



November 28, 2022

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
SEMU BMT
Incident Number NAPP2216134591
Lea County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of Maverick Natural Resources, LLC (Maverick), has prepared this *Closure Request* to document site assessment, excavation, and soil sampling activities performed at the SEMU BMT (Site; Figure 1). The purpose of the investigation and remediation activities were to address impacts to soil following a produced water release on-pad at the Site. Based on the excavation activities and laboratory analytical results from the soil sampling events, Maverick is submitting this *Closure Request*, describing remediation that has occurred and requesting closure for Incident Number NAPP2216134591.

BACKGROUND

Site description and a release summary were provided in the *Remediation Work Plan* submitted by Ensolum to the New Mexico Oil Conservation District (NMOCD) on August 25, 2022. The NMOCD approved the *Remediation Work Plan* on August 31, 2022 with the following conditions:

Remediation Plan Approved with Conditions. The depth to groundwater has not been adequately determined. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided in the submission. The responsible party may choose to remediate to the most stringent levels listed in Table 1 of 19.15.29 NMAC in lieu of drilling to determine the depth to groundwater.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

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

Depth to groundwater at the Site is greater than 100 feet below ground surface (bgs) based on a recent soil boring drilled for determination of regional groundwater depth. On November 10, 2022, a borehole (L-15414- POD1) was advanced to a depth of 103 feet bgs via air rotary drill rig. The borehole was

located approximately 0.3 miles northwest 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 without observing groundwater, it was confirmed that groundwater beneath the Site is greater than 100 feet bgs. The borehole was properly abandoned using hydrated bentonite chips. All wells used for depth to groundwater determination are depicted on Figure 1.

The closest continuously flowing or significant watercourse to the Site is a stream/river, located approximately 12,831 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, and church. 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 greater than 300 feet from a wetland. The Site is not underlain by unstable geology (low potential karst designation area). Site receptors are identified on Figure 1.

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

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

SITE ASSESSMENT ACTIVITIES AND ANALYTICAL RESULTS

On July 25, 2022, Ensolum personnel completed a Site visit to evaluate the release extent based on information provided on the Form C-141 and visual observations. Six preliminary soil samples (SS01 through SS06) were collected within the release extent at a depth of approximately 0.5 feet bgs. The preliminary soil samples were field screened for volatile aromatic hydrocarbons utilizing a calibrated photoionization detector (PID) and chloride utilizing Hach® chloride QuanTab® test strips. The release extent and preliminary soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2.

On September 12 and 27, 2022, Ensolum personnel conducted additional delineation sampling at the Site via potholing with a backhoe and a hand auger. Pothole sample PH01 and hand auger samples HA01 through HA08 were field screened in the same manner described above. Delineation soil sample locations are depicted on Figure 3.

All soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C) under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of the following chemicals of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-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 preliminary soil samples SS03 and SS05 indicated TPH concentrations exceeded the Site Closure Criteria. All other preliminary and delineation soil samples were compliant

with the Site Closure Criteria. Table 1 summarizes analytical results. A complete laboratory analytical report from the preliminary sampling is included as Appendix B.

EXCAVATION ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

October 3, 2022, Ensolum personnel were onsite to oversee excavation activities in the vicinity of preliminary soil samples SS03 and SS05 based on the laboratory analytical results. Impacted soil was excavated from the release extent as indicated by visible staining, field screening activities, and laboratory analytical results. Excavation activities were performed via hydrovac. To direct excavation activities, soil was field screened for volatile aromatic hydrocarbons and chloride. The excavations in these areas were completed to a depth of 1-foot bgs. Photographic documentation is included in Appendix C.

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. Composite soil samples FS01 and FS02 were collected from the floor of the excavations at a depth of 1-foot bgs. Due to the shallow nature of the excavation, soil from the sidewalls were incorporated into the composite floor samples. The soil samples were collected, handled, and analyzed following the same procedures as described above. The excavation extent and excavation soil sample locations are presented on Figure 4.

The excavation measured approximately 370 square feet in areal extent. A total of approximately 14 cubic yards of impacted soil was removed during the excavation activities. The soil was transported and properly disposed of at the R360 Disposal Facility in Hobbs, New Mexico. After completion of confirmation sampling, the excavation was secured with fencing.

Laboratory analytical results for excavation soil samples FS01 and FS02 indicated all COC concentrations were compliant with the Site Closure Criteria.

CLOSURE REQUEST

Site assessment and excavation activities were conducted at the Site to address impacted soil resulting from a produced water release at the Site. Laboratory analytical results for the excavation floor soil samples FS01 and FS02 indicated all COC concentrations were compliant with the Site Closure Criteria. The release was delineated laterally and vertically by preliminary soil samples, pothole soil samples, and hand auger soil samples. Based on the soil analytical results, no further remediation was required. Maverick will backfill the excavation with material purchased locally and recontour the Site to match pre-existing site conditions.

Excavation of impacted soil has mitigated impacts at this Site. Depth to groundwater is greater than 100 feet bgs based on a recent soil boring and no other sensitive receptors were identified near the release extent. Maverick believes these remedial actions are protective of human health, the environment, and groundwater. As such, Maverick respectfully requests closure for Incident Number NAPP2216134591. The Final C141 is included as Appendix D and required NMOCD notifications are included as Appendix E.

SEMU BMT



If you have any questions or comments, please contact Ms. Kalei Jennings at (817) 683-2503 or kjennings@ensolum.com.

Sincerely,
Ensolum, LLC

A handwritten signature in black ink that reads "Kalei Jennings".

Kalei Jennings
Senior Scientist

A handwritten signature in black ink that reads "Daniel R. Moir, P.G.".

Daniel R. Moir, P.G.
Senior Managing Geologist

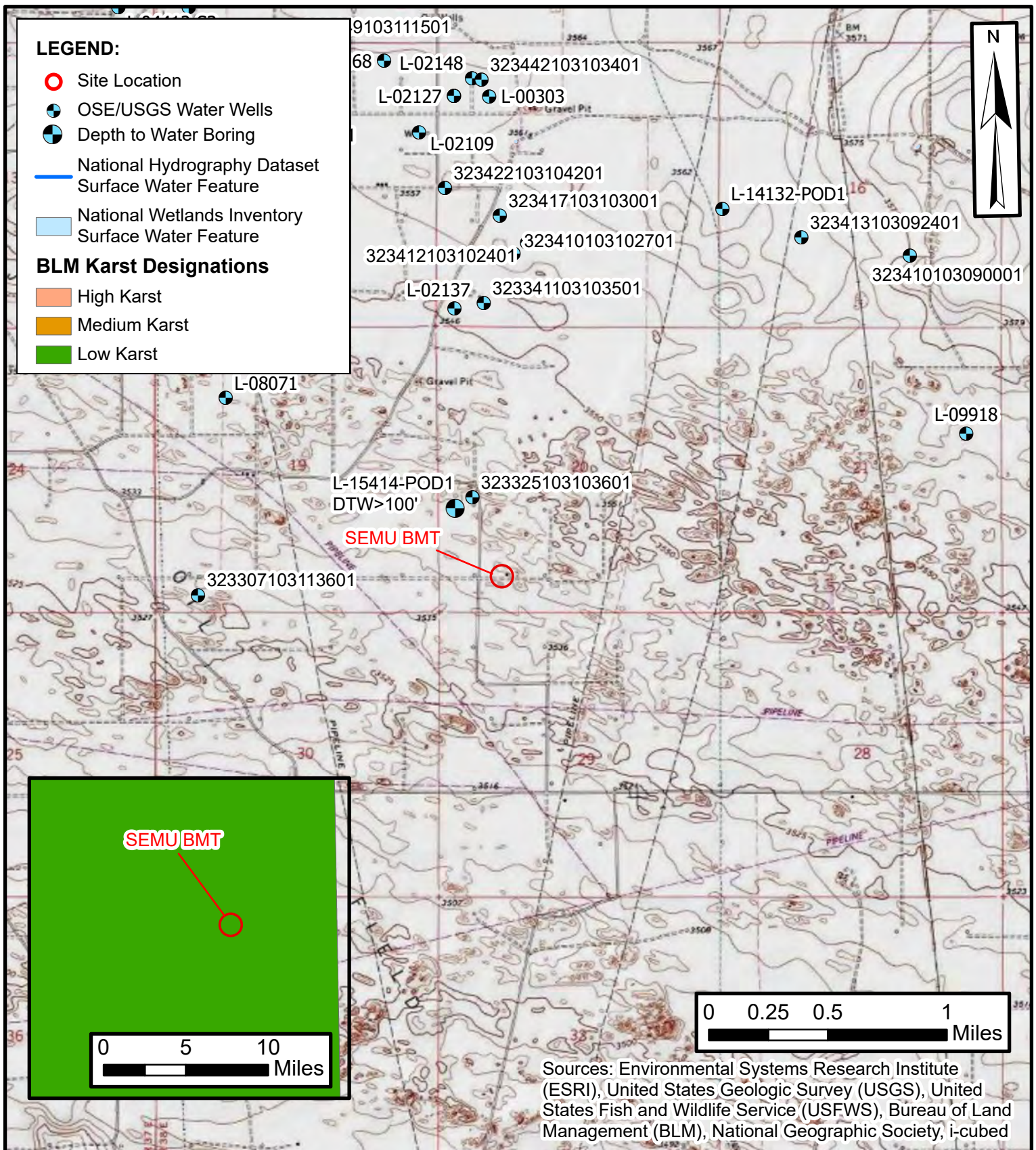
cc: Bryce Wagoner, Maverick Natural Resources

Appendices:

Figure 1	Site Receptor Map
Figure 2	Preliminary Soil Sample Locations
Figure 3	Delineation Soil Sample Locations
Figure 4	Excavation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Lithologic/ Soil Sampling Logs
Appendix B	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix C	Photographic Log
Appendix D	Final C-141
Appendix E	NMOCD Notifications



