab Sample ID: LCSD 880-77123/3-A
Matrix: Solid
Analysis Batch: 77316

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	273.8		mg/Kg		110	90 - 110	0	20

Lab Sample ID: 880-41651-2 MS
Matrix: Solid
Analysis Batch: 77316

Client Sample ID: SW02
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	219	F1	251	503.2	F1	mg/Kg		113	90 - 110		

QC Sample Results

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-41651-2 MSD
Matrix: Solid
Analysis Batch: 77316

Client Sample ID: SW02
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	219	F1	251	502.0	F1	mg/Kg		113	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

GC VOA

Analysis Batch: 77703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-41651-1	SW01	Total/NA	Solid	8021B	77712
880-41651-2	SW02	Total/NA	Solid	8021B	77712
MB 880-77712/5-A	Method Blank	Total/NA	Solid	8021B	77712
LCS 880-77712/1-A	Lab Control Sample	Total/NA	Solid	8021B	77712
LCSD 880-77712/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	77712
880-41651-1 MS	SW01	Total/NA	Solid	8021B	77712
880-41651-1 MSD	SW01	Total/NA	Solid	8021B	77712

Prep Batch: 77712

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-41651-1	SW01	Total/NA	Solid	5035	
880-41651-2	SW02	Total/NA	Solid	5035	
MB 880-77712/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-77712/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-77712/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-41651-1 MS	SW01	Total/NA	Solid	5035	
880-41651-1 MSD	SW01	Total/NA	Solid	5035	

Analysis Batch: 77771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-41651-1	SW01	Total/NA	Solid	Total BTEX	
880-41651-2	SW02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 77162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-41651-1	SW01	Total/NA	Solid	8015B NM	77174
880-41651-2	SW02	Total/NA	Solid	8015B NM	77174
MB 880-77174/1-A	Method Blank	Total/NA	Solid	8015B NM	77174
LCS 880-77174/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	77174
LCSD 880-77174/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	77174

Prep Batch: 77174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-41651-1	SW01	Total/NA	Solid	8015NM Prep	
880-41651-2	SW02	Total/NA	Solid	8015NM Prep	
MB 880-77174/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-77174/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-77174/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Analysis Batch: 77362

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-41651-1	SW01	Total/NA	Solid	8015 NM	
880-41651-2	SW02	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 77123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-41651-1	SW01	Soluble	Solid	DI Leach	
880-41651-2	SW02	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Leach Batch: 77123 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-77123/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-77123/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-77123/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-41651-2 MS	SW02	Soluble	Solid	DI Leach	
880-41651-2 MSD	SW02	Soluble	Solid	DI Leach	

Analysis Batch: 77316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-41651-1	SW01	Soluble	Solid	300.0	77123
880-41651-2	SW02	Soluble	Solid	300.0	77123
MB 880-77123/1-A	Method Blank	Soluble	Solid	300.0	77123
LCS 880-77123/2-A	Lab Control Sample	Soluble	Solid	300.0	77123
LCSD 880-77123/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	77123
880-41651-2 MS	SW02	Soluble	Solid	300.0	77123
880-41651-2 MSD	SW02	Soluble	Solid	300.0	77123

Lab Chronicle

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

Client Sample ID: SW01

Date Collected: 04/01/24 10:20
Date Received: 04/01/24 15:00

Lab Sample ID: 880-41651-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			77712	EL	EET MID	04/09/24 09:21
Total/NA	Analysis	8021B		1	77703	MNR	EET MID	04/09/24 11:49
Total/NA	Analysis	Total BTEX		1	77771	SM	EET MID	04/09/24 11:49
Total/NA	Analysis	8015 NM		1	77362	SM	EET MID	04/03/24 13:40
Total/NA	Prep	8015NM Prep			77174	EL	EET MID	04/03/24 08:52
Total/NA	Analysis	8015B NM		1	77162	SM	EET MID	04/03/24 13:40
Soluble	Leach	DI Leach			77123	SA	EET MID	04/02/24 11:30
Soluble	Analysis	300.0		1	77316	SMC	EET MID	04/06/24 06:55

Client Sample ID: SW02

Date Collected: 04/01/24 10:25
Date Received: 04/01/24 15:00

Lab Sample ID: 880-41651-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			77712	EL	EET MID	04/09/24 09:21
Total/NA	Analysis	8021B		1	77703	MNR	EET MID	04/09/24 12:10
Total/NA	Analysis	Total BTEX		1	77771	SM	EET MID	04/09/24 12:10
Total/NA	Analysis	8015 NM		1	77362	SM	EET MID	04/03/24 14:02
Total/NA	Prep	8015NM Prep			77174	EL	EET MID	04/03/24 08:52
Total/NA	Analysis	8015B NM		1	77162	SM	EET MID	04/03/24 14:02
Soluble	Leach	DI Leach			77123	SA	EET MID	04/02/24 11:30
Soluble	Analysis	300.0		1	77316	SMC	EET MID	04/06/24 07:01

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

Accreditation/Certification Summary

Client: Ensolum
Job ID: 880-41651-1
Project/Site: Vast State 021H
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

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

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: Vast State 021H

Job ID: 880-41651-1
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
880-41651-1	SW01	Solid	04/01/24 10:20	04/01/24 15:00	0-1'
880-41651-2	SW02	Solid	04/01/24 10:25	04/01/24 15:00	0-1'

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Chain of Custody

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

880-41651 Chain of Custody

www.xenco.com Page _____ of _____

Project Manager:	Hadlie Green	Bill to: (if different)	Hadlie Green
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address.	601 N Marienfeld St Suite 400	Address:	
City, State ZIP:	Midland, TX 79701	City, State ZIP:	
Phone	432-557-8895	Email:	hgreen@ensolum.com

Work Order Comments

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

Project Name.	Vast State 021H	Turn Around	
Project Number:	03D2024189	☒ Routine ☐ Rush	
Project Location:	Lea County, New Mexico	Due Date:	
Sampler's Name:	Noah Duker	TAT starts the day received by the lab, if received by 4 30pm	
PO #:	03D2024189		

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	Yes (No)	
Samples Received Intact:	(Yes) No	Thermometer ID:	IR8	
Cooler Custody Seals:	Yes No (N/A)	Correction Factor	-.1	
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	2.3	
Total Containers:		Corrected Temperature:	2.2	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: CHLORIDES (EPA: 300.0)	Parameters: TPH (1005)
SW01	S	4/1/2024	1020	0-1'	C	1		X	X
SW02	S	4/1/2024	1025	0-1'	C	1		X	X

Preservative Codes

None NO DI Water H_2O
Cool Cool MeOH Me
HCL HC HNO_3 HN
H_2S0_4 H_2 NaOH Na
H_3PO_4. HP
$NaHSO_4$ NABIS
$Na_2S_2O_3$ $NaSO_3$
Zn Acetate+NaOH Zn
NaOH+Ascorbic Acid SAPC

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg 1631 / 245 1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		4/1/24 1550	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 880-41651-1
SDG Number: Lea County, New Mexico

Login Number: 41651
List Number: 1
Creator: Rodriguez, Leticia

List Source: Eurofins Midland

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

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APPENDIX D

July 31, 2023, *Remediation Work Plan*

July 27, 2023

New Mexico Oil Conservation Division
New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Remediation Work Plan
Vast State 021H
Incident Number NAPP2313140440
Lea County, New Mexico

To Whom It May Concern:

Ensolum, LLC (Ensolum) on behalf of COG Operating, LLC (COG), has prepared the following *Remediation Work Plan (Work Plan)* to document the site assessment and soil sampling activities completed to date and propose a work plan to address the impacted soil identified at the Vast State 021H (Site). The purpose of the site assessment and soil sampling activities was to delineate the lateral and vertical extent of impacted soil resulting from a release of produced water and crude oil at the Site. The following *Work Plan* proposes to install a soil boring to investigate depth to water to confirm the Closure Criteria at the Site and excavate the impacted soil.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit P, Section 17, Township 26 South, Range 33 East, in Lea County, New Mexico (32.0367°, 103.5889°) and is associated with oil and gas exploration and production operations on State Land managed by the New Mexico State Land Office (NMSLO).

On May 6, 2023, corrosion of the back pressure line resulted in the release of 4.03 barrels (bbls) of produced water and 1.34 bbls of crude oil onto the surface of the well pad. A vacuum truck was immediately dispatched to the Site to recover the free-standing fluids; approximately 1 bbl of produced water and 1 bbl of crude oil were recovered. COG reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification Form C-141 (Form C-141) on May 11, 2023. The release was assigned Incident Number NAPP2313140440.

Since the release remained on the active well pad, an assessment of cultural properties had already been completed prior to the construction of the well pad and as such, the Cultural Properties Protection Rule (CPP) has been followed. No additional cultural resource surveys were completed in connection with this release. The release area is not expected to be reclaimed until the oil and gas well is plugged and abandoned and the well pad is reclaimed. The Reclamation Plan for this release will default to the NMSLO-approved Reclamation Plan for the well pad per 19.2.100.67 of the New Mexico Administrative Code (NMAC).

SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site was characterized according to Table I, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29 (19.15.29) NMAC. Results from the characterization desktop review are presented on page 3 of the Form C-141, Site Assessment/Characterization. Potential site receptors are identified on Figure 1.

Depth to groundwater at the Site is greater than 100 feet below ground surface (bgs) based on the nearest groundwater well data. The nearest groundwater well with depth to groundwater data is New Mexico Office of the State Engineer (NMOSE) well C-02273 located approximately 0.85 miles southeast of the Site. The groundwater well has a reported depth to groundwater of 120 feet bgs and a total depth of 160 feet bgs. All wells used for depth to water determination are depicted on Figure 1 and the referenced well records are included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is an intermittent stream, located approximately 4,876 feet south 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 (medium potential karst designation area). Site receptors are identified on Figure 1.

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

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

SITE ASSESSMENT AND DELINEATION ACTIVITIES

On May 22, 2023, Ensolum personnel completed a Site visit to evaluate the release extent based on information provided on the Form C-141 and visual observations. The stained soil from the release had been scraped up prior to Ensolum personnel visiting the Site. Eight assessment soil samples (SS01 through SS08) were collected within and around the release extent from a depth of 0.5 feet bgs. Assessment soil samples SS01 through SS04 were collected around the release to confirm the lateral release extent. Assessment soil samples SS05 through SS08 were collected within the release extent at an approximate depth of 0.5 feet bgs. The assessment soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride Hach® chloride QuanTab® test strips. The release extent and assessment soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation was completed during the Site visit and a photographic log is included in Appendix B.

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

Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

On June 8, 2023, delineation activities were conducted at the Site to assess the vertical extent of impacted soil. Boreholes BH01 through BH03 were advanced via backhoe within the release extent. The boreholes were advanced to depths ranging from 2 feet to 5 feet bgs. Discrete delineation soil samples were collected from each borehole at depths ranging from 1-foot to 5 feet bgs. Soil from the boreholes was field screened for VOCs and chloride utilizing a calibrated PID and Hach® chloride QuanTab® test strips, respectively. Field screening results and observations for the boreholes were logged on lithologic/soil sampling logs, which are included in Appendix C. The delineation soil samples were handled and analyzed as described above. The delineation soil sample locations are depicted on Figure 3.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for assessment soil samples SS01, SS02, and SS04, collected around the release extent, indicated all COC concentrations were compliant with the most stringent Table I Closure Criteria and defined the lateral extent of the release to the north, west, and south. Laboratory analytical results for assessment soil sample SS03, collected east of the release extent, indicated all COC concentrations were compliant with the Site Closure Criteria; however, chloride concentrations exceeded the most stringent Table I Closure Criteria. One additional assessment sample (SS03A) was collected east of the release extent at a depth of approximately 0.5 feet bgs to confirm the lateral extent of the release. The assessment soil sample location is presented on Figure 2. Laboratory analytical results for assessment soil sample SS03A indicated all COC concentrations were compliant with the most stringent Table I Closure Criteria and successfully defined the lateral extent of the release to the east.

Laboratory analytical results for assessment soil samples SS05, SS06, and SS08, collected within the release extent, indicated all COC concentrations were compliant with the Site Closure Criteria. Laboratory analytical results for assessment soil sample SS07, collected within the release extent, indicated TPH-GRO/TPH-DRO concentrations exceeded the Site Closure Criteria.

Laboratory analytical results for the delineation soil samples collected from boreholes BH01 through BH03, indicated all COC concentrations were compliant with the Site Closure Criteria at depths ranging from 1-foot to 5 feet bgs, and successfully defined the vertical extent of the release. The laboratory analytical results are summarized on the attached Table 1 and the complete laboratory analytical reports are included in Appendix D. Based on the visible surface staining and laboratory analytical results for assessment sample SS07, excavation activities were warranted.

PROPOSED REMEDIATION WORK PLAN

In order to confirm depth to groundwater is greater than 100 feet bgs at the Site, COG proposes to advance a soil boring to a depth of 105 feet bgs. The soil boring will be located within 0.5 miles 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.

Following confirmation of depth to groundwater, COG will proceed with excavation of impacted soil on pad to below the established Site Closure Criteria. Based on the soil sample analytical results, an

estimated 14 cubic yards of impacted soil will be excavated from the well pad in the vicinity of assessment soil sample SS07.

- Following removal of the impacted soil, 5-point composite confirmation samples will be collected at least every 200 square feet from the sidewalls and floor of the excavation. The 5-point composite samples will be collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. The excavation samples will be submitted for laboratory analysis of BTEX, TPH, and chloride as described above.

COG will complete the excavation activities within 90 days of the date of approval of this *Work Plan* by the NMOCD. 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.

COG believes the scope of work described above will meet requirements set forth in 19.15.29.13 NMAC and is protective of human health, the environment, and groundwater. As such, COG respectfully requests approval of this *Work Plan* from NMOCD.

If you have any questions or comments, please contact Ms. Hadlie Green at (432) 557-8895 or hgreen@ensolum.com.

Sincerely,
Ensolum, LLC

Hadlie Green
Project Geologist

Aimee Cole
Senior Managing Scientist

cc: Jacob Laird, COG
New Mexico State Land Office

Appendices:

Figure 1	Site Location Map
Figure 2	Assessment Soil Sample Locations
Figure 3	Delineation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Referenced Well Records
Appendix B	Photographic Log
Appendix C	Lithologic / Soil Sampling Logs
Appendix D	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix E	NMOCD Notifications
Appendix F	Final C-141

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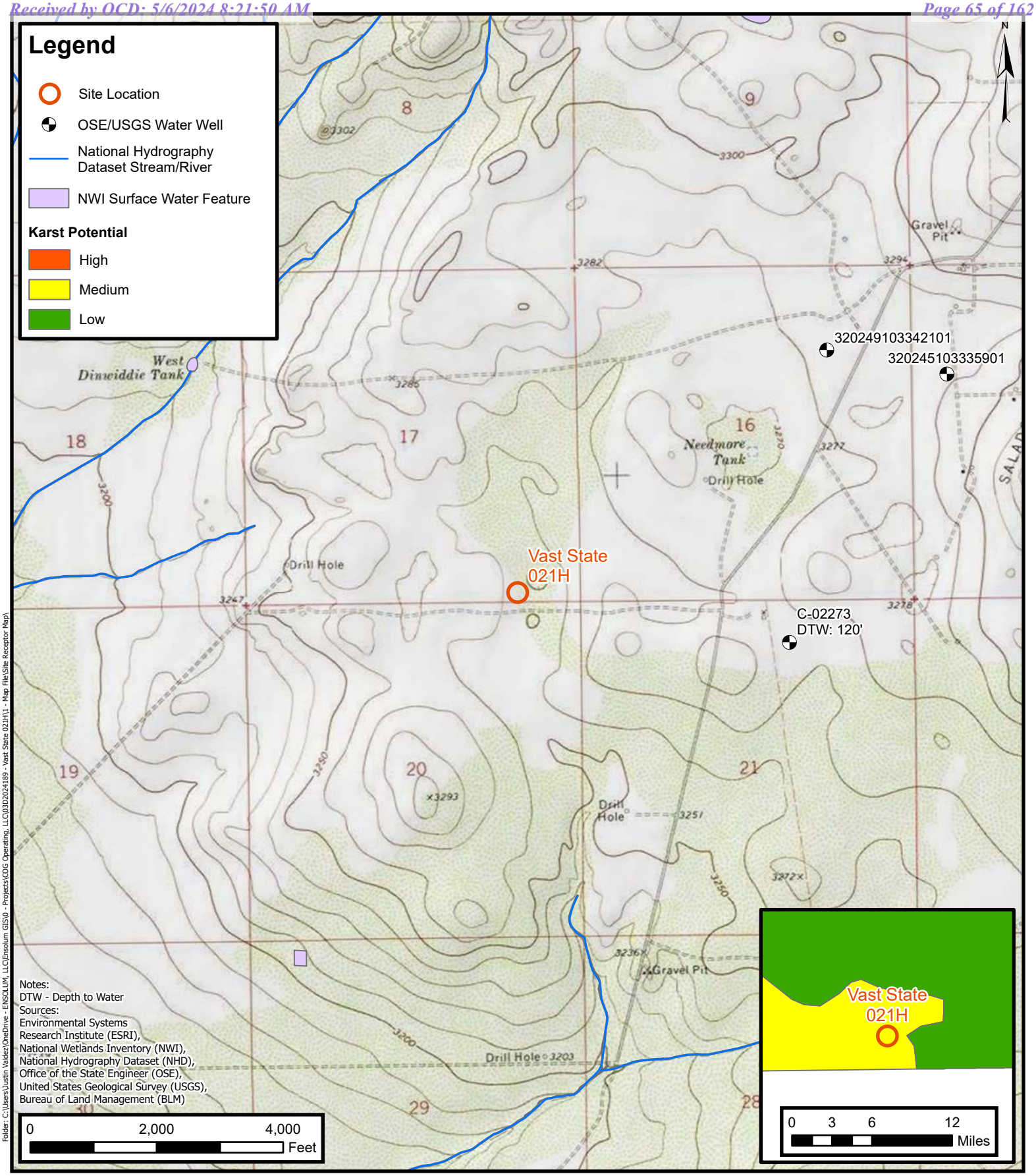
FIGURES



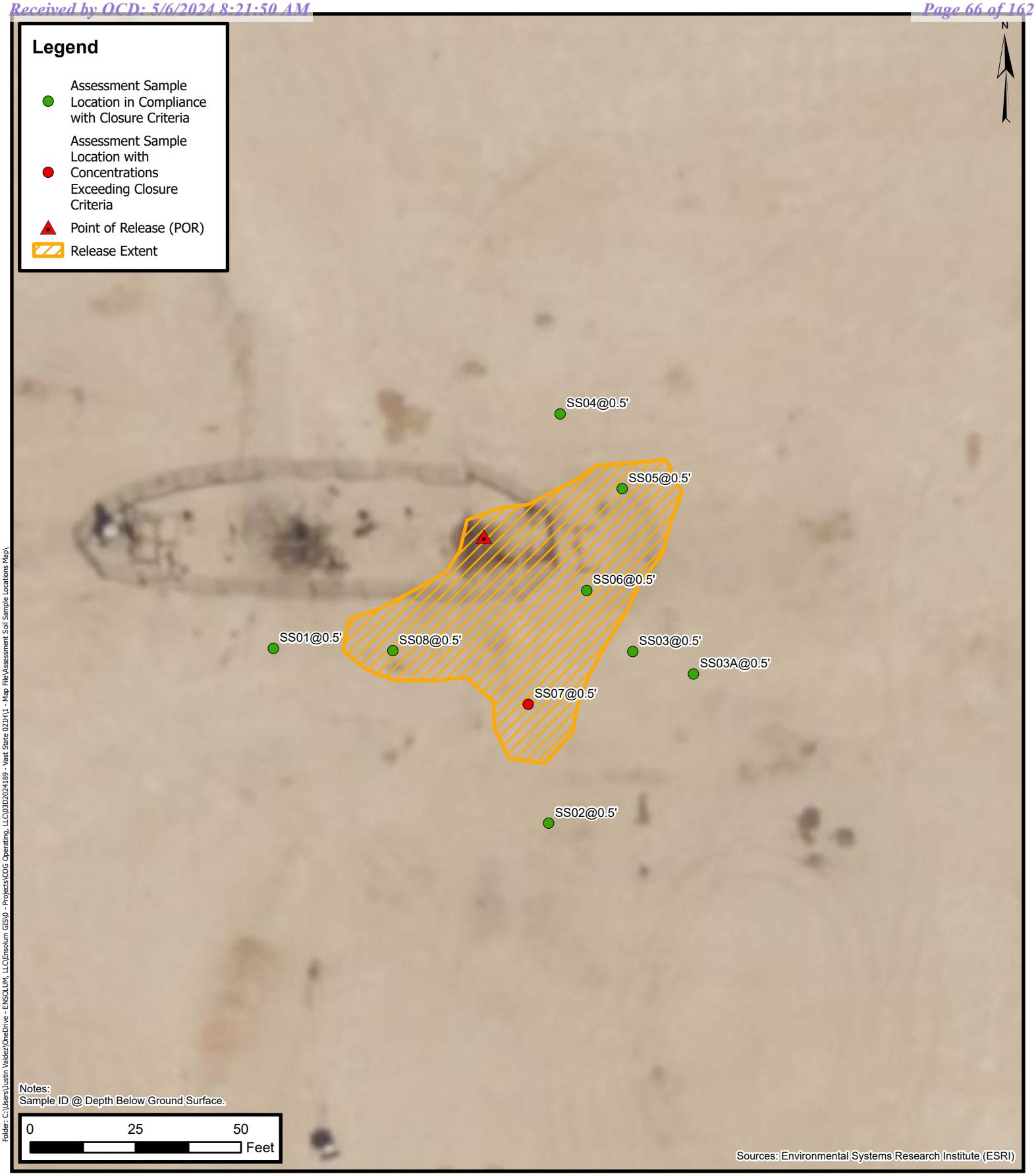
Folder: C:\Users\Justin Valdez\OneDrive - ENSOLUM, LLC\Ensolum GIS\0 - Projects\COG Operating, LLC\03202024189 - Vast State (021H)\1 - Map File\Site Receptor Map\

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Site Receptor Map

COG Operating, LLC
Vast State 021H
Incident Number: NAPP2313140440
Unit P Section 17 Township 26S Range 33E
County Lea, New Mexico

FIGURE 1



Folder: C:\Users\Justin Valdez\OneDrive - ENSOLUM, LLC\Ensolum GIS\0 - Projects\COG Operating, LLC\03202024189 - Vast State 021H\1 - Map File\Assessment Soil Sample Locations Map\

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Environmental, Engineering and Hydrogeologic Consultants

Assessment Soil Sample Locations

COG Operating, LLC
Vast State 021H
Incident Number: NAPP2313140440
Unit P, Sec 17, T26S, R33E
Eddy County, New Mexico

FIGURE 2

Folder: C:\Users\Justin Valdez\OneDrive - ENSOLUM, LLC\Ensolum GIS\0 - Projects\COG Operating, LLC\03202024189 - Vast State 021H\1 - Map File\Delineation Soil Sample Locations Map\

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Delineation Soil Sample Locations

COG Operating, LLC
Vast State 021H
Incident Number: NAPP2313140440
Unit P, Sec 17, T26S, R33E
Eddy County, New Mexico

FIGURE 3

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TABLES

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Vast State 021H
COG Operating, LLC
Lea County, New Mexico

Sample Designation	Date	Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			**10**	**50**	**NE**	**NE**	**NE**	**1,000**	**2,500**	**20,000**
Assessment Soil Samples										
SS01	05/22/2023	0.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	565
SS02	05/22/2023	0.5	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	571
SS03	05/22/2023	0.5	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	1,050
SS03A	06/08/2023	0.5	<0.00199	<0.00398	<49.9	27.9	<49.9	27.9	27.9	159
SS04	05/22/2023	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	477
SS05	05/22/2023	0.5	<0.00198	<0.00396	<49.8	550	<49.8	550	550	282
SS06	05/22/2023	0.5	<0.00199	<0.00398	<50.0	684	<50.0	684	684	3,440
SS07	05/22/2023	0.5	<0.00200	<0.00399	<50.0	1,920	<50.0	**1,920**	1,920	3,530
SS08	05/22/2023	0.5	<0.00201	<0.00402	<49.9	903	<49.9	903	903	1,530
Delineation Soil Samples										
BH01A	06/08/2023	1	<0.0020	<0.00400	<49.9	<49.9	<49.9	<49.9	<49.9	3,670
BH01D	06/08/2023	4	<0.0200	<0.00399	<49.8	<49.8	<49.8	<49.8	<49.8	1,240
BH01E	06/09/2023	5	<0.00198	<0.00397	<49.8	<49.8	<49.8	<49.8	<49.8	404
BH02A	06/08/2023	1	<0.00201	<0.00402	<50.0	156	<50.0	156	156	1,560
BH02D	06/09/2023	4	<0.00202	<0.00404	<49.9	<49.9	<49.9	<49.9	<49.9	246
BH03A	06/09/2023	1	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	551
BH03B	06/09/2023	2	<0.00200	<0.00400	<50.0	<50.0	<50.0	<50.0	<50.0	250

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

NMAC: New Mexico Administrative Code

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

*Concentrations in **bold** exceed the NMOCD Table I Closure Criteria or reclamation standard where applicable.*

Grey text represents samples that have been excavated

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APPENDIX A

Referenced Well Records

New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
	C 02273	1	2		21	26S	33E	634549	3545134*

Driller License:	122	**Driller Company:**	UNKNOWN		
Driller Name:	UNKNOWN				
Drill Start Date:		**Drill Finish Date:**	12/31/1930	**Plug Date:**	
Log File Date:		**PCW Rcv Date:**		**Source:**	
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	5 GPM
Casing Size:	6.00	**Depth Well:**	160 feet	**Depth Water:**	120 feet

***UTM location was derived from PLSS - see Help**

Click to hideNews Bulletins

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

Groundwater levels for New Mexico

Click to hide state-specific text

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 320245103335901

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 320245103335901 26S.33E.10.334343

Lea County, New Mexico
Latitude 32°02'45", Longitude 103°33'59" NAD27
Land-surface elevation 3,291 feet above NAVD88
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

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

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 measur
1970-12-07		D	62610		3162.10	NGVD29	P	Z		
1970-12-07		D	62611		3163.68	NAVD88	P	Z		
1970-12-07		D	72019	127.32			P	Z		
1976-01-08		D	62610		3165.46	NGVD29	1	Z		
1976-01-08		D	62611		3167.04	NAVD88	1	Z		
1976-01-08		D	72019	123.96			1	Z		
1981-03-25		D	62610		3165.27	NGVD29	1	Z		
1981-03-25		D	62611		3166.85	NAVD88	1	Z		
1981-03-25		D	72019	124.15			1	Z		
1986-03-04		D	62610		3165.01	NGVD29	1	Z		
1986-03-04		D	62611		3166.59	NAVD88	1	Z		
1986-03-04		D	72019	124.41			1	Z		
1990-11-27		D	62610		3164.82	NGVD29	1	Z		
1990-11-27		D	62611		3166.40	NAVD88	1	Z		
1990-11-27		D	72019	124.60			1	Z		

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 measur
1996-03-05		D	62610		3164.92	NGVD29	1	S		
1996-03-05		D	62611		3166.50	NAVD88	1	S		
1996-03-05		D	72019	124.50			1	S		
2001-02-27		D	62610		3164.98	NGVD29	1	S		
2001-02-27		D	62611		3166.56	NAVD88	1	S		
2001-02-27		D	72019	124.44			1	S		

Explanation

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	P	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	A	Approved for publication -- Processing and review completed.