FIGURES



SITE RECEPTOR MAP

MAVERICK NATURAL RESOURCES, LLC

SEMUBMT

NAPP2216134591

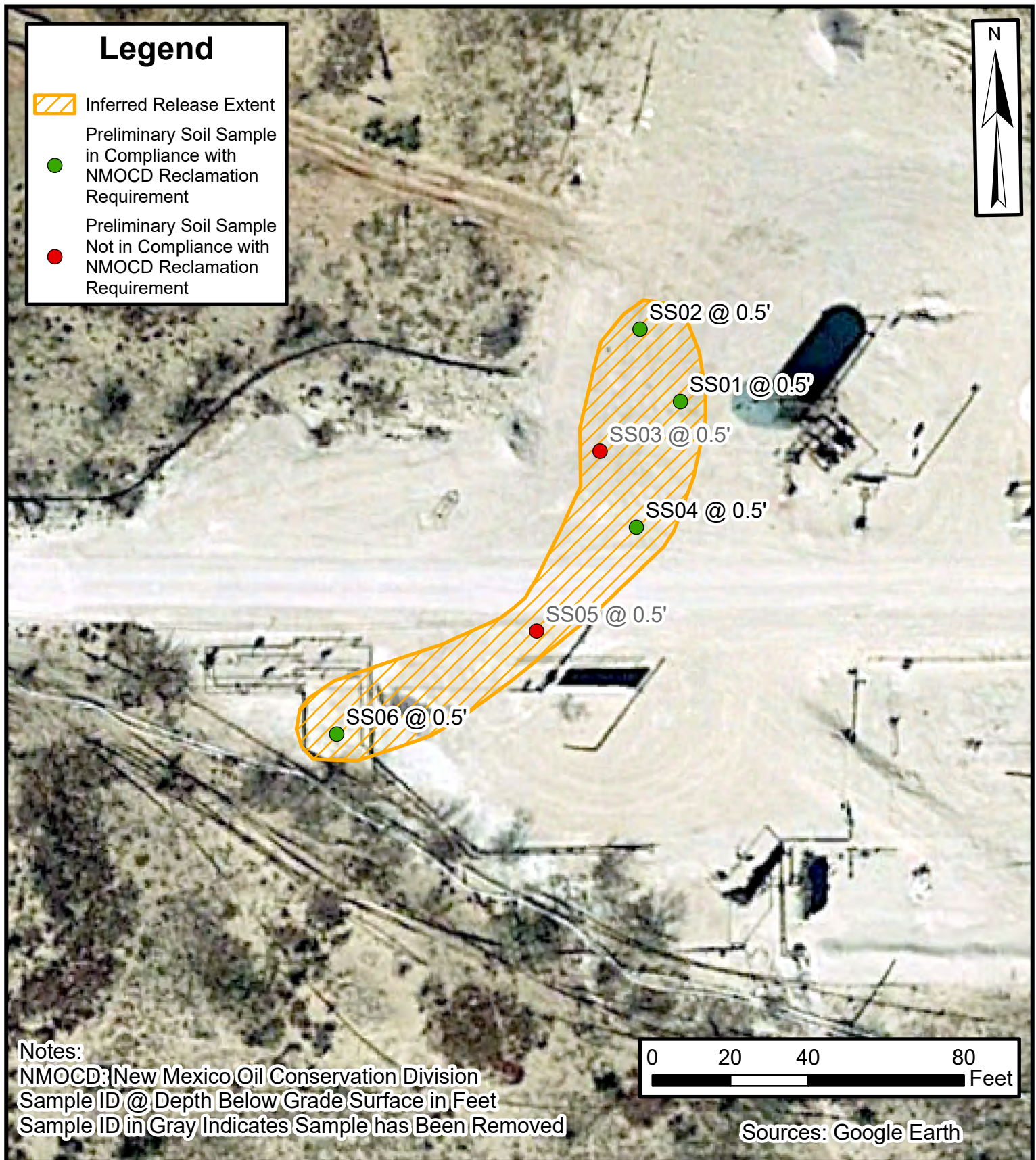
Unit M, Sec 20, T20S, R38E

Lea County, New Mexico

FIGURE

1



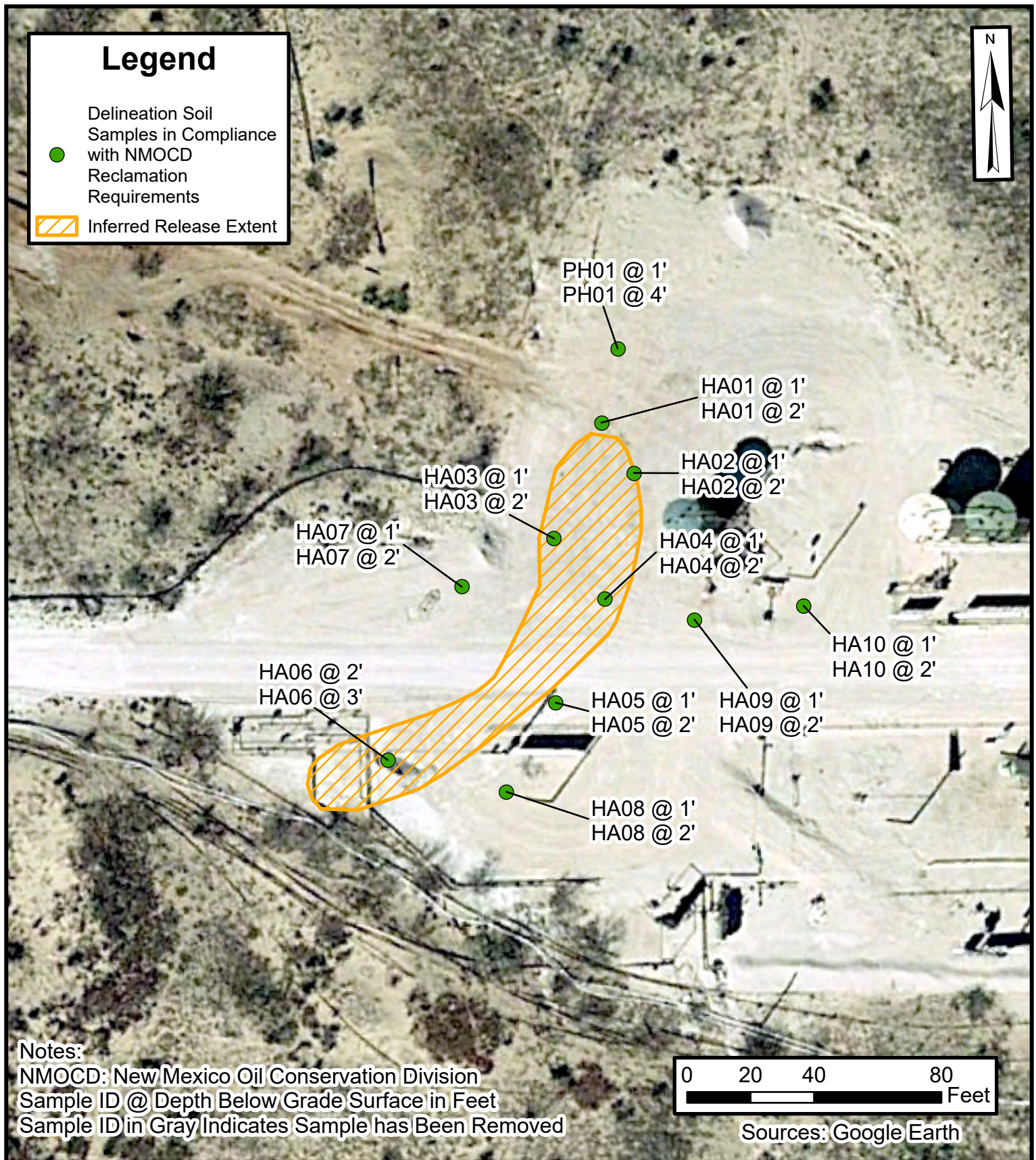


Preliminary Soil Sample Locations

Maverick Natural Resource, LLC
 SEMU BMT

Incident Number: NAPP2216134591
 Unit M, Sec 20, T20S, R38E
 Lea County, New Mexico

FIGURE
2



Delineation Soil Sample Locations

Maverick Natural Resource, LLC
 SEMU BMT

Incident Number: NAPP2216134591
 Unit M, Sec 20, T20S, R38E
 Lea County, New Mexico

FIGURE
3



Excavation Soil Sample Locations

Maverick Natural Resource, LLC
 SEMU BMT

Incident Number: NAPP2216134591
 Unit M, Sec 20, T20S, R38E
 Lea County, New Mexico

FIGURE
4



TABLE

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
SEMU BMT
Maverick Natural Resources, 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 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Preliminary Assessment Soil Samples										
SS01	07/25/2022	0.5	<0.00202	<0.00403	<50.0	54.3	<50.0	54.3	54.3	837
SS02	07/25/2022	0.5	<0.00200	<0.00399	<50.0	157	60.0	157	217	1,960
SS03	07/25/2022	0.5	<0.00199	<0.00398	<49.9	2,060	583	2,060	2,640	4,170
SS04	07/25/2022	0.5	0.00361	0.825	<49.9	121	148	121	269	630
SS05	07/25/2022	0.5	<0.0199	<0.0398	<250	3,750	1,200	3,750	4,950	3,830
SS06	07/25/2022	0.5	<0.00200	<0.00399	<50.0	154	106	154	260	396
Delineation Soil Samples										
PH01	09/12/2022	1	<0.00200	<0.00401	<50.0	225	<50.0	225	225	76.9
PH01	09/12/2022	4	<0.00199	<0.00398	<49.9	60.5	<49.9	60.5	60.5	24.9
HA01	9/27/2022	1	<0.00199	<0.00398	<49.9	227	<49.9	227	227	190
HA01	9/27/2022	2	<0.00199	<0.00398	<50.0	353	74.5	353	428	306
HA02	9/27/2022	1	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	510
HA02	9/27/2022	2	<0.00198	<0.00397	<49.9	<49.9	<49.9	<49.9	<49.9	504
HA03	9/27/2022	1	<0.00200	<0.00399	<50.0	91.2	<50.0	91.2	91.2	245
HA03	9/27/2022	2	<0.00199	<0.00398	<50.0	157	<50.0	157	157	201
HA04	09/27/2022	1	<0.00201	<0.00402	<49.9	351	79.0	351	430	405
HA04	09/27/2022	2	<0.00199	<0.00398	<50.0	236	<50.0	236	236	237
HA05	09/27/2022	1	<0.00202	<0.00403	<49.9	158	<49.9	158	158	183
HA05	09/27/2022	2	<0.00198	<0.00396	<50.0	113	<50.0	113	113	78.1
HA06	09/27/2022	2	<0.00200	<0.00399	<49.9	222	<49.9	222	222	338
HA06	09/27/2022	3	0.00758	0.0344	<49.9	324	<49.9	324	324	223
HA07	09/27/2022	1	<0.00199	<0.00398	<50.0	106	<50.0	106	106	35.8
HA07	09/27/2022	2	<0.00201	<0.00402	<49.9	147	<49.9	147	147	122
HA08	09/27/2022	1	<0.00200	<0.00401	<50.0	69.2	<50.0	69.2	69.2	64.0
HA08	09/27/2022	2	<0.00198	<0.00396	<50.0	142	<50.0	142	142	126

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
SEMU BMT
Maverick Natural Resources, 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 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
HA09	09/27/2022	1	<0.00200	<0.0399	<50.0	81.9	<50.0	81.9	81.9	58
HA09	09/27/2022	2	<0.00199	<0.00398	<49.8	77.6	<49.8	77.6	77.6	200
HA10	09/27/2022	1	<0.00202	<0.00404	<49.9	112	<49.9	112	112	136
HA10	09/27/2022	2	<0.00200	<0.00399	<49.9	54.1	<49.9	54.1	54.1	234
Excavation Floor Samples										
FS01	10/03/2022	1	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	91.6
FS02	10/03/2022	1	<0.00200	<0.00399	<50.0	153	<50.0	<50.0	153	515

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

Concentrations in bold exceed the NMOCD Table 1 Closure Criteria or reclamation standard where applicable.

Gray text represent samples that have been excavated



APPENDIX A

Lithologic/Soil Sampling Log



ENSOLUM

1200 - 1300 START + FINISH

LITHOLOGIC / SOIL SAMPLING LOG

Site Name: JEMU BURGER B 108

Incident Number: NAPP2216134591

Job Number: OSD 2057013

Logged By: S/PV

Method: AIR ROTARY

Coordinates:

Hole Diameter:

Total Depth: 103'

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. L-15414 -POD1

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						10'	sp-sm	SAND TAN BROWN M-fine grained poorly graded, no staining, no odor
						20'	sp-sm	SAA, (a little lighter in color)
						30'	sp-sc	SAA, w/ clay + cche
						40'	sp-sc	SAA
						50'	sp-sm	SAND REDDISH BROWN M-fine grained Poorly graded, no staining no odor
						60'	sp-sm	SAND light green Brown w/ Red-Brown Hard rock (quartzite?) (HARDER THAN METAL)
						70'	sp-sm	SAND REDDISH BROWN M-fine grained poorly graded w/ ^{FEW} calcine nodules. NO stain NO odor
						80'	sp-sm	SAA, NO calcine nodules
						90'	sp-sm	SAA
						100'	sp-sm	SAA
						103'	sp-sm	TERMINAL DEPTH, Russell can't get any deeper than 103', too much sand + caving
						110'	CS	
						120'	CS	



APPENDIX B

Laboratory Analytical Reports



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-2645-1

Laboratory Sample Delivery Group: 03D02057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

Authorized for release by:

8/8/2022 4:18:11 PM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

LINKS

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results through



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www.eurofinsus.com/Env

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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-2645-1
SDG: 03D02057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Job ID: 890-2645-1

Laboratory: Eurofins Carlsbad

Narrative**Job Narrative
890-2645-1****Receipt**

The samples were received on 7/25/2022 3:26 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 28.2°C

GC VOA

Method 8021B: Surrogate recovery for the following sample was outside control limits: SS04 (890-2645-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-31335 and analytical batch 880-31540 recovered outside control limits for the following analytes: Ethylbenzene, m-Xylene & p-Xylene, o-Xylene and Xylenes, Total.

Method 8021B: Spike compounds were inadvertently omitted during the extraction process for the matrix spike duplicate (MSD); therefore, matrix spike duplicate recoveries are unavailable for preparation batch 880-31335 and analytical batch 880-31540. The associated laboratory control sample (LCS) met acceptance criteria.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-31680 and analytical batch 880-31685 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample duplicate (LCSD) recovery was within acceptance limits.

Method 8021B: o-Xylene biased high in LCS. Since only an acceptable LCS or LCSD is required per the method, the data has been qualified and reported.(LCS 880-31680/1-A)

Method 8021B: The following sample was diluted due to the abundance of non-target analytes: SS05 (890-2645-5). Elevated reporting limits (RLs) are provided.