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APPENDIX B

Photographic Log

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Photographic Log
COG Operating, LLC
Vast State 021H
Incident Number NAPP2313140440

Photograph: 1 Date: 5/6/2023
Description: Initial release extent
View: East

Photograph: 2 Date: 5/22/2023
Description: Initial assessment activities
View: West

Photograph: 3 Date: 6/8/2023
Description: Delineation activities
View: Northeast

Photograph: 4 Date: 6/8/2023
Description: Delineation activities
View: Northwest

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APPENDIX C

Lithologic Soil Sampling Logs

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	Sample Name: BH01	Date: 6/9/2023
	Site Name: Vast State 021H	
	Incident Number: NAPP2313140440	
	Job Number: 03D2024189	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Peter Van Patten	Method: Trackhoe
Coordinates: 32.036731,-103.589373	Hole Diameter:	Total Depth: 5'

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

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0		
Damp	3556	0.3	N	BH01A	1	1	SP-SM	Sand: brown, grey/brown, medium to fine grain, poorly graded, caliche gravel, trace odor
Damp	1730	3.5	N			2	SP-SM	SAA (same as above) slight hydrocarbon odor
Damp	1389	1.0	N			3	SP-SM	SAA trace hydrocarbon odor
Damp	1019	0.1	N	BH01D	4	4	CHHE	Caliche: Light tan, grey/tan, some brown fine grain sand
Damp	319	0.6	N	BH01E	5	5	CHHE	SAA
								TD 5 feet bgs
						6		
						7		
						8		
						9		
						10		
						11		
						12		

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	Sample Name: BH02	Date: 6/9/2023
	Site Name: Vast State 021H	
	Incident Number: NAPP2313140440	
	Job Number: 03D2024189	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Peter Van Patten	Method: Trackhoe
Coordinates: 32.036853,-103.589307	Hole Diameter:	Total Depth: 4'

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

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0		
Damp	1612	0.1	N	BH02A	1	1	SP-SM	Sand: brown, grey/brown, medium to fine grain, poorly graded, caliche gravel
Damp	940	0.1	N			2	SP-SM	SAA (same as above)
Damp	862	0.1	N			3	SP-SM	SAA
Damp	212	0.3	N	BH02D	4	4	CHHE	Caliche: Light tan, grey/tan, some brown fine grain sand
								TD 4 feet bgs
						6		
						7		
						8		
						9		
						10		
						11		
						12		

ENSOLUM

	Sample Name: BH03	Date: 6/9/2023
	Site Name: Vast State 021H	
	Incident Number: NAPP2313140440	
	Job Number: 03D2024189	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Peter Van Patten	Method: Trackhoe
Coordinates: 32.036773,-103.589473	Hole Diameter:	Total Depth: 3'

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

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0		
Damp	448	0.4	N	BH03A	1	1	SP-SM	Sand: brown, grey/brown, medium to fine grain, poorly graded, caliche gravel
Damp	212	0.3	N	BH03B	2	2	SP-SM	SAA (same as above)
Damp	212	0.3	N			3	SP-SM	SAA
								TD 3 feet bgs
						6		
						7		
						8		
						9		
						10		
						11		
						12		

ENSOLUM

APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Hadlie Green
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 5/31/2023 9:52:34 AM

JOB DESCRIPTION

Vast State 21H
SDG NUMBER 03D2024189

JOB NUMBER

890-4710-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

See page two for job notes and contact information.

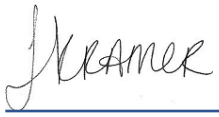
Eurofins Carlsbad

Job Notes

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

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

Authorization



Generated
5/31/2023 9:52:34 AM

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

Client: Ensolum
Project/Site: Vast State 21H

Laboratory Job ID: 890-4710-1
SDG: 03D2024189

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Job ID: 890-4710-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-4710-1

Receipt
The samples were received on 5/23/2023 8:34 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: SS01 (890-4710-1), SS02 (890-4710-2), SS03 (890-4710-3), SS04 (890-4710-4), SS05 (890-4710-5), SS06 (890-4710-6), SS07 (890-4710-7) and SS08 (890-4710-8).

GC VOA
Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-54106 and analytical batch 880-54208 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

Method 8021B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 880-54206 recovered outside control limits for the following analytes: Benzene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (CCV 880-54206/11). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-54098 and 880-54102 and analytical batch 880-54206 was outside the upper control limits.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-54206 recovered above the upper control limit for Benzene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (MB 880-54206/6). Evidence of matrix interferences is not obvious.

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

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-54080 and analytical batch 880-54026 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: SS01 (890-4710-1), SS02 (890-4710-2), SS03 (890-4710-3) and SS04 (890-4710-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: SS05 (890-4710-5), SS06 (890-4710-6), SS07 (890-4710-7) and SS08 (890-4710-8). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-54056 and analytical batch 880-54097 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Case Narrative

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Job ID: 890-4710-1 (Continued)

Laboratory: Eurofins Carlsbad (Continued)

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

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Client Sample ID: SS01

Lab Sample ID: 890-4710-1
Matrix: Solid
Date Collected: 05/22/23 11:30
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 17:08	1
Toluene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 17:08	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 17:08	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		05/24/23 15:24	05/27/23 17:08	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 17:08	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		05/24/23 15:24	05/27/23 17:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*05/24/23 15:24*	*05/27/23 17:08*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*05/24/23 15:24*	*05/27/23 17:08*	*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			05/31/23 10:19	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			05/25/23 11:47	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		05/24/23 12:56	05/25/23 00:52	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		05/24/23 12:56	05/25/23 00:52	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/24/23 12:56	05/25/23 00:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*135*	*S1+*	*70 - 130*	*05/24/23 12:56*	*05/25/23 00:52*	*1*
o-Terphenyl	*106*		*70 - 130*	*05/24/23 12:56*	*05/25/23 00:52*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**565**		5.03		mg/Kg			05/25/23 15:11	1

Client Sample ID: SS02

Lab Sample ID: 890-4710-2
Matrix: Solid
Date Collected: 05/22/23 11:45
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		05/24/23 15:24	05/27/23 17:35	1
Toluene	<0.00201	U	0.00201		mg/Kg		05/24/23 15:24	05/27/23 17:35	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		05/24/23 15:24	05/27/23 17:35	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		05/24/23 15:24	05/27/23 17:35	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		05/24/23 15:24	05/27/23 17:35	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		05/24/23 15:24	05/27/23 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*70 - 130*	*05/24/23 15:24*	*05/27/23 17:35*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Client Sample ID: SS02

Date Collected: 05/22/23 11:45
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

Lab Sample ID: 890-4710-2
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*	*05/24/23 15:24*	*05/27/23 17:35*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			05/31/23 10:19	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			05/25/23 11:47	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		05/24/23 12:56	05/25/23 01:14	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		05/24/23 12:56	05/25/23 01:14	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		05/24/23 12:56	05/25/23 01:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*137*	*S1+*	*70 - 130*	*05/24/23 12:56*	*05/25/23 01:14*	*1*
o-Terphenyl	*108*		*70 - 130*	*05/24/23 12:56*	*05/25/23 01:14*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**571**		4.99	mg/Kg			05/25/23 15:17	1

Client Sample ID: SS03

Date Collected: 05/22/23 11:40
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

Lab Sample ID: 890-4710-3
Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		05/24/23 15:24	05/27/23 18:02	1
Toluene	<0.00200	U	0.00200	mg/Kg		05/24/23 15:24	05/27/23 18:02	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		05/24/23 15:24	05/27/23 18:02	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		05/24/23 15:24	05/27/23 18:02	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		05/24/23 15:24	05/27/23 18:02	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		05/24/23 15:24	05/27/23 18:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*	*05/24/23 15:24*	*05/27/23 18:02*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*05/24/23 15:24*	*05/27/23 18:02*	*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			05/31/23 10:19	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			05/25/23 11:47	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Client Sample ID: SS03

Lab Sample ID: 890-4710-3
Matrix: Solid
Date Collected: 05/22/23 11:40
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

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		05/24/23 12:56	05/25/23 01:35	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		05/24/23 12:56	05/25/23 01:35	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/24/23 12:56	05/25/23 01:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*138*	*S1+*	*70 - 130*	*05/24/23 12:56*	*05/25/23 01:35*	*1*
o-Terphenyl	*108*		*70 - 130*	*05/24/23 12:56*	*05/25/23 01:35*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1050**		24.9		mg/Kg			05/25/23 15:49	5

Client Sample ID: SS04

Lab Sample ID: 890-4710-4
Matrix: Solid
Date Collected: 05/22/23 11:05
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 18:29	1
Toluene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 18:29	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 18:29	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		05/24/23 15:24	05/27/23 18:29	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 18:29	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		05/24/23 15:24	05/27/23 18:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*05/24/23 15:24*	*05/27/23 18:29*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*05/24/23 15:24*	*05/27/23 18:29*	*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			05/31/23 10:19	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			05/25/23 11:47	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		05/24/23 12:56	05/25/23 01:56	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/24/23 12:56	05/25/23 01:56	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/24/23 12:56	05/25/23 01:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*136*	*S1+*	*70 - 130*	*05/24/23 12:56*	*05/25/23 01:56*	*1*
o-Terphenyl	*107*		*70 - 130*	*05/24/23 12:56*	*05/25/23 01:56*	*1*

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Client Sample ID: SS04
Date Collected: 05/22/23 11:05
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

Lab Sample ID: 890-4710-4
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**477**		4.97		mg/Kg			05/25/23 15:55	1

Client Sample ID: SS05
Date Collected: 05/22/23 11:10
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

Lab Sample ID: 890-4710-5
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		05/24/23 15:24	05/27/23 18:56	1
Toluene	<0.00198	U	0.00198		mg/Kg		05/24/23 15:24	05/27/23 18:56	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		05/24/23 15:24	05/27/23 18:56	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		05/24/23 15:24	05/27/23 18:56	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		05/24/23 15:24	05/27/23 18:56	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		05/24/23 15:24	05/27/23 18:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*	*05/24/23 15:24*	*05/27/23 18:56*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*05/24/23 15:24*	*05/27/23 18:56*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396		mg/Kg			05/31/23 10:19	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**550**		49.8		mg/Kg			05/25/23 11:47	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		05/24/23 12:56	05/25/23 02:39	1
Diesel Range Organics (Over C10-C28)	**550**		49.8		mg/Kg		05/24/23 12:56	05/25/23 02:39	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		05/24/23 12:56	05/25/23 02:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*141*	*S1+*	*70 - 130*	*05/24/23 12:56*	*05/25/23 02:39*	*1*
o-Terphenyl	*109*		*70 - 130*	*05/24/23 12:56*	*05/25/23 02:39*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**282**		5.03		mg/Kg			05/25/23 16:00	1

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Client Sample ID: SS06

Lab Sample ID: 890-4710-6
Matrix: Solid
Date Collected: 05/22/23 11:15
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 19:23	1
Toluene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 19:23	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 19:23	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		05/24/23 15:24	05/27/23 19:23	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		05/24/23 15:24	05/27/23 19:23	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		05/24/23 15:24	05/27/23 19:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*	*05/24/23 15:24*	*05/27/23 19:23*	*1*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*	*05/24/23 15:24*	*05/27/23 19:23*	*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			05/31/23 10:19	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**684**		50.0		mg/Kg			05/25/23 11:47	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		05/24/23 12:56	05/25/23 03:00	1
Diesel Range Organics (Over C10-C28)	**684**		50.0		mg/Kg		05/24/23 12:56	05/25/23 03:00	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/24/23 12:56	05/25/23 03:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*144*	*S1+*	*70 - 130*	*05/24/23 12:56*	*05/25/23 03:00*	*1*
o-Terphenyl	*113*		*70 - 130*	*05/24/23 12:56*	*05/25/23 03:00*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3440**		50.5		mg/Kg			05/25/23 16:06	10

Client Sample ID: SS07

Lab Sample ID: 890-4710-7
Matrix: Solid
Date Collected: 05/22/23 11:20
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:24	05/27/23 19:50	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:24	05/27/23 19:50	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:24	05/27/23 19:50	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		05/24/23 15:24	05/27/23 19:50	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:24	05/27/23 19:50	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		05/24/23 15:24	05/27/23 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*	*05/24/23 15:24*	*05/27/23 19:50*	*1*

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Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Client Sample ID: SS07

Date Collected: 05/22/23 11:20
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

Lab Sample ID: 890-4710-7
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*05/24/23 15:24*	*05/27/23 19:50*	*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			05/31/23 10:19	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**1920**		50.0		mg/Kg			05/25/23 11:47	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		05/24/23 12:56	05/25/23 03:21	1
Diesel Range Organics (Over C10-C28)	**1920**		50.0		mg/Kg		05/24/23 12:56	05/25/23 03:21	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/24/23 12:56	05/25/23 03:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*137*	*S1+*	*70 - 130*	*05/24/23 12:56*	*05/25/23 03:21*	*1*
o-Terphenyl	*106*		*70 - 130*	*05/24/23 12:56*	*05/25/23 03:21*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3530**		25.1		mg/Kg			05/25/23 16:11	5

Client Sample ID: SS08

Date Collected: 05/22/23 11:25
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

Lab Sample ID: 890-4710-8
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		05/24/23 13:32	05/26/23 20:29	1
Toluene	<0.00201	U	0.00201		mg/Kg		05/24/23 13:32	05/26/23 20:29	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		05/24/23 13:32	05/26/23 20:29	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		05/24/23 13:32	05/26/23 20:29	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		05/24/23 13:32	05/26/23 20:29	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		05/24/23 13:32	05/26/23 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*	*05/24/23 13:32*	*05/26/23 20:29*	*1*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*	*05/24/23 13:32*	*05/26/23 20:29*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			05/30/23 09:08	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**903**		49.9		mg/Kg			05/25/23 11:47	1