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 880-30964 and analytical batch 880-31081 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: (890-2644-A-1-C). 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

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: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Client Sample ID: SS01

Lab Sample ID: 890-2645-1

Date Collected: 07/25/22 11:00

Matrix: Solid

Date Received: 07/25/22 15:26

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U F1	0.00202	mg/Kg		08/02/22 14:31	08/05/22 12:08	1
Toluene	<0.00202	U F1	0.00202	mg/Kg		08/02/22 14:31	08/05/22 12:08	1
Ethylbenzene	<0.00202	U *1 F1	0.00202	mg/Kg		08/02/22 14:31	08/05/22 12:08	1
m-Xylene & p-Xylene	<0.00403	U *1 F1	0.00403	mg/Kg		08/02/22 14:31	08/05/22 12:08	1
o-Xylene	0.00264	*1 F1	0.00202	mg/Kg		08/02/22 14:31	08/05/22 12:08	1
Xylenes, Total	<0.00403	U *1 F1	0.00403	mg/Kg		08/02/22 14:31	08/05/22 12:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	08/02/22 14:31	08/05/22 12:08	1
1,4-Difluorobenzene (Surr)	84		70 - 130	08/02/22 14:31	08/05/22 12:08	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			08/08/22 14:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	54.3		50.0	mg/Kg			07/30/22 10:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/28/22 15:45	07/30/22 03:21	1
Diesel Range Organics (Over C10-C28)	54.3		50.0	mg/Kg		07/28/22 15:45	07/30/22 03:21	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/28/22 15:45	07/30/22 03:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130	07/28/22 15:45	07/30/22 03:21	1
o-Terphenyl	126		70 - 130	07/28/22 15:45	07/30/22 03:21	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	837		4.97	mg/Kg			07/31/22 13:05	1

Client Sample ID: SS02

Lab Sample ID: 890-2645-2

Date Collected: 07/25/22 11:05

Matrix: Solid

Date Received: 07/25/22 15:26

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:31	08/05/22 13:09	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:31	08/05/22 13:09	1
Ethylbenzene	<0.00200	U *1	0.00200	mg/Kg		08/02/22 14:31	08/05/22 13:09	1
m-Xylene & p-Xylene	<0.00399	U *1	0.00399	mg/Kg		08/02/22 14:31	08/05/22 13:09	1
o-Xylene	<0.00200	U *1	0.00200	mg/Kg		08/02/22 14:31	08/05/22 13:09	1
Xylenes, Total	<0.00399	U *1	0.00399	mg/Kg		08/02/22 14:31	08/05/22 13:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	08/02/22 14:31	08/05/22 13:09	1
1,4-Difluorobenzene (Surr)	98		70 - 130	08/02/22 14:31	08/05/22 13:09	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Client Sample ID: SS02

Lab Sample ID: 890-2645-2

Date Collected: 07/25/22 11:05

Matrix: Solid

Date Received: 07/25/22 15:26

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			08/08/22 14:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	217		50.0	mg/Kg			07/30/22 10:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/28/22 15:45	07/30/22 03:43	1
Diesel Range Organics (Over C10-C28)	157		50.0	mg/Kg		07/28/22 15:45	07/30/22 03:43	1
Oil Range Organics (Over C28-C36)	60.0		50.0	mg/Kg		07/28/22 15:45	07/30/22 03:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130			07/28/22 15:45	07/30/22 03:43	1
o-Terphenyl	117		70 - 130			07/28/22 15:45	07/30/22 03:43	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1960		24.8	mg/Kg			07/31/22 13:15	5

Client Sample ID: SS03

Lab Sample ID: 890-2645-3

Date Collected: 07/25/22 11:10

Matrix: Solid

Date Received: 07/25/22 15:26

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		08/02/22 14:31	08/05/22 13:30	1
Toluene	<0.00199	U	0.00199	mg/Kg		08/02/22 14:31	08/05/22 13:30	1
Ethylbenzene	<0.00199	U *1	0.00199	mg/Kg		08/02/22 14:31	08/05/22 13:30	1
m-Xylene & p-Xylene	<0.00398	U *1	0.00398	mg/Kg		08/02/22 14:31	08/05/22 13:30	1
o-Xylene	<0.00199	U *1	0.00199	mg/Kg		08/02/22 14:31	08/05/22 13:30	1
Xylenes, Total	<0.00398	U *1	0.00398	mg/Kg		08/02/22 14:31	08/05/22 13:30	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		70 - 130			08/02/22 14:31	08/05/22 13:30	1
1,4-Difluorobenzene (Surr)	97		70 - 130			08/02/22 14:31	08/05/22 13:30	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			08/08/22 14:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	2640		49.9	mg/Kg			07/30/22 10:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		07/28/22 15:45	07/30/22 04:04	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Client Sample ID: SS03

Lab Sample ID: 890-2645-3

Date Collected: 07/25/22 11:10

Matrix: Solid

Date Received: 07/25/22 15:26

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	2060		49.9	mg/Kg		07/28/22 15:45	07/30/22 04:04	1
Oil Range Organics (Over C28-C36)	583		49.9	mg/Kg		07/28/22 15:45	07/30/22 04:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	101		70 - 130			07/28/22 15:45	07/30/22 04:04	1
o-Terphenyl	120		70 - 130			07/28/22 15:45	07/30/22 04:04	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4170		49.8	mg/Kg			07/31/22 13:24	10

Client Sample ID: SS04

Lab Sample ID: 890-2645-4

Date Collected: 07/25/22 11:30

Matrix: Solid

Date Received: 07/25/22 15:26

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.00361		0.00199	mg/Kg		08/02/22 14:31	08/05/22 13:50	1
Toluene	0.0582		0.00199	mg/Kg		08/02/22 14:31	08/05/22 13:50	1
Ethylbenzene	0.156	*1	0.00199	mg/Kg		08/02/22 14:31	08/05/22 13:50	1
m-Xylene & p-Xylene	0.434	*1	0.00398	mg/Kg		08/02/22 14:31	08/05/22 13:50	1
o-Xylene	0.173	*1	0.00199	mg/Kg		08/02/22 14:31	08/05/22 13:50	1
Xylenes, Total	0.607	*1	0.00398	mg/Kg		08/02/22 14:31	08/05/22 13:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	259	S1+	70 - 130			08/02/22 14:31	08/05/22 13:50	1
1,4-Difluorobenzene (Surr)	92		70 - 130			08/02/22 14:31	08/05/22 13:50	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.825		0.00398	mg/Kg			08/08/22 14:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	269		49.9	mg/Kg			07/30/22 10:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		07/28/22 15:45	07/30/22 04:25	1
Diesel Range Organics (Over C10-C28)	121		49.9	mg/Kg		07/28/22 15:45	07/30/22 04:25	1
Oil Range Organics (Over C28-C36)	148		49.9	mg/Kg		07/28/22 15:45	07/30/22 04:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130			07/28/22 15:45	07/30/22 04:25	1
o-Terphenyl	122		70 - 130			07/28/22 15:45	07/30/22 04:25	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Client Sample ID: SS04

Lab Sample ID: 890-2645-4

Date Collected: 07/25/22 11:30

Matrix: Solid

Date Received: 07/25/22 15:26

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	630		5.01	mg/Kg			07/31/22 13:33	1

Client Sample ID: SS05

Lab Sample ID: 890-2645-5

Date Collected: 07/25/22 11:35

Matrix: Solid

Date Received: 07/25/22 15:26

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0199	U	0.0199	mg/Kg		08/08/22 08:17	08/08/22 15:30	10
Toluene	<0.0199	U	0.0199	mg/Kg		08/08/22 08:17	08/08/22 15:30	10
Ethylbenzene	<0.0199	U	0.0199	mg/Kg		08/08/22 08:17	08/08/22 15:30	10
m-Xylene & p-Xylene	<0.0398	U	0.0398	mg/Kg		08/08/22 08:17	08/08/22 15:30	10
o-Xylene	<0.0199	U *	0.0199	mg/Kg		08/08/22 08:17	08/08/22 15:30	10
Xylenes, Total	<0.0398	U	0.0398	mg/Kg		08/08/22 08:17	08/08/22 15:30	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		70 - 130	08/08/22 08:17	08/08/22 15:30	10
1,4-Difluorobenzene (Surr)	112		70 - 130	08/08/22 08:17	08/08/22 15:30	10

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.0398	U	0.0398	mg/Kg			08/08/22 14:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	4950		250	mg/Kg			07/30/22 10:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<250	U	250	mg/Kg		07/28/22 15:45	07/30/22 04:46	5
Diesel Range Organics (Over C10-C28)	3750		250	mg/Kg		07/28/22 15:45	07/30/22 04:46	5
Oil Range Organics (Over C28-C36)	1200		250	mg/Kg		07/28/22 15:45	07/30/22 04:46	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130	07/28/22 15:45	07/30/22 04:46	5
o-Terphenyl	117		70 - 130	07/28/22 15:45	07/30/22 04:46	5

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3830		25.2	mg/Kg			07/31/22 14:01	5

Client Sample ID: SS06

Lab Sample ID: 890-2645-6

Date Collected: 07/25/22 11:40

Matrix: Solid

Date Received: 07/25/22 15:26

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:31	08/05/22 18:13	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:31	08/05/22 18:13	1
Ethylbenzene	<0.00200	U *1	0.00200	mg/Kg		08/02/22 14:31	08/05/22 18:13	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Client Sample ID: SS06

Lab Sample ID: 890-2645-6

Date Collected: 07/25/22 11:40

Matrix: Solid

Date Received: 07/25/22 15:26

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	<0.00399	U *1	0.00399	mg/Kg		08/02/22 14:31	08/05/22 18:13	1
o-Xylene	<0.00200	U *1	0.00200	mg/Kg		08/02/22 14:31	08/05/22 18:13	1
Xylenes, Total	<0.00399	U *1	0.00399	mg/Kg		08/02/22 14:31	08/05/22 18:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130			08/02/22 14:31	08/05/22 18:13	1
1,4-Difluorobenzene (Surr)	84		70 - 130			08/02/22 14:31	08/05/22 18:13	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			08/08/22 14:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	260		50.0	mg/Kg			07/30/22 10:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/29/22 08:47	08/01/22 04:35	1
Diesel Range Organics (Over C10-C28)	154		50.0	mg/Kg		07/29/22 08:47	08/01/22 04:35	1
Oil Range Organics (Over C28-C36)	106		50.0	mg/Kg		07/29/22 08:47	08/01/22 04:35	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	101		70 - 130			07/29/22 08:47	08/01/22 04:35	1
o-Terphenyl	118		70 - 130			07/29/22 08:47	08/01/22 04:35	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	396		4.97	mg/Kg			07/31/22 14:10	1

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Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-17530-A-5-E MS	Matrix Spike	125	97
880-17530-A-5-F MSD	Matrix Spike Duplicate	128	103
890-2645-1	SS01	109	84
890-2645-1 MS	SS01	107	99
890-2645-1 MSD	SS01	102	86
890-2645-2	SS02	112	98
890-2645-3	SS03	117	97
890-2645-4	SS04	259 S1+	92
890-2645-5	SS05	86	112
890-2645-6	SS06	96	84
890-2689-A-2-G MS	Matrix Spike	124	98
890-2689-A-2-H MSD	Matrix Spike Duplicate	112	93
LCS 880-31335/1-A	Lab Control Sample	116	100
LCS 880-31573/1-A	Lab Control Sample	106	90
LCS 880-31680/1-A	Lab Control Sample	125	92
LCSD 880-31335/2-A	Lab Control Sample Dup	106	98
LCSD 880-31573/2-A	Lab Control Sample Dup	112	94
LCSD 880-31680/2-A	Lab Control Sample Dup	106	95
MB 880-31335/5-A	Method Blank	99	89
MB 880-31573/5-A	Method Blank	101	91
MB 880-31680/5-A	Method Blank	98	90
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-2642-A-41-C MS	Matrix Spike	93	93
890-2642-A-41-D MSD	Matrix Spike Duplicate	109	109
890-2644-A-1-D MS	Matrix Spike	105	111
890-2644-A-1-E MSD	Matrix Spike Duplicate	94	101
890-2645-1	SS01	104	126
890-2645-2	SS02	105	117
890-2645-3	SS03	101	120
890-2645-4	SS04	105	122
890-2645-5	SS05	103	117
890-2645-6	SS06	101	118
LCS 880-30936/2-A	Lab Control Sample	102	114
LCS 880-30964/2-A	Lab Control Sample	106	121
LCSD 880-30936/3-A	Lab Control Sample Dup	104	115
LCSD 880-30964/3-A	Lab Control Sample Dup	90	102
MB 880-30936/1-A	Method Blank	106	127
MB 880-30964/1-A	Method Blank	107	140 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			

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Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT
OTPH = o-Terphenyl

Job ID: 890-2645-1
SDG: 03D02057013

- 1
- 2
- 3
- 4
- 5
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- 9
- 10
- 11
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- 13
- 14

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-31335/5-A

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31335

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:31	08/05/22 11:25	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:31	08/05/22 11:25	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:31	08/05/22 11:25	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/02/22 14:31	08/05/22 11:25	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/02/22 14:31	08/05/22 11:25	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/02/22 14:31	08/05/22 11:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	08/02/22 14:31	08/05/22 11:25	1
1,4-Difluorobenzene (Surr)	89		70 - 130	08/02/22 14:31	08/05/22 11:25	1

Lab Sample ID: LCS 880-31335/1-A

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 31335

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1114		mg/Kg		111	70 - 130
Toluene	0.100	0.1046		mg/Kg		105	70 - 130
Ethylbenzene	0.100	0.1239		mg/Kg		124	70 - 130
m-Xylene & p-Xylene	0.200	0.2398		mg/Kg		120	70 - 130
o-Xylene	0.100	0.1296		mg/Kg		130	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	116		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: LCSD 880-31335/2-A

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31335

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08982		mg/Kg		90	70 - 130	21	35
Toluene	0.100	0.08489		mg/Kg		85	70 - 130	21	35
Ethylbenzene	0.100	0.08074	*1	mg/Kg		81	70 - 130	42	35
m-Xylene & p-Xylene	0.200	0.1641	*1	mg/Kg		82	70 - 130	38	35
o-Xylene	0.100	0.09044	*1	mg/Kg		90	70 - 130	36	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: 890-2645-1 MS

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: SS01

Prep Type: Total/NA

Prep Batch: 31335

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U F1	0.101	0.1014		mg/Kg		101	70 - 130
Toluene	<0.00202	U F1	0.101	0.09230		mg/Kg		91	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

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

Lab Sample ID: 890-2645-1 MS

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: SS01

Prep Type: Total/NA

Prep Batch: 31335

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00202	U *1 F1	0.101	0.08894		mg/Kg		88	70 - 130
m-Xylene & p-Xylene	<0.00403	U *1 F1	0.201	0.1784		mg/Kg		87	70 - 130
o-Xylene	0.00264	*1 F1	0.101	0.09574		mg/Kg		93	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: 890-2645-1 MSD

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: SS01

Prep Type: Total/NA

Prep Batch: 31335

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U F1	0.0998	<0.00200	U F1	mg/Kg		0	70 - 130	NC	35
Toluene	<0.00202	U F1	0.0998	<0.00200	U F1	mg/Kg		0	70 - 130	NC	35
Ethylbenzene	<0.00202	U *1 F1	0.0998	<0.00200	U F1	mg/Kg		0	70 - 130	NC	35
m-Xylene & p-Xylene	<0.00403	U *1 F1	0.200	<0.00399	U F1	mg/Kg		0	70 - 130	NC	35
o-Xylene	0.00264	*1 F1	0.0998	<0.00200	U F1	mg/Kg		0	70 - 130	NC	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	86		70 - 130

Lab Sample ID: MB 880-31573/5-A

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31573

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/05/22 11:19	08/06/22 00:00	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/05/22 11:19	08/06/22 00:00	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/05/22 11:19	08/06/22 00:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/05/22 11:19	08/06/22 00:00	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/05/22 11:19	08/06/22 00:00	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/05/22 11:19	08/06/22 00:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130	08/05/22 11:19	08/06/22 00:00	1
1,4-Difluorobenzene (Surr)	91		70 - 130	08/05/22 11:19	08/06/22 00:00	1

Lab Sample ID: LCS 880-31573/1-A

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 31573

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09897		mg/Kg		99	70 - 130
Toluene	0.100	0.1022		mg/Kg		102	70 - 130
Ethylbenzene	0.100	0.1050		mg/Kg		105	70 - 130
m-Xylene & p-Xylene	0.200	0.2137		mg/Kg		107	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

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

Lab Sample ID: LCS 880-31573/1-A

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 31573

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
o-Xylene	0.100	0.1208		mg/Kg		121	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	90		70 - 130

Lab Sample ID: LCSD 880-31573/2-A

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31573

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.09262		mg/Kg		93	70 - 130	7	35
Toluene	0.100	0.09534		mg/Kg		95	70 - 130	7	35
Ethylbenzene	0.100	0.1047		mg/Kg		105	70 - 130	0	35
m-Xylene & p-Xylene	0.200	0.2146		mg/Kg		107	70 - 130	0	35
o-Xylene	0.100	0.1189		mg/Kg		119	70 - 130	2	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	112		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-2689-A-2-G MS

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 31573

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.101	0.09178		mg/Kg		91	70 - 130
Toluene	<0.00200	U	0.101	0.1004		mg/Kg		100	70 - 130
Ethylbenzene	<0.00200	U	0.101	0.1071		mg/Kg		107	70 - 130
m-Xylene & p-Xylene	<0.00399	U	0.201	0.2218		mg/Kg		110	70 - 130
o-Xylene	<0.00200	U	0.101	0.1258		mg/Kg		125	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	124		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: 890-2689-A-2-H MSD

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 31573

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	<0.00200	U	0.0998	0.08524		mg/Kg		85	70 - 130	7	35
Toluene	<0.00200	U	0.0998	0.08780		mg/Kg		88	70 - 130	13	35
Ethylbenzene	<0.00200	U	0.0998	0.08996		mg/Kg		90	70 - 130	17	35
m-Xylene & p-Xylene	<0.00399	U	0.200	0.1787		mg/Kg		90	70 - 130	22	35
o-Xylene	<0.00200	U	0.0998	0.1036		mg/Kg		104	70 - 130	19	35

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

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

Lab Sample ID: 890-2689-A-2-H MSD

Matrix: Solid

Analysis Batch: 31540

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 31573

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

Lab Sample ID: MB 880-31680/5-A

Matrix: Solid

Analysis Batch: 31685

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 31680

	MB	MB							
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil	Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/08/22 08:17	08/08/22 12:03	1	
Toluene	<0.00200	U	0.00200	mg/Kg		08/08/22 08:17	08/08/22 12:03	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/08/22 08:17	08/08/22 12:03	1	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/08/22 08:17	08/08/22 12:03	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/08/22 08:17	08/08/22 12:03	1	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/08/22 08:17	08/08/22 12:03	1	
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil	Fac
4-Bromofluorobenzene (Surr)	98		70 - 130			08/08/22 08:17	08/08/22 12:03	1	
1,4-Difluorobenzene (Surr)	90		70 - 130			08/08/22 08:17	08/08/22 12:03	1	

Lab Sample ID: LCS 880-31680/1-A

Matrix: Solid

Analysis Batch: 31685

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 31680

	Spike	LCS	LCS					%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Benzene	0.100	0.09608		mg/Kg		96	70 - 130		
Toluene	0.100	0.1059		mg/Kg		106	70 - 130		
Ethylbenzene	0.100	0.1185		mg/Kg		118	70 - 130		
m-Xylene & p-Xylene	0.200	0.2507		mg/Kg		125	70 - 130		
o-Xylene	0.100	0.1380	*+	mg/Kg		138	70 - 130		
	LCS	LCS							
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	125		70 - 130						
1,4-Difluorobenzene (Surr)	92		70 - 130						

Lab Sample ID: LCSD 880-31680/2-A

Matrix: Solid

Analysis Batch: 31685

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31680

	Spike	LCSD	LCSD					%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.1071		mg/Kg		107	70 - 130	11	35	
Toluene	0.100	0.1066		mg/Kg		107	70 - 130	1	35	
Ethylbenzene	0.100	0.1143		mg/Kg		114	70 - 130	4	35	
m-Xylene & p-Xylene	0.200	0.2280		mg/Kg		114	70 - 130	10	35	
o-Xylene	0.100	0.1244		mg/Kg		124	70 - 130	10	35	
	LCSD	LCSD								
Surrogate	%Recovery	Qualifier	Limits							
4-Bromofluorobenzene (Surr)	106		70 - 130							

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

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

Lab Sample ID: LCSD 880-31680/2-A

Matrix: Solid

Analysis Batch: 31685

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 31680

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

Lab Sample ID: 880-17530-A-5-E MS

Matrix: Solid

Analysis Batch: 31685

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 31680

	Sample	Sample	Spike	MS	MS			%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Benzene	<0.00199	U	0.101	0.1066		mg/Kg		105	70 - 130
Toluene	<0.00199	U	0.101	0.1147		mg/Kg		114	70 - 130
Ethylbenzene	<0.00199	U	0.101	0.1313		mg/Kg		130	70 - 130
m-Xylene & p-Xylene	<0.00398	U F1	0.202	0.2708	F1	mg/Kg		134	70 - 130
o-Xylene	<0.00199	U F1 *+	0.101	0.1474	F1	mg/Kg		146	70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	125		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 880-17530-A-5-F MSD

Matrix: Solid

Analysis Batch: 31685

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 31680

	Sample	Sample	Spike	MSD	MSD			%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00199	U	0.100	0.1056		mg/Kg		105	70 - 130	1	35
Toluene	<0.00199	U	0.100	0.1115		mg/Kg		111	70 - 130	3	35
Ethylbenzene	<0.00199	U	0.100	0.1213		mg/Kg		121	70 - 130	8	35
m-Xylene & p-Xylene	<0.00398	U F1	0.200	0.2484		mg/Kg		124	70 - 130	9	35
o-Xylene	<0.00199	U F1 *+	0.100	0.1355	F1	mg/Kg		135	70 - 130	8	35

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	128		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

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

Lab Sample ID: MB 880-30936/1-A

Matrix: Solid

Analysis Batch: 30956

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 30936

	MB	MB							
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil	Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/28/22 15:45	07/29/22 19:56		1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/28/22 15:45	07/29/22 19:56		1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/28/22 15:45	07/29/22 19:56		1

	MB	MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil	Fac		
1-Chlorooctane	106		70 - 130	07/28/22 15:45	07/29/22 19:56		1		
o-Terphenyl	127		70 - 130	07/28/22 15:45	07/29/22 19:56		1		

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

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

Lab Sample ID: LCS 880-30936/2-A

Matrix: Solid

Analysis Batch: 30956

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 30936

Analyte			Spike	LCS	LCS	Unit	D	%Rec	%Rec		
			Added	Result	Qualifier			Limits			
Gasoline Range Organics (GRO)-C6-C10			1000	936.6		mg/Kg		94	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1038		mg/Kg		104	70 - 130		
										</	

Lab Sample ID: LCSD 880-30936/3-A

Matrix: Solid

Analysis Batch: 30956

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 30936

Analyte			Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	RPD
			Added	Result	Qualifier				Limits		Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1051		mg/Kg		105	70 - 130	12	20
Diesel Range Organics (Over C10-C28)			1000	1076		mg/Kg		108	70 - 130	4	20

Lab Sample ID: 890-2642-A-41-C MS

Matrix: Solid

Analysis Batch: 30956

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 30936

	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U F1 F2	999	1138		mg/Kg		109	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	999	815.6		mg/Kg		82	70 - 130		

Lab Sample ID: 890-2642-A-41-D MSD

Matrix: Solid

Analysis Batch: 30956

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 30936

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U F1 F2	999	1401	F1 F2	mg/Kg		136	70 - 130	21	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	963.2		mg/Kg		96	70 - 130	17	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	109		70 - 130								

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

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

Lab Sample ID: 890-2642-A-41-D MSD

Matrix: Solid

Analysis Batch: 30956

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 30936

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	109		70 - 130

Lab Sample ID: MB 880-30964/1-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 30964

	MB	MB							
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil	Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/29/22 08:47	07/31/22 20:04	1	
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/29/22 08:47	07/31/22 20:04	1	
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/29/22 08:47	07/31/22 20:04	1	
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil	Fac
1-Chlorooctane	107		70 - 130			07/29/22 08:47	07/31/22 20:04	1	
<i>o</i> -Terphenyl	140	S1+	70 - 130			07/29/22 08:47	07/31/22 20:04	1	

Lab Sample ID: LCS 880-30964/2-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 30964

	Spike	LCS	LCS					%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline Range Organics (GRO)-C6-C10	1000	1145		mg/Kg		115	70 - 130		
Diesel Range Organics (Over C10-C28)	1000	1033		mg/Kg		103	70 - 130		
	LCS	LCS							
Surrogate	%Recovery	Qualifier	Limits						
1-Chlorooctane	106		70 - 130						
<i>o</i> -Terphenyl	121		70 - 130						

Lab Sample ID: LCSD 880-30964/3-A

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 30964

	Spike	LCSD	LCSD					%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit		
Gasoline Range Organics (GRO)-C6-C10	1000	1027		mg/Kg		103	70 - 130	11	20		
Diesel Range Organics (Over C10-C28)	1000	946.0		mg/Kg		95	70 - 130	9	20		
	LCSD	LCSD									
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane	90		70 - 130								
<i>o</i> -Terphenyl	102		70 - 130								