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Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Client Sample ID: SS08

Date Collected: 05/22/23 11:25
Date Received: 05/23/23 08:34
Sample Depth: 0.5'

Lab Sample ID: 890-4710-8

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		05/24/23 12:56	05/25/23 06:35	1
Diesel Range Organics (Over C10-C28)	**903**		49.9		mg/Kg		05/24/23 12:56	05/25/23 06:35	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/24/23 12:56	05/25/23 06:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*145*	*S1+*	*70 - 130*	*05/24/23 12:56*	*05/25/23 06:35*	*1*
o-Terphenyl	*111*		*70 - 130*	*05/24/23 12:56*	*05/25/23 06:35*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1530**		25.2		mg/Kg			05/25/23 16:16	5

Surrogate Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-4707-A-21-C MS	Matrix Spike	84	105
890-4707-A-21-D MSD	Matrix Spike Duplicate	85	98
890-4710-1	SS01	93	99
890-4710-2	SS02	85	108
890-4710-3	SS03	88	105
890-4710-4	SS04	96	104
890-4710-5	SS05	87	99
890-4710-6	SS06	91	109
890-4710-7	SS07	91	102
890-4710-8	SS08	95	89
890-4711-A-1-G MS	Matrix Spike	92	100
890-4711-A-1-H MSD	Matrix Spike Duplicate	93	101
LCS 880-54083/1-A	Lab Control Sample	97	105
LCS 880-54098/1-A	Lab Control Sample	80	118
LCS 880-54106/1-A	Lab Control Sample	92	95
LCSD 880-54083/2-A	Lab Control Sample Dup	96	98
LCSD 880-54098/2-A	Lab Control Sample Dup	81	107
LCSD 880-54106/2-A	Lab Control Sample Dup	93	118
MB 880-54083/5-A	Method Blank	87	104
MB 880-54098/5-A	Method Blank	53 S1-	100
MB 880-54102/5-A	Method Blank	51 S1-	98

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-4709-A-2-C MS	Matrix Spike	118	85
890-4709-A-2-D MSD	Matrix Spike Duplicate	121	87
890-4710-1	SS01	135 S1+	106
890-4710-2	SS02	137 S1+	108
890-4710-3	SS03	138 S1+	108
890-4710-4	SS04	136 S1+	107
890-4710-5	SS05	141 S1+	109
890-4710-6	SS06	144 S1+	113
890-4710-7	SS07	137 S1+	106
890-4710-8	SS08	145 S1+	111
LCS 880-54080/2-A	Lab Control Sample	103	79
LCSD 880-54080/3-A	Lab Control Sample Dup	103	79
MB 880-54080/1-A	Method Blank	170 S1+	138 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-54083/5-A
Matrix: Solid
Analysis Batch: 54208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 54083

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		05/24/23 13:32	05/26/23 12:02	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/24/23 13:32	05/26/23 12:02	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/24/23 13:32	05/26/23 12:02	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/24/23 13:32	05/26/23 12:02	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/24/23 13:32	05/26/23 12:02	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/24/23 13:32	05/26/23 12:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*	*05/24/23 13:32*	*05/26/23 12:02*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*05/24/23 13:32*	*05/26/23 12:02*	*1*

Lab Sample ID: LCS 880-54083/1-A
Matrix: Solid
Analysis Batch: 54208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 54083

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1228		mg/Kg		123	70 - 130		
Toluene			0.100	0.1146		mg/Kg		115	70 - 130		
Ethylbenzene			0.100	0.1040		mg/Kg		104	70 - 130		
m-Xylene & p-Xylene			0.200	0.2201		mg/Kg		110	70 - 130		
o-Xylene			0.100	0.1007		mg/Kg		101	70 - 130		

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

Lab Sample ID: LCSD 880-54083/2-A
Matrix: Solid
Analysis Batch: 54208

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 54083

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1211		mg/Kg		121	70 - 130	1	35
Toluene			0.100	0.1152		mg/Kg		115	70 - 130	1	35
Ethylbenzene			0.100	0.1081		mg/Kg		108	70 - 130	4	35
m-Xylene & p-Xylene			0.200	0.2237		mg/Kg		112	70 - 130	2	35
o-Xylene			0.100	0.1018		mg/Kg		102	70 - 130	1	35

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

Lab Sample ID: MB 880-54098/5-A
Matrix: Solid
Analysis Batch: 54206

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 54098

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:24	05/27/23 07:23	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:24	05/27/23 07:23	1

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

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

Lab Sample ID: MB 880-54098/5-A
Matrix: Solid
Analysis Batch: 54206

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 54098

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:24	05/27/23 07:23	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/24/23 15:24	05/27/23 07:23	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:24	05/27/23 07:23	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/24/23 15:24	05/27/23 07:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*53*	*S1-*	*70 - 130*	*05/24/23 15:24*	*05/27/23 07:23*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*05/24/23 15:24*	*05/27/23 07:23*	*1*

Lab Sample ID: LCS 880-54098/1-A
Matrix: Solid
Analysis Batch: 54206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 54098

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1225		mg/Kg		123	70 - 130		
Toluene			0.100	0.1063		mg/Kg		106	70 - 130		
Ethylbenzene			0.100	0.1001		mg/Kg		100	70 - 130		
m-Xylene & p-Xylene			0.200	0.1944		mg/Kg		97	70 - 130		
o-Xylene			0.100	0.09737		mg/Kg		97	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*80*		*70 - 130*
1,4-Difluorobenzene (Surr)	*118*		*70 - 130*

Lab Sample ID: LCSD 880-54098/2-A
Matrix: Solid
Analysis Batch: 54206

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 54098

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1289		mg/Kg		129	70 - 130	5	35
Toluene			0.100	0.1105		mg/Kg		110	70 - 130	4	35
Ethylbenzene			0.100	0.1071		mg/Kg		107	70 - 130	7	35
m-Xylene & p-Xylene			0.200	0.2100		mg/Kg		105	70 - 130	8	35
o-Xylene			0.100	0.1070		mg/Kg		107	70 - 130	9	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*81*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 890-4707-A-21-C MS
Matrix: Solid
Analysis Batch: 54206

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 54098

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00199	U	0.0998	0.1210		mg/Kg		121	70 - 130		
Toluene	<0.00199	U	0.0998	0.1091		mg/Kg		109	70 - 130		
Ethylbenzene	<0.00199	U	0.0998	0.1058		mg/Kg		106	70 - 130		
m-Xylene & p-Xylene	<0.00398	U	0.200	0.2034		mg/Kg		102	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

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

Lab Sample ID: 890-4707-A-21-C MS
Matrix: Solid
Analysis Batch: 54206

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 54098

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
o-Xylene	<0.00199	U	0.0998	0.1001		mg/Kg		100	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*84*		*70 - 130*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*

Lab Sample ID: 890-4707-A-21-D MSD
Matrix: Solid
Analysis Batch: 54206

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 54098

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.100	0.1191		mg/Kg		119	70 - 130	2	35
Toluene	<0.00199	U	0.100	0.1091		mg/Kg		109	70 - 130	0	35
Ethylbenzene	<0.00199	U	0.100	0.1025		mg/Kg		102	70 - 130	3	35
m-Xylene & p-Xylene	<0.00398	U	0.201	0.1976		mg/Kg		98	70 - 130	3	35
o-Xylene	<0.00199	U	0.100	0.09868		mg/Kg		98	70 - 130	1	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*85*		*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: MB 880-54102/5-A
Matrix: Solid
Analysis Batch: 54206

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 54102

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:59	05/26/23 17:47	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:59	05/26/23 17:47	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:59	05/26/23 17:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/24/23 15:59	05/26/23 17:47	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/24/23 15:59	05/26/23 17:47	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/24/23 15:59	05/26/23 17:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*51*	*S1-*	*70 - 130*	*05/24/23 15:59*	*05/26/23 17:47*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*05/24/23 15:59*	*05/26/23 17:47*	*1*

Lab Sample ID: LCS 880-54106/1-A
Matrix: Solid
Analysis Batch: 54208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 54106

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1347	*+	mg/Kg		135	70 - 130
Toluene	0.100	0.1126		mg/Kg		113	70 - 130
Ethylbenzene	0.100	0.1119		mg/Kg		112	70 - 130
m-Xylene & p-Xylene	0.200	0.2200		mg/Kg		110	70 - 130
o-Xylene	0.100	0.09833		mg/Kg		98	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

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

Lab Sample ID: LCS 880-54106/1-A
Matrix: Solid
Analysis Batch: 54208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 54106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: LCSD 880-54106/2-A
Matrix: Solid
Analysis Batch: 54208

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 54106

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1464	*+	mg/Kg		146	70 - 130	8	35
Toluene			0.100	0.1194		mg/Kg		119	70 - 130	6	35
Ethylbenzene			0.100	0.1123		mg/Kg		112	70 - 130	0	35
m-Xylene & p-Xylene			0.200	0.2245		mg/Kg		112	70 - 130	2	35
o-Xylene			0.100	0.1025		mg/Kg		103	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		70 - 130
1,4-Difluorobenzene (Surr)	118		70 - 130

Lab Sample ID: 890-4711-A-1-G MS
Matrix: Solid
Analysis Batch: 54208

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 54106

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U *+	0.0998	0.1293		mg/Kg		130	70 - 130
Toluene	<0.00201	U	0.0998	0.1087		mg/Kg		108	70 - 130
Ethylbenzene	<0.00201	U	0.0998	0.1031		mg/Kg		103	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2005		mg/Kg		100	70 - 130
o-Xylene	<0.00201	U	0.0998	0.08897		mg/Kg		89	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: 890-4711-A-1-H MSD
Matrix: Solid
Analysis Batch: 54208

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 54106

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U *+	0.100	0.1225		mg/Kg		122	70 - 130	5	35
Toluene	<0.00201	U	0.100	0.1038		mg/Kg		103	70 - 130	5	35
Ethylbenzene	<0.00201	U	0.100	0.09474		mg/Kg		95	70 - 130	8	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1908		mg/Kg		95	70 - 130	5	35
o-Xylene	<0.00201	U	0.100	0.08602		mg/Kg		86	70 - 130	3	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

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

Lab Sample ID: MB 880-54080/1-A
Matrix: Solid
Analysis Batch: 54026

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 54080

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		05/24/23 12:56	05/24/23 20:56	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/24/23 12:56	05/24/23 20:56	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/24/23 12:56	05/24/23 20:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*170*	*S1+*	*70 - 130*	*05/24/23 12:56*	*05/24/23 20:56*	*1*
o-Terphenyl	*138*	*S1+*	*70 - 130*	*05/24/23 12:56*	*05/24/23 20:56*	*1*

Lab Sample ID: LCS 880-54080/2-A
Matrix: Solid
Analysis Batch: 54026

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 54080

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	916.4		mg/Kg		92	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	954.6		mg/Kg		95	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*103*		*70 - 130*
o-Terphenyl	*79*		*70 - 130*

Lab Sample ID: LCSD 880-54080/3-A
Matrix: Solid
Analysis Batch: 54026

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 54080

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	853.2		mg/Kg		85	70 - 130	7	20
Diesel Range Organics (Over C10-C28)			1000	878.9		mg/Kg		88	70 - 130	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*103*		*70 - 130*
o-Terphenyl	*79*		*70 - 130*

Lab Sample ID: 890-4709-A-2-C MS
Matrix: Solid
Analysis Batch: 54026

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 54080

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	876.3		mg/Kg		88	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	996	788.5		mg/Kg		79	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

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

Lab Sample ID: 890-4709-A-2-C MS
Matrix: Solid
Analysis Batch: 54026

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 54080

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	118		70 - 130
o-Terphenyl	85		70 - 130

Lab Sample ID: 890-4709-A-2-D MSD
Matrix: Solid
Analysis Batch: 54026

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 54080

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	888.8		mg/Kg		89	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	<49.9	U	996	815.5		mg/Kg		82	70 - 130	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	121		70 - 130
o-Terphenyl	87		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-54056/1-A
Matrix: Solid
Analysis Batch: 54097

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			05/25/23 12:17	1

Lab Sample ID: LCS 880-54056/2-A
Matrix: Solid
Analysis Batch: 54097

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	258.5		mg/Kg		103	90 - 110		

Lab Sample ID: LCSD 880-54056/3-A
Matrix: Solid
Analysis Batch: 54097

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	257.5		mg/Kg		103	90 - 110	0	20

Lab Sample ID: 890-4708-A-1-B MS
Matrix: Solid
Analysis Batch: 54097

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	53.3		249	282.6		mg/Kg		92	90 - 110		

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-4708-A-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 54097

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	53.3		249	280.7		mg/Kg		91	90 - 110	1	20

Lab Sample ID: 890-4709-A-7-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 54097

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	11100	F1	4950	17090	F1	mg/Kg		121	90 - 110

Lab Sample ID: 890-4709-A-7-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 54097

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	11100	F1	4950	16850	F1	mg/Kg		116	90 - 110	1	20