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

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

Lab Sample ID: 890-2644-A-1-D MS

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 30964

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	1187		mg/Kg		119	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1105		mg/Kg		111	70 - 130		
	MS %Recovery	MS Qualifier									
Surrogate											
1-Chlorooctane	105										
o-Terphenyl	111										

Lab Sample ID: 890-2644-A-1-E MSD

Matrix: Solid

Analysis Batch: 31081

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 30964

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	1112		mg/Kg		111	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1023		mg/Kg		102	70 - 130	8	20
	MSD %Recovery	MSD Qualifier									
Surrogate											
1-Chlorooctane	94										
o-Terphenyl	101										

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-30809/1-A

Matrix: Solid

Analysis Batch: 30989

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			07/31/22 10:56	1

Lab Sample ID: LCS 880-30809/2-A

Matrix: Solid

Analysis Batch: 30989

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	250	262.1		mg/Kg		105	90 - 110		

Lab Sample ID: LCSD 880-30809/3-A

Matrix: Solid

Analysis Batch: 30989

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	262.0		mg/Kg		105	90 - 110	0	20

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-17394-A-1-B MS											Client Sample ID: Matrix Spike		
Matrix: Solid											Prep Type: Soluble		
Analysis Batch: 30989													
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits				
Chloride	3180		1250	4513		mg/Kg		107	90 - 110				

Lab Sample ID: 880-17394-A-1-C MSD											Client Sample ID: Matrix Spike Duplicate		
Matrix: Solid											Prep Type: Soluble		
Analysis Batch: 30989													
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit		
Chloride	3180		1250	4512		mg/Kg		107	90 - 110	0	20		

Lab Sample ID: 890-2645-4 MS											Client Sample ID: SS04		
Matrix: Solid											Prep Type: Soluble		
Analysis Batch: 30989													
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits				
Chloride	630		251	854.7		mg/Kg		90	90 - 110				

Lab Sample ID: 890-2645-4 MSD											Client Sample ID: SS04		
Matrix: Solid											Prep Type: Soluble		
Analysis Batch: 30989													
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit		
Chloride	630		251	854.3		mg/Kg		90	90 - 110	0	20		

QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

GC VOA

Prep Batch: 31335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-1	SS01	Total/NA	Solid	5035	
890-2645-2	SS02	Total/NA	Solid	5035	
890-2645-3	SS03	Total/NA	Solid	5035	
890-2645-4	SS04	Total/NA	Solid	5035	
890-2645-6	SS06	Total/NA	Solid	5035	
MB 880-31335/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-31335/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-31335/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2645-1 MS	SS01	Total/NA	Solid	5035	
890-2645-1 MSD	SS01	Total/NA	Solid	5035	

Analysis Batch: 31540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-1	SS01	Total/NA	Solid	8021B	31335
890-2645-2	SS02	Total/NA	Solid	8021B	31335
890-2645-3	SS03	Total/NA	Solid	8021B	31335
890-2645-4	SS04	Total/NA	Solid	8021B	31335
890-2645-6	SS06	Total/NA	Solid	8021B	31335
MB 880-31335/5-A	Method Blank	Total/NA	Solid	8021B	31335
MB 880-31573/5-A	Method Blank	Total/NA	Solid	8021B	31573
LCS 880-31335/1-A	Lab Control Sample	Total/NA	Solid	8021B	31335
LCS 880-31573/1-A	Lab Control Sample	Total/NA	Solid	8021B	31573
LCSD 880-31335/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	31335
LCSD 880-31573/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	31573
890-2645-1 MS	SS01	Total/NA	Solid	8021B	31335
890-2645-1 MSD	SS01	Total/NA	Solid	8021B	31335
890-2689-A-2-G MS	Matrix Spike	Total/NA	Solid	8021B	31573
890-2689-A-2-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	31573

Prep Batch: 31573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-31573/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-31573/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-31573/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2689-A-2-G MS	Matrix Spike	Total/NA	Solid	5035	
890-2689-A-2-H MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 31680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-5	SS05	Total/NA	Solid	5035	
MB 880-31680/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-31680/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-31680/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-17530-A-5-E MS	Matrix Spike	Total/NA	Solid	5035	
880-17530-A-5-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 31685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-5	SS05	Total/NA	Solid	8021B	31680
MB 880-31680/5-A	Method Blank	Total/NA	Solid	8021B	31680
LCS 880-31680/1-A	Lab Control Sample	Total/NA	Solid	8021B	31680

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

GC VOA (Continued)

Analysis Batch: 31685 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-31680/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	31680
880-17530-A-5-E MS	Matrix Spike	Total/NA	Solid	8021B	31680
880-17530-A-5-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	31680

Analysis Batch: 31771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-1	SS01	Total/NA	Solid	Total BTEX	
890-2645-2	SS02	Total/NA	Solid	Total BTEX	
890-2645-3	SS03	Total/NA	Solid	Total BTEX	
890-2645-4	SS04	Total/NA	Solid	Total BTEX	
890-2645-5	SS05	Total/NA	Solid	Total BTEX	
890-2645-6	SS06	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 30936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-1	SS01	Total/NA	Solid	8015NM Prep	
890-2645-2	SS02	Total/NA	Solid	8015NM Prep	
890-2645-3	SS03	Total/NA	Solid	8015NM Prep	
890-2645-4	SS04	Total/NA	Solid	8015NM Prep	
890-2645-5	SS05	Total/NA	Solid	8015NM Prep	
MB 880-30936/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-30936/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-30936/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2642-A-41-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2642-A-41-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 30956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-1	SS01	Total/NA	Solid	8015B NM	30936
890-2645-2	SS02	Total/NA	Solid	8015B NM	30936
890-2645-3	SS03	Total/NA	Solid	8015B NM	30936
890-2645-4	SS04	Total/NA	Solid	8015B NM	30936
890-2645-5	SS05	Total/NA	Solid	8015B NM	30936
MB 880-30936/1-A	Method Blank	Total/NA	Solid	8015B NM	30936
LCS 880-30936/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	30936
LCSD 880-30936/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	30936
890-2642-A-41-C MS	Matrix Spike	Total/NA	Solid	8015B NM	30936
890-2642-A-41-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	30936

Prep Batch: 30964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-6	SS06	Total/NA	Solid	8015NM Prep	
MB 880-30964/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-30964/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-30964/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2644-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2644-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

GC Semi VOA

Analysis Batch: 31065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-1	SS01	Total/NA	Solid	8015 NM	
890-2645-2	SS02	Total/NA	Solid	8015 NM	
890-2645-3	SS03	Total/NA	Solid	8015 NM	
890-2645-4	SS04	Total/NA	Solid	8015 NM	
890-2645-5	SS05	Total/NA	Solid	8015 NM	
890-2645-6	SS06	Total/NA	Solid	8015 NM	

Analysis Batch: 31081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-6	SS06	Total/NA	Solid	8015B NM	30964
MB 880-30964/1-A	Method Blank	Total/NA	Solid	8015B NM	30964
LCS 880-30964/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	30964
LCSD 880-30964/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	30964
890-2644-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	30964
890-2644-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	30964

HPLC/IC

Leach Batch: 30809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-1	SS01	Soluble	Solid	DI Leach	
890-2645-2	SS02	Soluble	Solid	DI Leach	
890-2645-3	SS03	Soluble	Solid	DI Leach	
890-2645-4	SS04	Soluble	Solid	DI Leach	
890-2645-5	SS05	Soluble	Solid	DI Leach	
890-2645-6	SS06	Soluble	Solid	DI Leach	
MB 880-30809/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-30809/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-30809/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-17394-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-17394-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-2645-4 MS	SS04	Soluble	Solid	DI Leach	
890-2645-4 MSD	SS04	Soluble	Solid	DI Leach	

Analysis Batch: 30989

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2645-1	SS01	Soluble	Solid	300.0	30809
890-2645-2	SS02	Soluble	Solid	300.0	30809
890-2645-3	SS03	Soluble	Solid	300.0	30809
890-2645-4	SS04	Soluble	Solid	300.0	30809
890-2645-5	SS05	Soluble	Solid	300.0	30809
890-2645-6	SS06	Soluble	Solid	300.0	30809
MB 880-30809/1-A	Method Blank	Soluble	Solid	300.0	30809
LCS 880-30809/2-A	Lab Control Sample	Soluble	Solid	300.0	30809
LCSD 880-30809/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	30809
880-17394-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	30809
880-17394-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	30809
890-2645-4 MS	SS04	Soluble	Solid	300.0	30809
890-2645-4 MSD	SS04	Soluble	Solid	300.0	30809

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Client Sample ID: SS01

Lab Sample ID: 890-2645-1

Date Collected: 07/25/22 11:00

Matrix: Solid

Date Received: 07/25/22 15:26

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	31335	08/02/22 14:31	MR	EETSC MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	31540	08/05/22 12:08	MR	EETSC MII
Total/NA	Analysis	Total BTEX		1			31771	08/08/22 14:27	SM	EETSC MII
Total/NA	Analysis	8015 NM		1			31065	07/30/22 10:17	AJ	EETSC MII
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	30936	07/28/22 15:45	DM	EETSC MII
Total/NA	Analysis	8015B NM		1			30956	07/30/22 03:21	AJ	EETSC MII
Soluble	Leach	DI Leach			5.03 g	50 mL	30809	07/27/22 12:54	SMC	EETSC MII
Soluble	Analysis	300.0		1			30989	07/31/22 13:05	SMC	EETSC MII

Client Sample ID: SS02

Lab Sample ID: 890-2645-2

Date Collected: 07/25/22 11:05

Matrix: Solid

Date Received: 07/25/22 15:26

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	31335	08/02/22 14:31	MR	EETSC MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	31540	08/05/22 13:09	MR	EETSC MII
Total/NA	Analysis	Total BTEX		1			31771	08/08/22 14:27	SM	EETSC MII
Total/NA	Analysis	8015 NM		1			31065	07/30/22 10:17	AJ	EETSC MII
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	30936	07/28/22 15:45	DM	EETSC MII
Total/NA	Analysis	8015B NM		1			30956	07/30/22 03:43	AJ	EETSC MII
Soluble	Leach	DI Leach			5.04 g	50 mL	30809	07/27/22 12:54	SMC	EETSC MII
Soluble	Analysis	300.0		5			30989	07/31/22 13:15	SMC	EETSC MII

Client Sample ID: SS03

Lab Sample ID: 890-2645-3

Date Collected: 07/25/22 11:10

Matrix: Solid

Date Received: 07/25/22 15:26

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	31335	08/02/22 14:31	MR	EETSC MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	31540	08/05/22 13:30	MR	EETSC MII
Total/NA	Analysis	Total BTEX		1			31771	08/08/22 14:27	SM	EETSC MII
Total/NA	Analysis	8015 NM		1			31065	07/30/22 10:17	AJ	EETSC MII
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	30936	07/28/22 15:45	DM	EETSC MII
Total/NA	Analysis	8015B NM		1			30956	07/30/22 04:04	AJ	EETSC MII
Soluble	Leach	DI Leach			5.02 g	50 mL	30809	07/27/22 12:54	SMC	EETSC MII
Soluble	Analysis	300.0		10			30989	07/31/22 13:24	SMC	EETSC MII

Client Sample ID: SS04

Lab Sample ID: 890-2645-4

Date Collected: 07/25/22 11:30

Matrix: Solid

Date Received: 07/25/22 15:26

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	31335	08/02/22 14:31	MR	EETSC MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	31540	08/05/22 13:50	MR	EETSC MII
Total/NA	Analysis	Total BTEX		1			31771	08/08/22 14:27	SM	EETSC MII

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Client Sample ID: SS04

Lab Sample ID: 890-2645-4

Date Collected: 07/25/22 11:30

Matrix: Solid

Date Received: 07/25/22 15:26

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			31065	07/30/22 10:17	AJ	EETSC MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	30936	07/28/22 15:45	DM	EETSC MII
Total/NA	Analysis	8015B NM		1			30956	07/30/22 04:25	AJ	EETSC MII
Soluble	Leach	DI Leach			4.99 g	50 mL	30809	07/27/22 12:54	SMC	EETSC MII
Soluble	Analysis	300.0		1			30989	07/31/22 13:33	SMC	EETSC MII