QC Association Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

GC VOA

Prep Batch: 54083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4710-8	SS08	Total/NA	Solid	5035	
MB 880-54083/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-54083/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-54083/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Prep Batch: 54098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4710-1	SS01	Total/NA	Solid	5035	
890-4710-2	SS02	Total/NA	Solid	5035	
890-4710-3	SS03	Total/NA	Solid	5035	
890-4710-4	SS04	Total/NA	Solid	5035	
890-4710-5	SS05	Total/NA	Solid	5035	
890-4710-6	SS06	Total/NA	Solid	5035	
890-4710-7	SS07	Total/NA	Solid	5035	
MB 880-54098/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-54098/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-54098/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4707-A-21-C MS	Matrix Spike	Total/NA	Solid	5035	
890-4707-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 54102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-54102/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 54106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-54106/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-54106/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4711-A-1-G MS	Matrix Spike	Total/NA	Solid	5035	
890-4711-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 54206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4710-1	SS01	Total/NA	Solid	8021B	54098
890-4710-2	SS02	Total/NA	Solid	8021B	54098
890-4710-3	SS03	Total/NA	Solid	8021B	54098
890-4710-4	SS04	Total/NA	Solid	8021B	54098
890-4710-5	SS05	Total/NA	Solid	8021B	54098
890-4710-6	SS06	Total/NA	Solid	8021B	54098
890-4710-7	SS07	Total/NA	Solid	8021B	54098
MB 880-54098/5-A	Method Blank	Total/NA	Solid	8021B	54098
MB 880-54102/5-A	Method Blank	Total/NA	Solid	8021B	54102
LCS 880-54098/1-A	Lab Control Sample	Total/NA	Solid	8021B	54098
LCSD 880-54098/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	54098
890-4707-A-21-C MS	Matrix Spike	Total/NA	Solid	8021B	54098
890-4707-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	54098

Analysis Batch: 54208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4710-8	SS08	Total/NA	Solid	8021B	54083
MB 880-54083/5-A	Method Blank	Total/NA	Solid	8021B	54083

QC Association Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

GC VOA (Continued)

Analysis Batch: 54208 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-54083/1-A	Lab Control Sample	Total/NA	Solid	8021B	54083
LCS 880-54106/1-A	Lab Control Sample	Total/NA	Solid	8021B	54106
LCSD 880-54083/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	54083
LCSD 880-54106/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	54106
890-4711-A-1-G MS	Matrix Spike	Total/NA	Solid	8021B	54106
890-4711-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	54106

Analysis Batch: 54349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4710-1	SS01	Total/NA	Solid	Total BTEX	
890-4710-2	SS02	Total/NA	Solid	Total BTEX	
890-4710-3	SS03	Total/NA	Solid	Total BTEX	
890-4710-4	SS04	Total/NA	Solid	Total BTEX	
890-4710-5	SS05	Total/NA	Solid	Total BTEX	
890-4710-6	SS06	Total/NA	Solid	Total BTEX	
890-4710-7	SS07	Total/NA	Solid	Total BTEX	
890-4710-8	SS08	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 54026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4710-1	SS01	Total/NA	Solid	8015B NM	54080
890-4710-2	SS02	Total/NA	Solid	8015B NM	54080
890-4710-3	SS03	Total/NA	Solid	8015B NM	54080
890-4710-4	SS04	Total/NA	Solid	8015B NM	54080
890-4710-5	SS05	Total/NA	Solid	8015B NM	54080
890-4710-6	SS06	Total/NA	Solid	8015B NM	54080
890-4710-7	SS07	Total/NA	Solid	8015B NM	54080
890-4710-8	SS08	Total/NA	Solid	8015B NM	54080
MB 880-54080/1-A	Method Blank	Total/NA	Solid	8015B NM	54080
LCS 880-54080/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	54080
LCSD 880-54080/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	54080
890-4709-A-2-C MS	Matrix Spike	Total/NA	Solid	8015B NM	54080
890-4709-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	54080

Prep Batch: 54080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4710-1	SS01	Total/NA	Solid	8015NM Prep	
890-4710-2	SS02	Total/NA	Solid	8015NM Prep	
890-4710-3	SS03	Total/NA	Solid	8015NM Prep	
890-4710-4	SS04	Total/NA	Solid	8015NM Prep	
890-4710-5	SS05	Total/NA	Solid	8015NM Prep	
890-4710-6	SS06	Total/NA	Solid	8015NM Prep	
890-4710-7	SS07	Total/NA	Solid	8015NM Prep	
890-4710-8	SS08	Total/NA	Solid	8015NM Prep	
MB 880-54080/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-54080/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-54080/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-4709-A-2-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-4709-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

GC Semi VOA

Analysis Batch: 54164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4710-1	SS01	Total/NA	Solid	8015 NM	
890-4710-2	SS02	Total/NA	Solid	8015 NM	
890-4710-3	SS03	Total/NA	Solid	8015 NM	
890-4710-4	SS04	Total/NA	Solid	8015 NM	
890-4710-5	SS05	Total/NA	Solid	8015 NM	
890-4710-6	SS06	Total/NA	Solid	8015 NM	
890-4710-7	SS07	Total/NA	Solid	8015 NM	
890-4710-8	SS08	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 54056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4710-1	SS01	Soluble	Solid	DI Leach	
890-4710-2	SS02	Soluble	Solid	DI Leach	
890-4710-3	SS03	Soluble	Solid	DI Leach	
890-4710-4	SS04	Soluble	Solid	DI Leach	
890-4710-5	SS05	Soluble	Solid	DI Leach	
890-4710-6	SS06	Soluble	Solid	DI Leach	
890-4710-7	SS07	Soluble	Solid	DI Leach	
890-4710-8	SS08	Soluble	Solid	DI Leach	
MB 880-54056/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-54056/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-54056/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-4708-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-4708-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-4709-A-7-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-4709-A-7-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 54097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4710-1	SS01	Soluble	Solid	300.0	54056
890-4710-2	SS02	Soluble	Solid	300.0	54056
890-4710-3	SS03	Soluble	Solid	300.0	54056
890-4710-4	SS04	Soluble	Solid	300.0	54056
890-4710-5	SS05	Soluble	Solid	300.0	54056
890-4710-6	SS06	Soluble	Solid	300.0	54056
890-4710-7	SS07	Soluble	Solid	300.0	54056
890-4710-8	SS08	Soluble	Solid	300.0	54056
MB 880-54056/1-A	Method Blank	Soluble	Solid	300.0	54056
LCS 880-54056/2-A	Lab Control Sample	Soluble	Solid	300.0	54056
LCSD 880-54056/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	54056
890-4708-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	54056
890-4708-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	54056
890-4709-A-7-B MS	Matrix Spike	Soluble	Solid	300.0	54056
890-4709-A-7-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	54056

Lab Chronicle

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Client Sample ID: SS01
Date Collected: 05/22/23 11:30
Date Received: 05/23/23 08:34

Lab Sample ID: 890-4710-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	54098	05/24/23 15:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54206	05/27/23 17:08	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54349	05/31/23 10:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54164	05/25/23 11:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	54080	05/24/23 12:56	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54026	05/25/23 00:52	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	54056	05/24/23 11:18	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	54097	05/25/23 15:11	CH	EET MID

Client Sample ID: SS02
Date Collected: 05/22/23 11:45
Date Received: 05/23/23 08:34

Lab Sample ID: 890-4710-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	54098	05/24/23 15:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54206	05/27/23 17:35	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54349	05/31/23 10:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54164	05/25/23 11:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	54080	05/24/23 12:56	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54026	05/25/23 01:14	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	54056	05/24/23 11:18	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	54097	05/25/23 15:17	CH	EET MID

Client Sample ID: SS03
Date Collected: 05/22/23 11:40
Date Received: 05/23/23 08:34

Lab Sample ID: 890-4710-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	54098	05/24/23 15:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54206	05/27/23 18:02	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54349	05/31/23 10:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54164	05/25/23 11:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	54080	05/24/23 12:56	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54026	05/25/23 01:35	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	54056	05/24/23 11:18	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	54097	05/25/23 15:49	CH	EET MID

Client Sample ID: SS04
Date Collected: 05/22/23 11:05
Date Received: 05/23/23 08:34

Lab Sample ID: 890-4710-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	54098	05/24/23 15:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54206	05/27/23 18:29	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54349	05/31/23 10:19	AJ	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Client Sample ID: SS04
Date Collected: 05/22/23 11:05
Date Received: 05/23/23 08:34

Lab Sample ID: 890-4710-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			54164	05/25/23 11:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	54080	05/24/23 12:56	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54026	05/25/23 01:56	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	54056	05/24/23 11:18	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	54097	05/25/23 15:55	CH	EET MID

Client Sample ID: SS05
Date Collected: 05/22/23 11:10
Date Received: 05/23/23 08:34

Lab Sample ID: 890-4710-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	54098	05/24/23 15:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54206	05/27/23 18:56	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54349	05/31/23 10:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54164	05/25/23 11:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	54080	05/24/23 12:56	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54026	05/25/23 02:39	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	54056	05/24/23 11:18	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	54097	05/25/23 16:00	CH	EET MID

Client Sample ID: SS06
Date Collected: 05/22/23 11:15
Date Received: 05/23/23 08:34

Lab Sample ID: 890-4710-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	54098	05/24/23 15:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54206	05/27/23 19:23	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54349	05/31/23 10:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54164	05/25/23 11:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	54080	05/24/23 12:56	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54026	05/25/23 03:00	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	54056	05/24/23 11:18	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	54097	05/25/23 16:06	CH	EET MID

Client Sample ID: SS07
Date Collected: 05/22/23 11:20
Date Received: 05/23/23 08:34

Lab Sample ID: 890-4710-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	54098	05/24/23 15:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54206	05/27/23 19:50	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			54349	05/31/23 10:19	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54164	05/25/23 11:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	54080	05/24/23 12:56	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54026	05/25/23 03:21	SM	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Client Sample ID: SS07

Date Collected: 05/22/23 11:20
Date Received: 05/23/23 08:34

Lab Sample ID: 890-4710-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	54056	05/24/23 11:18	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	54097	05/25/23 16:11	CH	EET MID

Client Sample ID: SS08

Date Collected: 05/22/23 11:25
Date Received: 05/23/23 08:34

Lab Sample ID: 890-4710-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	54083	05/24/23 13:32	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	54208	05/26/23 20:29	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			54349	05/30/23 09:08	AJ	EET MID
Total/NA	Analysis	8015 NM		1			54164	05/25/23 11:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	54080	05/24/23 12:56	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	54026	05/25/23 06:35	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	54056	05/24/23 11:18	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	54097	05/25/23 16:16	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: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-25	06-30-23

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

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

Method Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

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

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4710-1
SDG: 03D2024189

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-4710-1	SS01	Solid	05/22/23 11:30	05/23/23 08:34	0.5'
890-4710-2	SS02	Solid	05/22/23 11:45	05/23/23 08:34	0.5'
890-4710-3	SS03	Solid	05/22/23 11:40	05/23/23 08:34	0.5'
890-4710-4	SS04	Solid	05/22/23 11:05	05/23/23 08:34	0.5'
890-4710-5	SS05	Solid	05/22/23 11:10	05/23/23 08:34	0.5'
890-4710-6	SS06	Solid	05/22/23 11:15	05/23/23 08:34	0.5'
890-4710-7	SS07	Solid	05/22/23 11:20	05/23/23 08:34	0.5'
890-4710-8	SS08	Solid	05/22/23 11:25	05/23/23 08:34	0.5'

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Chain of Custody

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

Work Order No: _____

www.xenco.com Page 1 of 1

Project Manager:	Hadlie Green	Bill to: (if different)	Kalei Jennings
Company Name:	Ensolum LLC	Company Name:	Ensolum LLC
Address:	3122 National Parks Hwy	Address:	
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	
Phone:	432-557-8895	Email:	hgreen@ensolum.com

Work Order Comments

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

Project Name:	Vast State 21H	Turn Around	
Project Number:	03D2024189	☑ Routine ☐ Rush	
Project Location:	32.0368619, -103.5894039	Due Date:	5 Day
Sampler's Name:	Ronni Hayes	TAT starts the day received by the lab, if received by 4:30pm	
Cost Center #:			

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

Preservative Codes

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

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: CHLORIDES (EPA: 300.0)	BTEX	TPH	Sample Comments
SS01	S	5/22/2023	1130	0.5'	Grab	1		X	X	X	
SS02	S	5/22/2023	1145	0.5'	Grab	1		X	X	X	
SS03	S	5/22/2023	1140	0.5'	Grab	1		X	X	X	
SS04	S	5/22/2023	1105	0.5'	Grab	1		X	X	X	
SS05	S	5/22/2023	1110	0.5'	Grab	1		X	X	X	
SS06	S	5/22/2023	1115	0.5'	Grab	1		X	X	X	
SS07	S	5/22/2023	1120	0.5'	Grab	1		X	X	X	
SS08	S	5/22/2023	1125	0.5'	Grab	1		X	X	X	

890-4710 Chain of Custody

ANALYSIS REQUEST

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		5/23/22 8:15am	2		
3		5/23/23 0834			
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4710-1
SDG Number: 03D2024189

Login Number: 4710
List Number: 1
Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	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: 890-4710-1
SDG Number: 03D2024189

Login Number: 4710
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 05/24/23 10:58 AM

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

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ANALYTICAL REPORT

PREPARED FOR

Attn: Hadlie Green
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 6/19/2023 3:22:03 PM

JOB DESCRIPTION

Vast State 21H
SDG NUMBER 03D2024189

JOB NUMBER

890-4809-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

See page two for job notes and contact information.

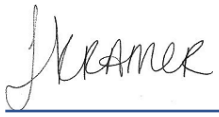
Eurofins Carlsbad

Job Notes

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

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

Authorization



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6/19/2023 3:22:03 PM

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

Client: Ensolum
Project/Site: Vast State 21H

Laboratory Job ID: 890-4809-1
SDG: 03D2024189

Table of Contents

Definitions/Glossary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Job ID: 890-4809-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-4809-1

Receipt
The samples were received on 6/9/2023 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 0.8°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: SS03A (890-4809-1), BH01A (890-4809-2), BH01D (890-4809-3), BH01E (890-4809-4), BH02A (890-4809-5), BH02D (890-4809-6), BH03A (890-4809-7) and BH03B (890-4809-8).

GC VOA
Method 8021B: The continuing calibration verification (CCV) associated with batch 880-55659 recovered below the lower control limit for Ethylbenzene, m-Xylene & p-Xylene and o-Xylene. An acceptable CCV was ran within the 12 hour window, therefore the data has been qualified and reported. The associated sample is impacted: (CCV 880-55659/64).

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-55616 and analytical batch 880-55659 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 matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-55423 and analytical batch 880-55544 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: SS03A (890-4809-1) and (MB 880-55423/1-A). Evidence of matrix interferences is not obvious.

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

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

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Client Sample ID: SS03A
Date Collected: 06/08/23 11:00
Date Received: 06/09/23 15:30
Sample Depth: 0.5

Lab Sample ID: 890-4809-1
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		06/15/23 13:52	06/17/23 15:37	1
Toluene	<0.00199	U	0.00199		mg/Kg		06/15/23 13:52	06/17/23 15:37	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		06/15/23 13:52	06/17/23 15:37	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		06/15/23 13:52	06/17/23 15:37	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		06/15/23 13:52	06/17/23 15:37	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		06/15/23 13:52	06/17/23 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*	*06/15/23 13:52*	*06/17/23 15:37*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*06/15/23 13:52*	*06/17/23 15:37*	*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			06/19/23 15:39	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**27.9**		49.9		mg/Kg			06/16/23 15:39	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		06/13/23 13:17	06/16/23 02:44	1
Diesel Range Organics (Over C10-C28)	**27.9**		49.9		mg/Kg		06/13/23 13:17	06/16/23 02:44	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		06/13/23 13:17	06/16/23 02:44	1
Total TPH	**27.9**		49.9		mg/Kg		06/13/23 13:17	06/16/23 02:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*112*		*70 - 130*	*06/13/23 13:17*	*06/16/23 02:44*	*1*
1-Chlorooctane	*146*	*S1+*	*70 - 130*	*06/13/23 13:17*	*06/16/23 03:50*	*1*
o-Terphenyl	*100*		*70 - 130*	*06/13/23 13:17*	*06/16/23 02:44*	*1*
o-Terphenyl	*144*	*S1+*	*70 - 130*	*06/13/23 13:17*	*06/16/23 03:50*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**159**		4.95		mg/Kg			06/14/23 15:22	1

Client Sample ID: BH01A
Date Collected: 06/08/23 11:05
Date Received: 06/09/23 15:30
Sample Depth: 1

Lab Sample ID: 890-4809-2
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 15:58	1
Toluene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 15:58	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 15:58	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		06/15/23 13:52	06/17/23 15:58	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 15:58	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		06/15/23 13:52	06/17/23 15:58	1

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Client Sample ID: BH01A

Lab Sample ID: 890-4809-2
Matrix: Solid
Date Collected: 06/08/23 11:05
Date Received: 06/09/23 15:30
Sample Depth: 1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*	*06/15/23 13:52*	*06/17/23 15:58*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*06/15/23 13:52*	*06/17/23 15:58*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			06/19/23 15:39	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			06/16/23 15:39	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		06/13/23 13:17	06/16/23 04:12	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		06/13/23 13:17	06/16/23 04:12	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		06/13/23 13:17	06/16/23 04:12	1
Total TPH	<49.9	U	49.9	mg/Kg		06/13/23 13:17	06/16/23 04:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*121*		*70 - 130*	*06/13/23 13:17*	*06/16/23 04:12*	*1*
o-Terphenyl	*106*		*70 - 130*	*06/13/23 13:17*	*06/16/23 04:12*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3670**		24.9	mg/Kg			06/14/23 15:28	5

Client Sample ID: BH01D

Lab Sample ID: 890-4809-3
Matrix: Solid
Date Collected: 06/08/23 11:20
Date Received: 06/09/23 15:30
Sample Depth: 4

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		06/15/23 13:52	06/17/23 17:50	1
Toluene	<0.00200	U	0.00200	mg/Kg		06/15/23 13:52	06/17/23 17:50	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		06/15/23 13:52	06/17/23 17:50	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		06/15/23 13:52	06/17/23 17:50	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		06/15/23 13:52	06/17/23 17:50	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		06/15/23 13:52	06/17/23 17:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*70 - 130*	*06/15/23 13:52*	*06/17/23 17:50*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*06/15/23 13:52*	*06/17/23 17:50*	*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			06/19/23 15:39	1

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Client Sample ID: BH01D

Date Collected: 06/08/23 11:20
Date Received: 06/09/23 15:30
Sample Depth: 4

Lab Sample ID: 890-4809-3
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			06/16/23 15:39	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		06/13/23 13:17	06/16/23 04:34	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		06/13/23 13:17	06/16/23 04:34	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		06/13/23 13:17	06/16/23 04:34	1
Total TPH	<49.8	U	49.8		mg/Kg		06/13/23 13:17	06/16/23 04:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*110*		*70 - 130*	*06/13/23 13:17*	*06/16/23 04:34*	*1*
o-Terphenyl	*100*		*70 - 130*	*06/13/23 13:17*	*06/16/23 04:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1240**		5.04		mg/Kg			06/14/23 15:34	1

Client Sample ID: BH01E

Date Collected: 06/09/23 12:00
Date Received: 06/09/23 15:30
Sample Depth: 5

Lab Sample ID: 890-4809-4
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		06/15/23 13:52	06/17/23 18:10	1
Toluene	<0.00198	U	0.00198		mg/Kg		06/15/23 13:52	06/17/23 18:10	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		06/15/23 13:52	06/17/23 18:10	1
m-Xylene & p-Xylene	<0.00397	U	0.00397		mg/Kg		06/15/23 13:52	06/17/23 18:10	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		06/15/23 13:52	06/17/23 18:10	1
Xylenes, Total	<0.00397	U	0.00397		mg/Kg		06/15/23 13:52	06/17/23 18:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*	*06/15/23 13:52*	*06/17/23 18:10*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*06/15/23 13:52*	*06/17/23 18:10*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00397	U	0.00397		mg/Kg			06/19/23 15:39	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			06/16/23 15:39	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		06/13/23 13:17	06/16/23 04:56	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		06/13/23 13:17	06/16/23 04:56	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		06/13/23 13:17	06/16/23 04:56	1

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Client Sample ID: BH01E

Lab Sample ID: 890-4809-4
Matrix: Solid
Date Collected: 06/09/23 12:00
Date Received: 06/09/23 15:30
Sample Depth: 5

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg		06/13/23 13:17	06/16/23 04:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*116*		*70 - 130*	*06/13/23 13:17*	*06/16/23 04:56*	*1*
o-Terphenyl	*103*		*70 - 130*	*06/13/23 13:17*	*06/16/23 04:56*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**404**		4.97		mg/Kg			06/14/23 15:39	1

Client Sample ID: BH02A

Lab Sample ID: 890-4809-5
Matrix: Solid
Date Collected: 06/08/23 12:20
Date Received: 06/09/23 15:30
Sample Depth: 1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		06/15/23 13:52	06/17/23 18:31	1
Toluene	<0.00201	U	0.00201		mg/Kg		06/15/23 13:52	06/17/23 18:31	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		06/15/23 13:52	06/17/23 18:31	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		06/15/23 13:52	06/17/23 18:31	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		06/15/23 13:52	06/17/23 18:31	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		06/15/23 13:52	06/17/23 18:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*	*06/15/23 13:52*	*06/17/23 18:31*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*06/15/23 13:52*	*06/17/23 18:31*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			06/19/23 15:39	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**156**		50.0		mg/Kg			06/16/23 15:39	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		06/13/23 13:17	06/16/23 05:18	1
Diesel Range Organics (Over C10-C28)	**156**		50.0		mg/Kg		06/13/23 13:17	06/16/23 05:18	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 05:18	1
Total TPH	**156**		50.0		mg/Kg		06/13/23 13:17	06/16/23 05:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*121*		*70 - 130*	*06/13/23 13:17*	*06/16/23 05:18*	*1*
o-Terphenyl	*105*		*70 - 130*	*06/13/23 13:17*	*06/16/23 05:18*	*1*

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Client Sample ID: BH02A
Date Collected: 06/08/23 12:20
Date Received: 06/09/23 15:30
Sample Depth: 1

Lab Sample ID: 890-4809-5
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1560		25.0		mg/Kg			06/14/23 15:45	5

Client Sample ID: BH02D
Date Collected: 06/09/23 12:10
Date Received: 06/09/23 15:30
Sample Depth: 4

Lab Sample ID: 890-4809-6
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		06/15/23 13:52	06/17/23 18:51	1
Toluene	<0.00202	U	0.00202		mg/Kg		06/15/23 13:52	06/17/23 18:51	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		06/15/23 13:52	06/17/23 18:51	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		06/15/23 13:52	06/17/23 18:51	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		06/15/23 13:52	06/17/23 18:51	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		06/15/23 13:52	06/17/23 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*	*06/15/23 13:52*	*06/17/23 18:51*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*06/15/23 13:52*	*06/17/23 18:51*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404		mg/Kg			06/19/23 15:39	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			06/16/23 15:39	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		06/13/23 13:17	06/16/23 05:39	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		06/13/23 13:17	06/16/23 05:39	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		06/13/23 13:17	06/16/23 05:39	1
Total TPH	<49.9	U	49.9		mg/Kg		06/13/23 13:17	06/16/23 05:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*06/13/23 13:17*	*06/16/23 05:39*	*1*
o-Terphenyl	*91*		*70 - 130*	*06/13/23 13:17*	*06/16/23 05:39*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	246		5.00		mg/Kg			06/14/23 15:51	1

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Client Sample ID: BH03A

Lab Sample ID: 890-4809-7
Matrix: Solid
Date Collected: 06/09/23 12:25
Date Received: 06/09/23 15:30
Sample Depth: 1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		06/15/23 13:52	06/17/23 19:12	1
Toluene	<0.00199	U	0.00199		mg/Kg		06/15/23 13:52	06/17/23 19:12	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		06/15/23 13:52	06/17/23 19:12	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		06/15/23 13:52	06/17/23 19:12	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		06/15/23 13:52	06/17/23 19:12	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		06/15/23 13:52	06/17/23 19:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*70 - 130*	*06/15/23 13:52*	*06/17/23 19:12*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*06/15/23 13:52*	*06/17/23 19:12*	*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			06/19/23 15:39	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			06/16/23 15:39	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		06/13/23 13:17	06/16/23 06:01	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 06:01	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 06:01	1
Total TPH	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 06:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*118*		*70 - 130*	*06/13/23 13:17*	*06/16/23 06:01*	*1*
o-Terphenyl	*100*		*70 - 130*	*06/13/23 13:17*	*06/16/23 06:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**551**		5.00		mg/Kg			06/14/23 16:07	1

Client Sample ID: BH03B

Lab Sample ID: 890-4809-8
Matrix: Solid
Date Collected: 06/09/23 12:30
Date Received: 06/09/23 15:30
Sample Depth: 2

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 19:33	1
Toluene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 19:33	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 19:33	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		06/15/23 13:52	06/17/23 19:33	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 19:33	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		06/15/23 13:52	06/17/23 19:33	1

Client Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Client Sample ID: BH03B

Date Collected: 06/09/23 12:30
Date Received: 06/09/23 15:30
Sample Depth: 2

Lab Sample ID: 890-4809-8

Matrix: Solid

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*	*06/15/23 13:52*	*06/17/23 19:33*	*1*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*	*06/15/23 13:52*	*06/17/23 19:33*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			06/19/23 15:39	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			06/16/23 15:39	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		06/13/23 13:17	06/16/23 06:23	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 06:23	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 06:23	1
Total TPH	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 06:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*120*		*70 - 130*	*06/13/23 13:17*	*06/16/23 06:23*	*1*
o-Terphenyl	*107*		*70 - 130*	*06/13/23 13:17*	*06/16/23 06:23*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**250**		4.95		mg/Kg			06/14/23 16:13	1

Surrogate Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-4806-A-1-C MS	Matrix Spike	101	99
890-4806-A-1-D MSD	Matrix Spike Duplicate	105	104
890-4809-1	SS03A	97	99
890-4809-2	BH01A	103	103
890-4809-3	BH01D	84	103
890-4809-4	BH01E	87	102
890-4809-5	BH02A	91	103
890-4809-6	BH02D	87	102
890-4809-7	BH03A	86	99
890-4809-8	BH03B	91	106
LCS 880-55616/1-A	Lab Control Sample	106	98
LCSD 880-55616/2-A	Lab Control Sample Dup	99	98
MB 880-55611/5-A	Method Blank	89	121
MB 880-55616/5-A	Method Blank	84	118

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-4809-1	SS03A	112	100
890-4809-1	SS03A	146 S1+	144 S1+
890-4809-1 MS	SS03A	118	98
890-4809-1 MSD	SS03A	115	95
890-4809-2	BH01A	121	106
890-4809-3	BH01D	110	100
890-4809-4	BH01E	116	103
890-4809-5	BH02A	121	105
890-4809-6	BH02D	108	91
890-4809-7	BH03A	118	100
890-4809-8	BH03B	120	107
LCS 880-55423/2-A	Lab Control Sample	106	93
LCSD 880-55423/3-A	Lab Control Sample Dup	102	85
MB 880-55423/1-A	Method Blank	0.03 S1-	0.02 S1-

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-55611/5-A
Matrix: Solid
Analysis Batch: 55659

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 55611

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:27	06/17/23 00:44	1
Toluene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:27	06/17/23 00:44	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:27	06/17/23 00:44	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		06/15/23 13:27	06/17/23 00:44	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:27	06/17/23 00:44	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		06/15/23 13:27	06/17/23 00:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*	*06/15/23 13:27*	*06/17/23 00:44*	*1*
1,4-Difluorobenzene (Surr)	*121*		*70 - 130*	*06/15/23 13:27*	*06/17/23 00:44*	*1*