Client Sample ID: SS05

Lab Sample ID: 890-2645-5

Date Collected: 07/25/22 11:35

Matrix: Solid

Date Received: 07/25/22 15:26

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	31680	08/08/22 08:17	EL	EETSC MID
Total/NA	Analysis	8021B		10	5 mL	5 mL	31685	08/08/22 15:30	MR	EETSC MII
Total/NA	Analysis	Total BTEX		1			31771	08/08/22 14:27	SM	EETSC MII
Total/NA	Analysis	8015 NM		1			31065	07/30/22 10:17	AJ	EETSC MII
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	30936	07/28/22 15:45	DM	EETSC MII
Total/NA	Analysis	8015B NM		5			30956	07/30/22 04:46	AJ	EETSC MII
Soluble	Leach	DI Leach			4.96 g	50 mL	30809	07/27/22 12:54	SMC	EETSC MII
Soluble	Analysis	300.0		5			30989	07/31/22 14:01	SMC	EETSC MII

Client Sample ID: SS06

Lab Sample ID: 890-2645-6

Date Collected: 07/25/22 11:40

Matrix: Solid

Date Received: 07/25/22 15:26

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	31335	08/02/22 14:31	MR	EETSC MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	31540	08/05/22 18:13	MR	EETSC MII
Total/NA	Analysis	Total BTEX		1			31771	08/08/22 14:27	SM	EETSC MII
Total/NA	Analysis	8015 NM		1			31065	07/30/22 10:17	AJ	EETSC MII
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	30964	07/29/22 08:47	DM	EETSC MII
Total/NA	Analysis	8015B NM		1			31081	08/01/22 04:35	SM	EETSC MII
Soluble	Leach	DI Leach			5.03 g	50 mL	30809	07/27/22 12:54	SMC	EETSC MII
Soluble	Analysis	300.0		1			30989	07/31/22 14:10	SMC	EETSC MII

Laboratory References:

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

Eurofins Carlsbad

Accreditation/Certification Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2645-1
SDG: 03D02057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
890-2645-1	SS01	Solid	07/25/22 11:00	07/25/22 15:26
890-2645-2	SS02	Solid	07/25/22 11:05	07/25/22 15:26
890-2645-3	SS03	Solid	07/25/22 11:10	07/25/22 15:26
890-2645-4	SS04	Solid	07/25/22 11:30	07/25/22 15:26
890-2645-5	SS05	Solid	07/25/22 11:35	07/25/22 15:26
890-2645-6	SS06	Solid	07/25/22 11:40	07/25/22 15:26

- 1
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- 11
- 12
- 13
- 14



Environment Testing
Xenco

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

Chain of Custody

Work Order No:




Page 1 of 1
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Project Manager:	Katei Jennings	Bill to: (if different)	Katei Jennings
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy	Address:	
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	
Phone:	817-683-2503	Email:	kjennings@ensolum.com

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

[illegible]

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		7-25-22			

Revised Date 08/25/2020 Rev 2021

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2645-1

SDG Number: 03D02057013

Login Number: 2645

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2645-1

SDG Number: 03D02057013

Login Number: 2645

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 07/27/22 10:48 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-2936-1

Laboratory Sample Delivery Group: 03D2057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

A handwritten signature in black ink that reads "Jessica Kramer".

Authorized for release by:

9/26/2022 11:53:29 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-2936-1
SDG: 03D2057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
SQL	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: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

Job ID: 890-2936-1

Laboratory: Eurofins Carlsbad

Narrative

**Job Narrative
890-2936-1**

Receipt

The samples were received on 9/13/2022 8:26 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 1.6°C

GC VOA

Method 8021B: Surrogate recovery for the following sample was outside control limits: (890-2998-A-1-D MSD). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (890-2998-A-1-E). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (LCS 880-35157/1-A). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following sample was outside control limits: PH01 (890-2936-2). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

Client Sample ID: PH01

Lab Sample ID: 890-2936-1

Date Collected: 09/12/22 10:45

Matrix: Solid

Date Received: 09/13/22 08:26

Sample Depth: 1

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/22/22 10:27	09/22/22 21:32	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/22/22 10:27	09/22/22 21:32	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/22/22 10:27	09/22/22 21:32	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		09/22/22 10:27	09/22/22 21:32	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/22/22 10:27	09/22/22 21:32	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		09/22/22 10:27	09/22/22 21:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	152	S1+	70 - 130	09/22/22 10:27	09/22/22 21:32	1
1,4-Difluorobenzene (Surr)	111		70 - 130	09/22/22 10:27	09/22/22 21:32	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			09/25/22 11:05	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	225		50.0	mg/Kg			09/19/22 11:13	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/15/22 14:25	09/16/22 16:44	1
Diesel Range Organics (Over C10-C28)	225		50.0	mg/Kg		09/15/22 14:25	09/16/22 16:44	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/15/22 14:25	09/16/22 16:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130	09/15/22 14:25	09/16/22 16:44	1
o-Terphenyl	107		70 - 130	09/15/22 14:25	09/16/22 16:44	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	76.9		5.02	mg/Kg			09/19/22 09:01	1

Client Sample ID: PH01

Lab Sample ID: 890-2936-2

Date Collected: 09/12/22 12:25

Matrix: Solid

Date Received: 09/13/22 08:26

Sample Depth: 4

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/22/22 10:27	09/22/22 21:53	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/22/22 10:27	09/22/22 21:53	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/22/22 10:27	09/22/22 21:53	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/22/22 10:27	09/22/22 21:53	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/22/22 10:27	09/22/22 21:53	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/22/22 10:27	09/22/22 21:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	151	S1+	70 - 130	09/22/22 10:27	09/22/22 21:53	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

Client Sample ID: PH01

Lab Sample ID: 890-2936-2

Date Collected: 09/12/22 12:25

Matrix: Solid

Date Received: 09/13/22 08:26

Sample Depth: 4

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	111		70 - 130	09/22/22 10:27	09/22/22 21:53	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			09/25/22 11:05	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	60.5		49.9	mg/Kg			09/19/22 11:13	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/15/22 14:25	09/16/22 17:05	1
Diesel Range Organics (Over C10-C28)	60.5		49.9	mg/Kg		09/15/22 14:25	09/16/22 17:05	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/15/22 14:25	09/16/22 17:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	123		70 - 130			09/15/22 14:25	09/16/22 17:05	1
o-Terphenyl	114		70 - 130			09/15/22 14:25	09/16/22 17:05	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.9		5.04	mg/Kg			09/19/22 09:16	1

Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

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)
890-2936-1	PH01	152 S1+	111
890-2936-2	PH01	151 S1+	111
890-2998-A-1-C MS	Matrix Spike	126	122
890-2998-A-1-D MSD	Matrix Spike Duplicate	138 S1+	121
LCS 880-35157/1-A	Lab Control Sample	136 S1+	117
LCSD 880-35157/2-A	Lab Control Sample Dup	127	114
MB 880-35157/5-A	Method Blank	110	108
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)
890-2936-1	PH01	105	107
890-2936-2	PH01	123	114
890-2942-A-1-C MS	Matrix Spike	101	96
890-2942-A-1-D MSD	Matrix Spike Duplicate	105	85
LCS 880-34596/2-A	Lab Control Sample	109	93
LCSD 880-34596/3-A	Lab Control Sample Dup	102	96
MB 880-34596/1-A	Method Blank	115	110
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-35157/5-A

Matrix: Solid

Analysis Batch: 35151

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35157

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/22/22 10:27	09/22/22 15:59	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/22/22 10:27	09/22/22 15:59	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/22/22 10:27	09/22/22 15:59	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/22/22 10:27	09/22/22 15:59	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/22/22 10:27	09/22/22 15:59	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/22/22 10:27	09/22/22 15:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	09/22/22 10:27	09/22/22 15:59	1
1,4-Difluorobenzene (Surr)	108		70 - 130	09/22/22 10:27	09/22/22 15:59	1

Lab Sample ID: LCS 880-35157/1-A

Matrix: Solid

Analysis Batch: 35151

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35157

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1010		mg/Kg		101	70 - 130
Toluene	0.100	0.09728		mg/Kg		97	70 - 130
Ethylbenzene	0.100	0.1069		mg/Kg		107	70 - 130
m-Xylene & p-Xylene	0.200	0.2437		mg/Kg		122	70 - 130
o-Xylene	0.100	0.1191		mg/Kg		119	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	136	S1+	70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: LCSD 880-35157/2-A

Matrix: Solid

Analysis Batch: 35151

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35157

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09002		mg/Kg		90	70 - 130	11	35
Toluene	0.100	0.09451		mg/Kg		95	70 - 130	3	35
Ethylbenzene	0.100	0.1038		mg/Kg		104	70 - 130	3	35
m-Xylene & p-Xylene	0.200	0.2295		mg/Kg		115	70 - 130	6	35
o-Xylene	0.100	0.1105		mg/Kg		111	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	127		70 - 130
1,4-Difluorobenzene (Surr)	114		70 - 130

Lab Sample ID: 890-2998-A-1-C MS

Matrix: Solid

Analysis Batch: 35151

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35157

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.0998	0.09601		mg/Kg		96	70 - 130
Toluene	<0.00200	U	0.0998	0.08061		mg/Kg		81	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

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

Lab Sample ID: 890-2998-A-1-C MS

Matrix: Solid

Analysis Batch: 35151

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35157

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.0998	0.08856		mg/Kg		89	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1986		mg/Kg		99	70 - 130
o-Xylene	<0.00200	U	0.0998	0.09612		mg/Kg		96	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	126		70 - 130
1,4-Difluorobenzene (Surr)	122		70 - 130

Lab Sample ID: 890-2998-A-1-D MSD

Matrix: Solid

Analysis Batch: 35151

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35157

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.100	0.09474		mg/Kg		94	70 - 130	1	35
Toluene	<0.00200	U	0.100	0.09384		mg/Kg		93	70 - 130	15	35
Ethylbenzene	<0.00200	U	0.100	0.1035		mg/Kg		103	70 - 130	16	35
m-Xylene & p-Xylene	<0.00401	U	0.201	0.2299		mg/Kg		114	70 - 130	15	35
o-Xylene	<0.00200	U	0.100	0.1098		mg/Kg		109	70 - 130	13	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	138	S1+	70 - 130
1,4-Difluorobenzene (Surr)	121		70 - 130

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

Lab Sample ID: MB 880-34596/1-A

Matrix: Solid

Analysis Batch: 34626

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 34596

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/15/22 14:25	09/16/22 07:29	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/15/22 14:25	09/16/22 07:29	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/15/22 14:25	09/16/22 07:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	115		70 - 130	09/15/22 14:25	09/16/22 07:29	1
o-Terphenyl	110		70 - 130	09/15/22 14:25	09/16/22 07:29	1

Lab Sample ID: LCS 880-34596/2-A

Matrix: Solid

Analysis Batch: 34626

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 34596

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1038		mg/Kg		104	70 - 130
Diesel Range Organics (Over C10-C28)	1000	831.5		mg/Kg		83	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

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

Lab Sample ID: LCS 880-34596/2-A

Matrix: Solid

Analysis Batch: 34626

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 34596

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	109		70 - 130
o-Terphenyl	93		70 - 130

Lab Sample ID: LCSD 880-34596/3-A

Matrix: Solid

Analysis Batch: 34626

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 34596

	Spike	LCSD	LCSD					%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit		
Gasoline Range Organics (GRO)-C6-C10	1000	987.7		mg/Kg		99	70 - 130	5	20		
Diesel Range Organics (Over C10-C28)	1000	860.7		mg/Kg		86	70 - 130	3	20		

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	96		70 - 130

Lab Sample ID: 890-2942-A-1-C MS

Matrix: Solid

Analysis Batch: 34626

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 34596

	Sample	Sample	Spike	MS	MS			%Rec			
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	877.7		mg/Kg		88	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	996	1165		mg/Kg		112	70 - 130		

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	101		70 - 130
o-Terphenyl	96		70 - 130

Lab Sample ID: 890-2942-A-1-D MSD

Matrix: Solid

Analysis Batch: 34626

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 34596

	Sample	Sample	Spike	MSD	MSD			%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	784.3		mg/Kg		79	70 - 130	11	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	1029		mg/Kg		99	70 - 130	12	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	105		70 - 130
o-Terphenyl	85		70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-34507/1-A

Matrix: Solid

Analysis Batch: 34836

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/19/22 08:46	1

Lab Sample ID: LCS 880-34507/2-A

Matrix: Solid

Analysis Batch: 34836

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	246.3		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-34507/3-A

Matrix: Solid

Analysis Batch: 34836

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	247.4		mg/Kg		99	90 - 110	0	20

Lab Sample ID: 890-2936-1 MS

Matrix: Solid

Analysis Batch: 34836

Client Sample ID: PH01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	76.9		251	325.8		mg/Kg		99	90 - 110

Lab Sample ID: 890-2936-1 MSD

Matrix: Solid

Analysis Batch: 34836

Client Sample ID: PH01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	76.9		251	325.7		mg/Kg		99	90 - 110	0	20