Lab Sample ID: MB 880-55616/5-A
Matrix: Solid
Analysis Batch: 55659

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 55616

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 12:23	1
Toluene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 12:23	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 12:23	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		06/15/23 13:52	06/17/23 12:23	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		06/15/23 13:52	06/17/23 12:23	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		06/15/23 13:52	06/17/23 12:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*70 - 130*	*06/15/23 13:52*	*06/17/23 12:23*	*1*
1,4-Difluorobenzene (Surr)	*118*		*70 - 130*	*06/15/23 13:52*	*06/17/23 12:23*	*1*

Lab Sample ID: LCS 880-55616/1-A
Matrix: Solid
Analysis Batch: 55659

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 55616

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1053		mg/Kg		105	70 - 130		
Toluene			0.100	0.1004		mg/Kg		100	70 - 130		
Ethylbenzene			0.100	0.08314		mg/Kg		83	70 - 130		
m-Xylene & p-Xylene			0.200	0.1692		mg/Kg		85	70 - 130		
o-Xylene			0.100	0.08598		mg/Kg		86	70 - 130		

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

Lab Sample ID: LCSD 880-55616/2-A
Matrix: Solid
Analysis Batch: 55659

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 55616

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1164		mg/Kg		116	70 - 130	10	35

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

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

Lab Sample ID: LCSD 880-55616/2-A
Matrix: Solid
Analysis Batch: 55659

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 55616

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.1102		mg/Kg		110	70 - 130	9	35
Ethylbenzene			0.100	0.08964		mg/Kg		90	70 - 130	8	35
m-Xylene & p-Xylene			0.200	0.1813		mg/Kg		91	70 - 130	7	35
o-Xylene			0.100	0.09179		mg/Kg		92	70 - 130	7	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: 890-4806-A-1-C MS
Matrix: Solid
Analysis Batch: 55659

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 55616

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.101	0.09362		mg/Kg		93	70 - 130
Toluene	<0.00199	U F1	0.101	0.08002		mg/Kg		79	70 - 130
Ethylbenzene	<0.00199	U F1	0.101	0.06203	F1	mg/Kg		62	70 - 130
m-Xylene & p-Xylene	<0.00398	U F1	0.202	0.1311	F1	mg/Kg		65	70 - 130
o-Xylene	<0.00199	U F1	0.101	0.06901	F1	mg/Kg		68	70 - 130

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

Lab Sample ID: 890-4806-A-1-D MSD
Matrix: Solid
Analysis Batch: 55659

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 55616

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.0996	0.07660		mg/Kg		77	70 - 130	20	35
Toluene	<0.00199	U F1	0.0996	0.06322	F1	mg/Kg		63	70 - 130	23	35
Ethylbenzene	<0.00199	U F1	0.0996	0.04535	F1	mg/Kg		46	70 - 130	31	35
m-Xylene & p-Xylene	<0.00398	U F1	0.199	0.1022	F1	mg/Kg		51	70 - 130	25	35
o-Xylene	<0.00199	U F1	0.0996	0.06206	F1	mg/Kg		62	70 - 130	11	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

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

Lab Sample ID: MB 880-55423/1-A
Matrix: Solid
Analysis Batch: 55544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 55423

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 00:51	1

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

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

Lab Sample ID: MB 880-55423/1-A
Matrix: Solid
Analysis Batch: 55544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 55423

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 00:51	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 00:51	1
Total TPH	<50.0	U	50.0		mg/Kg		06/13/23 13:17	06/16/23 00:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*0.03*	*S1-*	*70 - 130*	*06/13/23 13:17*	*06/16/23 00:51*	*1*
o-Terphenyl	*0.02*	*S1-*	*70 - 130*	*06/13/23 13:17*	*06/16/23 00:51*	*1*

Lab Sample ID: LCS 880-55423/2-A
Matrix: Solid
Analysis Batch: 55544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 55423

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1029		mg/Kg		103	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	762.4		mg/Kg		76	70 - 130		

Surrogate			*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane			*106*		*70 - 130*
o-Terphenyl			*93*		*70 - 130*

Lab Sample ID: LCSD 880-55423/3-A
Matrix: Solid
Analysis Batch: 55544

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 55423

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1035		mg/Kg		103	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	723.0		mg/Kg		72	70 - 130	5	20

Surrogate			*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane			*102*		*70 - 130*
o-Terphenyl			*85*		*70 - 130*

Lab Sample ID: 890-4809-1 MS
Matrix: Solid
Analysis Batch: 55544

Client Sample ID: SS03A
Prep Type: Total/NA
Prep Batch: 55423

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	1057		mg/Kg		103	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U F1	999	721.6		mg/Kg		72	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*118*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

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

Lab Sample ID: 890-4809-1 MS
Matrix: Solid
Analysis Batch: 55544

Client Sample ID: SS03A
Prep Type: Total/NA
Prep Batch: 55423

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl	*98*		*70 - 130*

Lab Sample ID: 890-4809-1 MSD
Matrix: Solid
Analysis Batch: 55544

Client Sample ID: SS03A
Prep Type: Total/NA
Prep Batch: 55423

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	997	1243		mg/Kg		122	70 - 130	16	20
Diesel Range Organics (Over C10-C28)	<49.9	U F1	997	692.5	F1	mg/Kg		69	70 - 130	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*115*		*70 - 130*
o-Terphenyl	*95*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-55384/1-A
Matrix: Solid
Analysis Batch: 55505

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			06/14/23 10:57	1

Lab Sample ID: LCS 880-55384/2-A
Matrix: Solid
Analysis Batch: 55505

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	248.8		mg/Kg		100	90 - 110		

Lab Sample ID: LCSD 880-55384/3-A
Matrix: Solid
Analysis Batch: 55505

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	249.4		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-4809-6 MS
Matrix: Solid
Analysis Batch: 55505

Client Sample ID: BH02D
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	246		250	489.1		mg/Kg		97	90 - 110		

QC Sample Results

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-4809-6 MSD
Matrix: Solid
Analysis Batch: 55505

Client Sample ID: BH02D
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	246		250	490.1		mg/Kg		97	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

GC VOA

Prep Batch: 55611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-55611/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 55616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4809-1	SS03A	Total/NA	Solid	5035	
890-4809-2	BH01A	Total/NA	Solid	5035	
890-4809-3	BH01D	Total/NA	Solid	5035	
890-4809-4	BH01E	Total/NA	Solid	5035	
890-4809-5	BH02A	Total/NA	Solid	5035	
890-4809-6	BH02D	Total/NA	Solid	5035	
890-4809-7	BH03A	Total/NA	Solid	5035	
890-4809-8	BH03B	Total/NA	Solid	5035	
MB 880-55616/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-55616/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-55616/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4806-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-4806-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 55659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4809-1	SS03A	Total/NA	Solid	8021B	55616
890-4809-2	BH01A	Total/NA	Solid	8021B	55616
890-4809-3	BH01D	Total/NA	Solid	8021B	55616
890-4809-4	BH01E	Total/NA	Solid	8021B	55616
890-4809-5	BH02A	Total/NA	Solid	8021B	55616
890-4809-6	BH02D	Total/NA	Solid	8021B	55616
890-4809-7	BH03A	Total/NA	Solid	8021B	55616
890-4809-8	BH03B	Total/NA	Solid	8021B	55616
MB 880-55611/5-A	Method Blank	Total/NA	Solid	8021B	55611
MB 880-55616/5-A	Method Blank	Total/NA	Solid	8021B	55616
LCS 880-55616/1-A	Lab Control Sample	Total/NA	Solid	8021B	55616
LCSD 880-55616/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	55616
890-4806-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	55616
890-4806-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	55616

Analysis Batch: 55855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4809-1	SS03A	Total/NA	Solid	Total BTEX	
890-4809-2	BH01A	Total/NA	Solid	Total BTEX	
890-4809-3	BH01D	Total/NA	Solid	Total BTEX	
890-4809-4	BH01E	Total/NA	Solid	Total BTEX	
890-4809-5	BH02A	Total/NA	Solid	Total BTEX	
890-4809-6	BH02D	Total/NA	Solid	Total BTEX	
890-4809-7	BH03A	Total/NA	Solid	Total BTEX	
890-4809-8	BH03B	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 55423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4809-1	SS03A	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

GC Semi VOA (Continued)

Prep Batch: 55423 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4809-2	BH01A	Total/NA	Solid	8015NM Prep	
890-4809-3	BH01D	Total/NA	Solid	8015NM Prep	
890-4809-4	BH01E	Total/NA	Solid	8015NM Prep	
890-4809-5	BH02A	Total/NA	Solid	8015NM Prep	
890-4809-6	BH02D	Total/NA	Solid	8015NM Prep	
890-4809-7	BH03A	Total/NA	Solid	8015NM Prep	
890-4809-8	BH03B	Total/NA	Solid	8015NM Prep	
MB 880-55423/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-55423/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-55423/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-4809-1 MS	SS03A	Total/NA	Solid	8015NM Prep	
890-4809-1 MSD	SS03A	Total/NA	Solid	8015NM Prep	

Analysis Batch: 55544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4809-1	SS03A	Total/NA	Solid	8015B NM	55423
890-4809-1	SS03A	Total/NA	Solid	8015B NM	55423
890-4809-2	BH01A	Total/NA	Solid	8015B NM	55423
890-4809-3	BH01D	Total/NA	Solid	8015B NM	55423
890-4809-4	BH01E	Total/NA	Solid	8015B NM	55423
890-4809-5	BH02A	Total/NA	Solid	8015B NM	55423
890-4809-6	BH02D	Total/NA	Solid	8015B NM	55423
890-4809-7	BH03A	Total/NA	Solid	8015B NM	55423
890-4809-8	BH03B	Total/NA	Solid	8015B NM	55423
MB 880-55423/1-A	Method Blank	Total/NA	Solid	8015B NM	55423
LCS 880-55423/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	55423
LCSD 880-55423/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	55423
890-4809-1 MS	SS03A	Total/NA	Solid	8015B NM	55423
890-4809-1 MSD	SS03A	Total/NA	Solid	8015B NM	55423

Analysis Batch: 55707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4809-1	SS03A	Total/NA	Solid	8015 NM	
890-4809-2	BH01A	Total/NA	Solid	8015 NM	
890-4809-3	BH01D	Total/NA	Solid	8015 NM	
890-4809-4	BH01E	Total/NA	Solid	8015 NM	
890-4809-5	BH02A	Total/NA	Solid	8015 NM	
890-4809-6	BH02D	Total/NA	Solid	8015 NM	
890-4809-7	BH03A	Total/NA	Solid	8015 NM	
890-4809-8	BH03B	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 55384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4809-1	SS03A	Soluble	Solid	DI Leach	
890-4809-2	BH01A	Soluble	Solid	DI Leach	
890-4809-3	BH01D	Soluble	Solid	DI Leach	
890-4809-4	BH01E	Soluble	Solid	DI Leach	
890-4809-5	BH02A	Soluble	Solid	DI Leach	
890-4809-6	BH02D	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

HPLC/IC (Continued)

Leach Batch: 55384 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4809-7	BH03A	Soluble	Solid	DI Leach	
890-4809-8	BH03B	Soluble	Solid	DI Leach	
MB 880-55384/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-55384/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-55384/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-4809-6 MS	BH02D	Soluble	Solid	DI Leach	
890-4809-6 MSD	BH02D	Soluble	Solid	DI Leach	

Analysis Batch: 55505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4809-1	SS03A	Soluble	Solid	300.0	55384
890-4809-2	BH01A	Soluble	Solid	300.0	55384
890-4809-3	BH01D	Soluble	Solid	300.0	55384
890-4809-4	BH01E	Soluble	Solid	300.0	55384
890-4809-5	BH02A	Soluble	Solid	300.0	55384
890-4809-6	BH02D	Soluble	Solid	300.0	55384
890-4809-7	BH03A	Soluble	Solid	300.0	55384
890-4809-8	BH03B	Soluble	Solid	300.0	55384
MB 880-55384/1-A	Method Blank	Soluble	Solid	300.0	55384
LCS 880-55384/2-A	Lab Control Sample	Soluble	Solid	300.0	55384
LCSD 880-55384/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	55384
890-4809-6 MS	BH02D	Soluble	Solid	300.0	55384
890-4809-6 MSD	BH02D	Soluble	Solid	300.0	55384

Lab Chronicle

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Client Sample ID: SS03A
Date Collected: 06/08/23 11:00
Date Received: 06/09/23 15:30

Lab Sample ID: 890-4809-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	55616	06/15/23 13:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55659	06/17/23 15:37	SM	EET MID
Total/NA	Analysis	Total BTEX		1			55855	06/19/23 15:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			55707	06/16/23 15:39	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	55423	06/13/23 13:17	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	55544	06/16/23 02:44	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	55423	06/13/23 13:17	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	55544	06/16/23 03:50	AJ	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	55384	06/13/23 10:11	KS	EET MID
Soluble	Analysis	300.0		1			55505	06/14/23 15:22	CH	EET MID

Client Sample ID: BH01A
Date Collected: 06/08/23 11:05
Date Received: 06/09/23 15:30

Lab Sample ID: 890-4809-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	55616	06/15/23 13:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55659	06/17/23 15:58	SM	EET MID
Total/NA	Analysis	Total BTEX		1			55855	06/19/23 15:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			55707	06/16/23 15:39	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	55423	06/13/23 13:17	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	55544	06/16/23 04:12	AJ	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	55384	06/13/23 10:11	KS	EET MID
Soluble	Analysis	300.0		5			55505	06/14/23 15:28	CH	EET MID

Client Sample ID: BH01D
Date Collected: 06/08/23 11:20
Date Received: 06/09/23 15:30

Lab Sample ID: 890-4809-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	55616	06/15/23 13:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55659	06/17/23 17:50	SM	EET MID
Total/NA	Analysis	Total BTEX		1			55855	06/19/23 15:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			55707	06/16/23 15:39	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	55423	06/13/23 13:17	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	55544	06/16/23 04:34	AJ	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	55384	06/13/23 10:11	KS	EET MID
Soluble	Analysis	300.0		1			55505	06/14/23 15:34	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Client Sample ID: BH01E
Date Collected: 06/09/23 12:00
Date Received: 06/09/23 15:30

Lab Sample ID: 890-4809-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	55616	06/15/23 13:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55659	06/17/23 18:10	SM	EET MID
Total/NA	Analysis	Total BTEX		1			55855	06/19/23 15:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			55707	06/16/23 15:39	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	55423	06/13/23 13:17	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	55544	06/16/23 04:56	AJ	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	55384	06/13/23 10:11	KS	EET MID
Soluble	Analysis	300.0		1			55505	06/14/23 15:39	CH	EET MID

Client Sample ID: BH02A
Date Collected: 06/08/23 12:20
Date Received: 06/09/23 15:30

Lab Sample ID: 890-4809-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	55616	06/15/23 13:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55659	06/17/23 18:31	SM	EET MID
Total/NA	Analysis	Total BTEX		1			55855	06/19/23 15:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			55707	06/16/23 15:39	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	55423	06/13/23 13:17	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	55544	06/16/23 05:18	AJ	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	55384	06/13/23 10:11	KS	EET MID
Soluble	Analysis	300.0		5			55505	06/14/23 15:45	CH	EET MID

Client Sample ID: BH02D
Date Collected: 06/09/23 12:10
Date Received: 06/09/23 15:30

Lab Sample ID: 890-4809-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	55616	06/15/23 13:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55659	06/17/23 18:51	SM	EET MID
Total/NA	Analysis	Total BTEX		1			55855	06/19/23 15:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			55707	06/16/23 15:39	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	55423	06/13/23 13:17	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	55544	06/16/23 05:39	AJ	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	55384	06/13/23 10:11	KS	EET MID
Soluble	Analysis	300.0		1			55505	06/14/23 15:51	CH	EET MID

Client Sample ID: BH03A
Date Collected: 06/09/23 12:25
Date Received: 06/09/23 15:30

Lab Sample ID: 890-4809-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	55616	06/15/23 13:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55659	06/17/23 19:12	SM	EET MID
Total/NA	Analysis	Total BTEX		1			55855	06/19/23 15:39	SM	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Client Sample ID: BH03A
Date Collected: 06/09/23 12:25
Date Received: 06/09/23 15:30

Lab Sample ID: 890-4809-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			55707	06/16/23 15:39	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	55423	06/13/23 13:17	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	55544	06/16/23 06:01	AJ	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	55384	06/13/23 10:11	KS	EET MID
Soluble	Analysis	300.0		1			55505	06/14/23 16:07	CH	EET MID

Client Sample ID: BH03B
Date Collected: 06/09/23 12:30
Date Received: 06/09/23 15:30

Lab Sample ID: 890-4809-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	55616	06/15/23 13:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	55659	06/17/23 19:33	SM	EET MID
Total/NA	Analysis	Total BTEX		1			55855	06/19/23 15:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			55707	06/16/23 15:39	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	55423	06/13/23 13:17	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	55544	06/16/23 06:23	AJ	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	55384	06/13/23 10:11	KS	EET MID
Soluble	Analysis	300.0		1			55505	06/14/23 16:13	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: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-25	06-30-23

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

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

Method Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

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

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: Vast State 21H

Job ID: 890-4809-1
SDG: 03D2024189

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-4809-1	SS03A	Solid	06/08/23 11:00	06/09/23 15:30	0.5
890-4809-2	BH01A	Solid	06/08/23 11:05	06/09/23 15:30	1
890-4809-3	BH01D	Solid	06/08/23 11:20	06/09/23 15:30	4
890-4809-4	BH01E	Solid	06/09/23 12:00	06/09/23 15:30	5
890-4809-5	BH02A	Solid	06/08/23 12:20	06/09/23 15:30	1
890-4809-6	BH02D	Solid	06/09/23 12:10	06/09/23 15:30	4
890-4809-7	BH03A	Solid	06/09/23 12:25	06/09/23 15:30	1
890-4809-8	BH03B	Solid	06/09/23 12:30	06/09/23 15:30	2

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Chain of Custody

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

Work Order No: _____

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6/19/2023

Project Manager:	Hadlie Green	Bill to: (if different)	Kalei Jennings
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address:	601 N Marienfeld St Suite 400	Address:	601 N Marienfeld St Suite 400
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Midland, TX 79701
Phone:	432-557-8895	Email:	hgreen@ensolum.com, kjennings@ensolum.com

Work Order Comments

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

Project Name:	Vast State 21H	Turn Around	
Project Number:	03D2024189	☑ Routine ☐ Rush	
Project Location:	32.0367, -103[illegible].5889	Due Date:	
Sampler's Name:	Peter Van Patten	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Samples Received Intact:	Yes No	Thermometer ID:	IR#07
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	1.0
Total Containers:		Corrected Temperature:	0.8

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2S0_4: H_2 | NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)	Sample Comments
SS03A	Soil	6/8/2023	1100	0.5'	Comp	1		x	x	x	
BH01A	Soil	6/8/2023	1105	1'	Comp	1		x	x	x	
BH01D	Soil	6/8/2023	1120	4'	Comp	1		x	x	x	
BH01E	Soil	6/9/2023	1200	5'	Comp	1		x	x	x	
BH02A	Soil	6/8/2023	1220	1'	Comp	1		x	x	x	
BH02D	Soil	6/9/2023	1210	4'	Comp	1		x	x	x	
BH03A	Soil	6/9/2023	1225	1'	Comp	1		x	x	x	
BH03B	Soil	6/9/2023	1230	2'	Comp	1		x	x	x	

890-4809 Chain of Custody

Peter Van Patten

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Peter Van Patten	Clae Cat	6.9.23 1530			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4809-1
SDG Number: 03D2024189

Login Number: 4809
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	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: 890-4809-1
SDG Number: 03D2024189

Login Number: 4809
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 06/13/23 10:37 AM

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

ENSOLUM

APPENDIX E

NMOCD Notifications

Hadlie Green

From: Buchanan, Michael, EMNRD <Michael.Buchanan@emnrd.nm.gov>
Sent: Friday, June 2, 2023 4:54 PM
To: Hadlie Green; Enviro, OCD, EMNRD
Cc: Kalei Jennings; Peter Van Patten
Subject: RE: [EXTERNAL] COP - Sampling Notification (Week of 6/5/2023)

[**EXTERNAL EMAIL**]

Received.

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Mike Buchanan ● Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
8801 Horizon Blvd. NE | Albuquerque, NM 87113
| michael.buchanan@emnrd.nm.gov
http://www.emnrd.nm.gov/ocd

From: Hadlie Green <hgreen@ensolum.com>
Sent: Friday, June 2, 2023 9:18 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: Kalei Jennings <kjennings@ensolum.com>; Peter Van Patten <pvanpatten@ensolum.com>
Subject: [EXTERNAL] COP - Sampling Notification (Week of 6/5/2023)

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

All,

ConocoPhillips Company (COP) plans to complete sampling activities at the following site the week of June 5, 2023.

- Vast State 21H / NAPP2313140440
  - Sampling Date: 6/9/2023 @ 10:00 AM MST
- Stratojet 31 State Com 8H / NAPP2314235805
  - Sampling Date: 6/8/2023 @ 10:00 AM MST

Thank you,

Hadlie Green
Project Geologist
432-557-8895
hgreen@ensolum.com
Ensolum, LLC

ENSOLUM

APPENDIX F

Final C-141

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	NAPP2313140440
District RP	
Facility ID	fAPP2202347033
Application ID	

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	217817
Contact Name	Jacob Laird	Contact Telephone	(575) 703-5482
Contact email	Jacob.Laird@ConocoPhillips.com	Incident # *(assigned by OCD)*	NAPP2313140440
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.0367 Longitude -103.5889

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Vast State 021H	Site Type	Tank Battery
Date Release Discovered	May 6, 2023	API# *(if applicable)*	30-025-43550

Unit Letter	Section	Township	Range	County
P	17	26S	33E	Lea

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

Nature and Volume of Release

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

☒ Crude Oil	Volume Released (bbls) 1.34	Volume Recovered (bbls) 1
☒ Produced Water	Volume Released (bbls) 4.03	Volume Recovered (bbls) 1
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by a pin hole in back pressure due to corrosion.
The release was on the pad.
Evaluation will be made of the site to determine if we may commence remediation immediately or delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2313140440
District RP	
Facility ID	fAPP2202347033
Application ID	

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

Initial Response

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

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

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

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

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

Printed Name: Brittany N. Esparza Title: Environmental Technician

Signature: Brittany Esparza Date: 5/11/2023

email: Brittany.Esparza@ConocoPhillips.com Telephone: (432) 221-0398

OCD Only

Received by: Jocelyn Harimon Date: 05/11/2023

NAPP2313140440

Convert irregular shape into a series of rectangles	Length (ft.)	Width (ft.)	Average Depth (in.)	Estimated *Pool* Area (sq. ft.)	Estimated volume of each pool area (bbl.)	Penetration allowance (ft.)	Total Estimated Volume of Spill (bbl.)	Percentage of Oil if Spilled Fluid is a Mixture (%.)	Total Estimated Volume of Spilled Oil (bbl.)	Total Estimated Volume of Spilled Liquid other than Oil (bbl.)
Rectangle A	43.00	21.00	0.40	903.00	5.36	0.00	5.37	25%	1.34	4.03
Rectangle B				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle C				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle D				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle E				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle F				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle G				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle H				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle I				0.00	0.00	0.00	0.00		0.00	0.00
Rectangle J				0.00	0.00	0.00	0.00		0.00	0.00
Total Surface Pool Volume Released, Release to Soil/Caliche:							5.37		1.34	4.03

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Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 215966
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	5/11/2023

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2313140440
District RP	
Facility ID	fAPP22023447033
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2313140440
District RP	
Facility ID	fAPP2202347033
Application ID	

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

Printed Name: __Jacob Laird_____ Title: __Environmental Engineer_____

Signature: Jacob Laird_____ Date: _____5/2/2024_____

email: __Jacob.Laird@conocophillips.com_____ Telephone: ___575-703-5482_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2313140440
District RP	
Facility ID	fAPP2202347033
Application ID	

Remediation Plan

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

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

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

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

☐ Extents of contamination must be fully delineated.

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

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

Printed Name: __Jacob Laird_____ Title: __Environmental Engineer_____

Signature: Jacob Laird Date:____5/2/2024_____

email: __Jacob.Laird@conocophillips.com_____ Telephone:__575-703-5482_____

__

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

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1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

QUESTIONS

Action 340992

QUESTIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 340992
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAPP2313140440**
Incident Name	**NAPP2313140440 VAST STATE 021H @ 0**
Incident Type	**Release Other**
Incident Status	**Remediation Closure Report Received**
Incident Facility	**[fAPP2202347033] Vast East Battery**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	VAST STATE 021H
Date Release Discovered	05/06/2023
Surface Owner	State

Incident Details	
Please answer all the questions in this group.	
Incident Type	Release Other
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Cause: Corrosion | Other (Specify) | Crude Oil | Released: 1 BBL | Recovered: 1 BBL | Lost: 0 BBL.
Produced Water Released (bbls) Details	Cause: Corrosion | Other (Specify) | Produced Water | Released: 4 BBL | Recovered: 1 BBL | Lost: 3 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	The release was caused by a pin hole in back pressure due to corrosion. The release was on the pad.

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QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 340992
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**More info needed to determine if this will be treated as a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**No**
Reasons why this would be considered a submission for a notification of a major release	*Unavailable.*
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

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

I hereby agree and sign off to the above statement	Name: Brittany Esparza Title: Environmental Technician Email: brittany.Esparza@ConocoPhillips.com Date: 05/06/2024

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
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QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 340992
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 75 and 100 (ft.)
What method was used to determine the depth to ground water	Direct Measurement
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 100 and 200 (ft.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between ½ and 1 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Greater than 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Medium
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	5080
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	1920
GRO+DRO (EPA SW-846 Method 8015M)	1920
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	05/22/2023
On what date will (or did) the final sampling or liner inspection occur	04/01/2024
On what date will (or was) the remediation complete(d)	04/01/2024
What is the estimated surface area (in square feet) that will be reclaimed	2900
What is the estimated volume (in cubic yards) that will be reclaimed	14000
What is the estimated surface area (in square feet) that will be remediated	330
What is the estimated volume (in cubic yards) that will be remediated	12
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 340992
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	LEA LAND LANDFILL [fEEM0112342028]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	No
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	*Not answered.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Brittany Esparza Title: Environmental Technician Email: brittany.Esparza@ConocoPhillips.com Date: 05/06/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 340992
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 340992
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**326776**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**04/01/2024**
What was the (estimated) number of samples that were to be gathered	**3**
What was the sampling surface area in square feet	**330**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**No**
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	330
What was the total volume (cubic yards) remediated	12
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	0
What was the total volume (in cubic yards) reclaimed	0
Summarize any additional remediation activities not included by answers (above)	N/A

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

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

I hereby agree and sign off to the above statement	Name: Brittany Esparza Title: Environmental Technician Email: brittany.Esparza@ConocoPhillips.com Date: 05/06/2024

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QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 340992
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Action 340992

CONDITIONS

Operator:	OGRID:
COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	229137
	Action Number: 340992
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
scott.rodgers	Remediation has met 19.15.29 NMAC requirements. Soil impacts exceeding the reclamation standards have been left in place and are required to meet 19.15.29.13D (1) NMAC once the site is no longer reasonably needed for production or subsequent drilling operations.	5/20/2024
scott.rodgers	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	5/20/2024