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

GC VOA

Analysis Batch: 35151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2936-1	PH01	Total/NA	Solid	8021B	35157
890-2936-2	PH01	Total/NA	Solid	8021B	35157
MB 880-35157/5-A	Method Blank	Total/NA	Solid	8021B	35157
LCS 880-35157/1-A	Lab Control Sample	Total/NA	Solid	8021B	35157
LCSD 880-35157/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	35157
890-2998-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	35157
890-2998-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	35157

Prep Batch: 35157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2936-1	PH01	Total/NA	Solid	5035	
890-2936-2	PH01	Total/NA	Solid	5035	
MB 880-35157/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-35157/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-35157/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2998-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-2998-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 35333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2936-1	PH01	Total/NA	Solid	Total BTEX	
890-2936-2	PH01	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 34596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2936-1	PH01	Total/NA	Solid	8015NM Prep	
890-2936-2	PH01	Total/NA	Solid	8015NM Prep	
MB 880-34596/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-34596/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-34596/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2942-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2942-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 34626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2936-1	PH01	Total/NA	Solid	8015B NM	34596
890-2936-2	PH01	Total/NA	Solid	8015B NM	34596
MB 880-34596/1-A	Method Blank	Total/NA	Solid	8015B NM	34596
LCS 880-34596/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	34596
LCSD 880-34596/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	34596
890-2942-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	34596
890-2942-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	34596

Analysis Batch: 34821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2936-1	PH01	Total/NA	Solid	8015 NM	
890-2936-2	PH01	Total/NA	Solid	8015 NM	

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

HPLC/IC

Leach Batch: 34507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2936-1	PH01	Soluble	Solid	DI Leach	
890-2936-2	PH01	Soluble	Solid	DI Leach	
MB 880-34507/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-34507/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-34507/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2936-1 MS	PH01	Soluble	Solid	DI Leach	
890-2936-1 MSD	PH01	Soluble	Solid	DI Leach	

Analysis Batch: 34836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2936-1	PH01	Soluble	Solid	300.0	34507
890-2936-2	PH01	Soluble	Solid	300.0	34507
MB 880-34507/1-A	Method Blank	Soluble	Solid	300.0	34507
LCS 880-34507/2-A	Lab Control Sample	Soluble	Solid	300.0	34507
LCSD 880-34507/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	34507
890-2936-1 MS	PH01	Soluble	Solid	300.0	34507
890-2936-1 MSD	PH01	Soluble	Solid	300.0	34507

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

Client Sample ID: PH01

Lab Sample ID: 890-2936-1

Date Collected: 09/12/22 10:45

Matrix: Solid

Date Received: 09/13/22 08:26

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	35157	09/22/22 10:27	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	35151	09/22/22 21:32	MR	EET MID
Total/NA	Analysis	Total BTEX		1			35333	09/25/22 11:05	MR	EET MID
Total/NA	Analysis	8015 NM		1			34821	09/19/22 11:13	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	34596	09/15/22 14:25	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34626	09/16/22 16:44	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	34507	09/14/22 13:32	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	34836	09/19/22 09:01	CH	EET MID

Client Sample ID: PH01

Lab Sample ID: 890-2936-2

Date Collected: 09/12/22 12:25

Matrix: Solid

Date Received: 09/13/22 08:26

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	35157	09/22/22 10:27	MR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	35151	09/22/22 21:53	MR	EET MID
Total/NA	Analysis	Total BTEX		1			35333	09/25/22 11:05	MR	EET MID
Total/NA	Analysis	8015 NM		1			34821	09/19/22 11:13	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	34596	09/15/22 14:25	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	34626	09/16/22 17:05	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	34507	09/14/22 13:32	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	34836	09/19/22 09:16	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: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-2936-1
SDG: 03D2057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2936-1	PH01	Solid	09/12/22 10:45	09/13/22 08:26	1
890-2936-2	PH01	Solid	09/12/22 12:25	09/13/22 08:26	4

- 1
- 2
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- 12
- 13
- 14



Environment Testing

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

Chain of Custody


Work Order No:

www.xenco.com

Page 1 of 1

Project Manager:	Josh Adams	Bill to: (if different)	
Company Name:	Ensolum	Company Name:	
Address:	3122 N.W. Parks Hwy.	Address:	
City, State ZIP:	Carlsbad NM 88720	City, State ZIP:	
Phone:	3035178437	Email:	jadams@ensolum.com



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

Project Name:	SEMU BMT	Turn Around	
Project Number:	03D2057013	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code
Project Location:	Lea County NM	Due Date:	5 day 1st
Sampler's Name:	LC	TAT starts the day received by the lab. if received by 4:30pm	
PO #:	N/A		
SAMPLE RECEIPT		Temp Blank:	Yes No <input checked="" type="checkbox"/> Yes No <input checked="" type="checkbox"/>
Samples Received Intact:	Yes No <input checked="" type="checkbox"/>	Thermometer ID:	72m 007
Cooler Custody Seals:	Yes No <input checked="" type="checkbox"/>	Correction Factor:	-0.2
Sample Custody Seals:	Yes No <input checked="" type="checkbox"/>	Temperature Reading:	1.8
Total Containers:		Corrected Temperature:	1.6
Parameters			
Windex (300.0) (P015) ex (8021)			
ANALYSIS REQUEST			
 890-2936 Chain of Custody			
Preservative Codes			
None: NO	DI Water: H ₂ O		
Cool: Cool	MeOH: Me		
HCL: HCl	HNO ₃ : HN		
H ₂ SO ₄ : H ₂	NaOH: Na		
H ₃ PO ₄ : HP			
NaHSO ₄ : a: NABIS			
Na ₂ S ₂ O ₃ : NASO ₃			
Zn Acetate+NaOH: Zn			
NaOH+Ascorbic Acid: SAPC			

[illegible]

Total 2007/ 6010	2008/ 6020:	
8RCRA 13PPM	Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO ₂ Na Sr Ti 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 Ti U	Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitute a valid purchase order from client company to Eurofins Xeno, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xeno will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xeno. A minimum charge of \$85.00 will be applied to each project and a charge of \$3 for each sample submitted to Eurofins Xeno, but not analyzed. These terms will be enforced unless previously negotiated.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			9.13.22 8:26			
3						
5						

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2936-1

SDG Number: 03D2057013

Login Number: 2936

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2936-1

SDG Number: 03D2057013

Login Number: 2936

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/14/22 11:07 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3087-1

Laboratory Sample Delivery Group: 03D2057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

Authorized for release by:

10/7/2022 4:38:31 PM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3087-1
SDG: 03D2057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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.
α	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: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

Job ID: 890-3087-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-3087-1****Receipt**

The samples were received on 9/28/2022 8:29 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 1.4°C

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-36328 and analytical batch 880-36341 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-36328 and analytical batch 880-36341 recovered outside control limits for the following analytes: Benzene.

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

GC Semi VOA

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

Client Sample ID: HA01

Lab Sample ID: 890-3087-1

Date Collected: 09/26/22 15:00

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *1	0.00199	mg/Kg		10/07/22 08:23	10/07/22 15:21	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/07/22 08:23	10/07/22 15:21	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/07/22 08:23	10/07/22 15:21	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/07/22 08:23	10/07/22 15:21	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/07/22 08:23	10/07/22 15:21	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/07/22 08:23	10/07/22 15:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130	10/07/22 08:23	10/07/22 15:21	1
1,4-Difluorobenzene (Surr)	110		70 - 130	10/07/22 08:23	10/07/22 15:21	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/07/22 17:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	227		49.9	mg/Kg			09/30/22 09:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 14:43	1
Diesel Range Organics (Over C10-C28)	227		49.9	mg/Kg		09/29/22 08:29	09/29/22 14:43	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 14:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	88		70 - 130	09/29/22 08:29	09/29/22 14:43	1
o-Terphenyl	85		70 - 130	09/29/22 08:29	09/29/22 14:43	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	190		5.02	mg/Kg			09/30/22 12:40	1

Client Sample ID: HA01

Lab Sample ID: 890-3087-2

Date Collected: 09/26/22 15:05

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *1	0.00199	mg/Kg		10/07/22 08:23	10/07/22 15:42	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/07/22 08:23	10/07/22 15:42	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/07/22 08:23	10/07/22 15:42	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/07/22 08:23	10/07/22 15:42	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/07/22 08:23	10/07/22 15:42	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/07/22 08:23	10/07/22 15:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/07/22 08:23	10/07/22 15:42	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

Client Sample ID: HA01

Lab Sample ID: 890-3087-2

Date Collected: 09/26/22 15:05

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	107		70 - 130	10/07/22 08:23	10/07/22 15:42	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/07/22 17:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	428		50.0	mg/Kg			09/30/22 09:27	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		09/29/22 08:29	09/29/22 15:04	1
Diesel Range Organics (Over C10-C28)	353		50.0	mg/Kg		09/29/22 08:29	09/29/22 15:04	1
Oil Range Organics (Over C28-C36)	74.5		50.0	mg/Kg		09/29/22 08:29	09/29/22 15:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	93		70 - 130			09/29/22 08:29	09/29/22 15:04	1
o-Terphenyl	91		70 - 130			09/29/22 08:29	09/29/22 15:04	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	306		5.00	mg/Kg			09/30/22 12:54	1

Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

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)
890-3063-A-1-D MS	Matrix Spike	108	100
890-3063-A-1-E MSD	Matrix Spike Duplicate	100	108
890-3087-1	HA01	96	110
890-3087-2	HA01	108	107
LCS 880-36328/1-A	Lab Control Sample	114	102
LCSD 880-36328/2-A	Lab Control Sample Dup	115	105
MB 880-36328/5-A	Method Blank	105	110
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)
890-3087-1	HA01	88	85
890-3087-2	HA01	93	91
890-3099-A-1-E MS	Matrix Spike	88	85
890-3099-A-1-F MSD	Matrix Spike Duplicate	89	84
LCS 880-35652/2-A	Lab Control Sample	102	103
LCSD 880-35652/3-A	Lab Control Sample Dup	101	105
MB 880-35652/1-A	Method Blank	100	108
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36328/5-A

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36328

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/07/22 08:23	10/07/22 12:50	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/07/22 08:23	10/07/22 12:50	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/07/22 08:23	10/07/22 12:50	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/07/22 08:23	10/07/22 12:50	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/07/22 08:23	10/07/22 12:50	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/07/22 08:23	10/07/22 12:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130	10/07/22 08:23	10/07/22 12:50	1
1,4-Difluorobenzene (Surr)	110		70 - 130	10/07/22 08:23	10/07/22 12:50	1

Lab Sample ID: LCS 880-36328/1-A

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36328

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07461		mg/Kg		75	70 - 130
Toluene	0.100	0.08217		mg/Kg		82	70 - 130
Ethylbenzene	0.100	0.08494		mg/Kg		85	70 - 130
m-Xylene & p-Xylene	0.200	0.1722		mg/Kg		86	70 - 130
o-Xylene	0.100	0.08846		mg/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	114		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: LCSD 880-36328/2-A

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36328

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1124	*1	mg/Kg		112	70 - 130	40	35
Toluene	0.100	0.1167		mg/Kg		117	70 - 130	35	35
Ethylbenzene	0.100	0.1188		mg/Kg		119	70 - 130	33	35
m-Xylene & p-Xylene	0.200	0.2420		mg/Kg		121	70 - 130	34	35
o-Xylene	0.100	0.1192		mg/Kg		119	70 - 130	30	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	115		70 - 130
1,4-Difluorobenzene (Surr)	105		70 - 130

Lab Sample ID: 890-3063-A-1-D MS

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36328

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U *1 F1	0.100	0.06254	F1	mg/Kg		62	70 - 130
Toluene	<0.00201	U F1 F2	0.100	0.04666	F1	mg/Kg		46	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

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

Lab Sample ID: 890-3063-A-1-D MS

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36328

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1 F2	0.100	0.02857	F1	mg/Kg		28	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.201	0.05403	F1	mg/Kg		27	70 - 130
o-Xylene	<0.00201	U F1 F2	0.100	0.02669	F1	mg/Kg		27	70 - 130

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

Lab Sample ID: 890-3063-A-1-E MSD

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36328

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U *1 F1	0.0998	0.08491		mg/Kg		85	70 - 130	30	35
Toluene	<0.00201	U F1 F2	0.0998	0.06815	F1 F2	mg/Kg		68	70 - 130	37	35
Ethylbenzene	<0.00201	U F1 F2	0.0998	0.04339	F1 F2	mg/Kg		43	70 - 130	41	35
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.200	0.07834	F1 F2	mg/Kg		39	70 - 130	37	35
o-Xylene	<0.00201	U F1 F2	0.0998	0.03992	F1 F2	mg/Kg		40	70 - 130	40	35

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

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130	09/29/22 08:29	09/29/22 09:45	1
o-Terphenyl	108		70 - 130	09/29/22 08:29	09/29/22 09:45	1

Lab Sample ID: LCS 880-35652/2-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	951.3		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	925.7		mg/Kg		93	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

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

Lab Sample ID: LCS 880-35652/2-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35652

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	103		70 - 130

Lab Sample ID: LCSD 880-35652/3-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35652

			Spike	LCSD	LCSD				%Rec		RPD	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10			1000	1011		mg/Kg		101	70 - 130	6	20	
Diesel Range Organics (Over C10-C28)			1000	927.4		mg/Kg		93	70 - 130	0	20	

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	101		70 - 130
o-Terphenyl	105		70 - 130

Lab Sample ID: 890-3099-A-1-E MS

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35652

	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	215		998	1232		mg/Kg		102	70 - 130		
Diesel Range Organics (Over C10-C28)	250		998	1057		mg/Kg		81	70 - 130		

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	85		70 - 130

Lab Sample ID: 890-3099-A-1-F MSD

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35652

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10	215		999	1237		mg/Kg		102	70 - 130	0	20	
Diesel Range Organics (Over C10-C28)	250		999	1062		mg/Kg		81	70 - 130	0	20	

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	84		70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35685/1-A

Matrix: Solid

Analysis Batch: 35807

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 11:56	1

Lab Sample ID: LCS 880-35685/2-A

Matrix: Solid

Analysis Batch: 35807

Client Sample ID: Lab Control Sample

Prep Type: Soluble

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

Lab Sample ID: LCSD 880-35685/3-A

Matrix: Solid

Analysis Batch: 35807

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	243.5		mg/Kg		97	90 - 110	1	20

Lab Sample ID: 890-3085-A-1-C MS

Matrix: Solid

Analysis Batch: 35807

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	245		249	477.6		mg/Kg		93	90 - 110

Lab Sample ID: 890-3085-A-1-D MSD

Matrix: Solid

Analysis Batch: 35807

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	245		249	479.5		mg/Kg		94	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

GC VOA

Prep Batch: 36328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3087-1	HA01	Total/NA	Solid	5035	
890-3087-2	HA01	Total/NA	Solid	5035	
MB 880-36328/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36328/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36328/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3063-A-1-D MS	Matrix Spike	Total/NA	Solid	5035	
890-3063-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 36341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3087-1	HA01	Total/NA	Solid	8021B	36328
890-3087-2	HA01	Total/NA	Solid	8021B	36328
MB 880-36328/5-A	Method Blank	Total/NA	Solid	8021B	36328
LCS 880-36328/1-A	Lab Control Sample	Total/NA	Solid	8021B	36328
LCSD 880-36328/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36328
890-3063-A-1-D MS	Matrix Spike	Total/NA	Solid	8021B	36328
890-3063-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36328

Analysis Batch: 36416

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3087-1	HA01	Total/NA	Solid	Total BTEX	
890-3087-2	HA01	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 35641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3087-1	HA01	Total/NA	Solid	8015B NM	35652
890-3087-2	HA01	Total/NA	Solid	8015B NM	35652
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015B NM	35652
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35652
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35652
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	35652
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35652

Prep Batch: 35652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3087-1	HA01	Total/NA	Solid	8015NM Prep	
890-3087-2	HA01	Total/NA	Solid	8015NM Prep	
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 35766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3087-1	HA01	Total/NA	Solid	8015 NM	
890-3087-2	HA01	Total/NA	Solid	8015 NM	

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

HPLC/IC

Leach Batch: 35685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3087-1	HA01	Soluble	Solid	DI Leach	
890-3087-2	HA01	Soluble	Solid	DI Leach	
MB 880-35685/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35685/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35685/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3085-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3085-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3087-1	HA01	Soluble	Solid	300.0	35685
890-3087-2	HA01	Soluble	Solid	300.0	35685
MB 880-35685/1-A	Method Blank	Soluble	Solid	300.0	35685
LCS 880-35685/2-A	Lab Control Sample	Soluble	Solid	300.0	35685
LCSD 880-35685/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35685
890-3085-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	35685
890-3085-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35685

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

Client Sample ID: HA01

Lab Sample ID: 890-3087-1

Date Collected: 09/26/22 15:00

Matrix: Solid

Date Received: 09/28/22 08:29

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	36328	10/07/22 08:23	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36341	10/07/22 15:21	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			36416	10/07/22 17:23	SM	EET MID
Total/NA	Analysis	8015 NM		1			35766	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 14:43	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	35685	09/29/22 12:08	SMC	EET MID
Soluble	Analysis	300.0		1			35807	09/30/22 12:40	CH	EET MID

Client Sample ID: HA01

Lab Sample ID: 890-3087-2

Date Collected: 09/26/22 15:05

Matrix: Solid

Date Received: 09/28/22 08:29

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	36328	10/07/22 08:23	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36341	10/07/22 15:42	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			36416	10/07/22 17:23	SM	EET MID
Total/NA	Analysis	8015 NM		1			35766	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 15:04	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	35685	09/29/22 12:08	SMC	EET MID
Soluble	Analysis	300.0		1			35807	09/30/22 12:54	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: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

Laboratory: Eurofins Midland

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

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3087-1
SDG: 03D2057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3087-1	HA01	Solid	09/26/22 15:00	09/28/22 08:29	1
890-3087-2	HA01	Solid	09/26/22 15:05	09/28/22 08:29	2

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



Environment Testing
Xenco

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 986-3199

Work Order No: _____

www.xenco.com Page 1 of 1

Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035179437	Email:	jadams@ensolum.com and kiennings@ensolum.com

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

Project Name:	SEMUM BMT	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code	ANALYSIS REQUEST																Preservative Codes																	
Project Number:	03D2057013	Due Date:	5 Day TAT																		None: NO DI Water: H ₂ O																	
Project Location:	Lea County, NM	TAT starts the day received by the lab, if received by 4:30pm																			Cool: Cool MeOH: Me																	
Sampler's Name:	Liz Chell																				HCL: HC HNO ₃ : HN																	
PO #:	N/A																				H ₂ SO ₄ : H ₂ NaOH: Na																	
SAMPLE RECEIPT	Temp Blank: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Wet Ice: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Thermometer ID: <u>11111111</u>																		H ₃ PO ₄ : HP																	
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor: <u>-0.2</u>																			NaHSO ₄ : NABIS																	
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Temperature Reading: <u>1.4</u>																			Na ₂ S ₂ O ₃ : NaSO ₃																	
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Corrected Temperature: <u>1.4</u>																			Zn Acetate+NaOH: Zn																	
Total Containers:																					NaOH+Ascorbic Acid: SAPC																	
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab Comp	# of Cont	CHLORIDES (EPA: 300.0)																Sample Comments															
HA01	S	9/26/22	1500	1'	Comp	1	X X X X																Incident ID: NAPP2217430297															
HA01	S	9/26/22	1505	2'	Comp	1	X X X X																Cost Code - GA130323															
																							AFE00000000471															

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 Ti 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 Ti U Hg: 1631 / 245.1 / 7470 / 7471							
Relinquished by: (Signature)		Received by: (Signature)		Date/Time		Relinquished by: (Signature)		Received by: (Signature)		Date/Time	
1 <u>[Signature]</u>		2 <u>[Signature]</u>		9.28.22 13:31		3 <u>[Signature]</u>		4 <u>[Signature]</u>		6	

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



Environment Testing
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El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Chain of Custody

Work Order No:

www.xenco.com Page _____ of _____

Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolum.com and klemmings@ensolum.com

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

[illegible]

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM	Texas 11	Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO₂ Na Sr Ii Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed	TC1P / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	Hg: 1631 / 245.1 / 7470 / 7471		

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	9-28-22			

SA-44-D-10050702-BW 1070

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3087-1

SDG Number: 03D2057013

Login Number: 3087

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3087-1

SDG Number: 03D2057013

Login Number: 3087

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3086-1

Laboratory Sample Delivery Group: Lea County NM
Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

Authorized for release by:

10/7/2022 4:38:08 PM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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results through



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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3086-1
SDG: Lea County NM

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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.
α	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: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

Job ID: 890-3086-1

Laboratory: Eurofins Carlsbad

Narrative

**Job Narrative
890-3086-1**

Receipt

The samples were received on 9/28/2022 8:29 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 1.4°C

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-36328 and analytical batch 880-36341 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-36328 and analytical batch 880-36341 recovered outside control limits for the following analytes: Benzene.

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

GC Semi VOA

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

Client Sample ID: HA02

Lab Sample ID: 890-3086-1

Date Collected: 09/26/22 15:10

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *1	0.00199	mg/Kg		10/07/22 08:23	10/07/22 14:41	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/07/22 08:23	10/07/22 14:41	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/07/22 08:23	10/07/22 14:41	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/07/22 08:23	10/07/22 14:41	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/07/22 08:23	10/07/22 14:41	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/07/22 08:23	10/07/22 14:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		70 - 130	10/07/22 08:23	10/07/22 14:41	1
1,4-Difluorobenzene (Surr)	103		70 - 130	10/07/22 08:23	10/07/22 14:41	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/07/22 17:23	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			09/30/22 09:27	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		09/29/22 08:29	09/29/22 13:17	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 13:17	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 13:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	77		70 - 130	09/29/22 08:29	09/29/22 13:17	1
o-Terphenyl	81		70 - 130	09/29/22 08:29	09/29/22 13:17	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	510		5.04	mg/Kg			09/30/22 12:30	1

Client Sample ID: HA02

Lab Sample ID: 890-3086-2

Date Collected: 09/26/22 15:15

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U *1	0.00198	mg/Kg		10/07/22 08:23	10/07/22 15:01	1
Toluene	<0.00198	U	0.00198	mg/Kg		10/07/22 08:23	10/07/22 15:01	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		10/07/22 08:23	10/07/22 15:01	1
m-Xylene & p-Xylene	<0.00397	U	0.00397	mg/Kg		10/07/22 08:23	10/07/22 15:01	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		10/07/22 08:23	10/07/22 15:01	1
Xylenes, Total	<0.00397	U	0.00397	mg/Kg		10/07/22 08:23	10/07/22 15:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	10/07/22 08:23	10/07/22 15:01	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

Client Sample ID: HA02

Lab Sample ID: 890-3086-2

Date Collected: 09/26/22 15:15

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	102		70 - 130	10/07/22 08:23	10/07/22 15:01	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			10/07/22 17:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			09/30/22 09:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 13:38	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 13:38	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 13:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130			09/29/22 08:29	09/29/22 13:38	1
o-Terphenyl	92		70 - 130			09/29/22 08:29	09/29/22 13:38	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	504		5.02	mg/Kg			09/30/22 12:35	1

Eurofins Carlsbad

Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

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)
890-3063-A-1-D MS	Matrix Spike	108	100
890-3063-A-1-E MSD	Matrix Spike Duplicate	100	108
890-3086-1	HA02	111	103
890-3086-2	HA02	112	102
LCS 880-36328/1-A	Lab Control Sample	114	102
LCSD 880-36328/2-A	Lab Control Sample Dup	115	105
MB 880-36328/5-A	Method Blank	105	110
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)
890-3086-1	HA02	77	81
890-3086-2	HA02	89	92
890-3099-A-1-E MS	Matrix Spike	88	85
890-3099-A-1-F MSD	Matrix Spike Duplicate	89	84
LCS 880-35652/2-A	Lab Control Sample	102	103
LCSD 880-35652/3-A	Lab Control Sample Dup	101	105
MB 880-35652/1-A	Method Blank	100	108
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36328/5-A

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36328

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/07/22 08:23	10/07/22 12:50	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/07/22 08:23	10/07/22 12:50	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/07/22 08:23	10/07/22 12:50	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/07/22 08:23	10/07/22 12:50	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/07/22 08:23	10/07/22 12:50	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/07/22 08:23	10/07/22 12:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130	10/07/22 08:23	10/07/22 12:50	1
1,4-Difluorobenzene (Surr)	110		70 - 130	10/07/22 08:23	10/07/22 12:50	1

Lab Sample ID: LCS 880-36328/1-A

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36328

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07461		mg/Kg		75	70 - 130
Toluene	0.100	0.08217		mg/Kg		82	70 - 130
Ethylbenzene	0.100	0.08494		mg/Kg		85	70 - 130
m-Xylene & p-Xylene	0.200	0.1722		mg/Kg		86	70 - 130
o-Xylene	0.100	0.08846		mg/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	114		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: LCSD 880-36328/2-A

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36328

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1124	*1	mg/Kg		112	70 - 130	40	35
Toluene	0.100	0.1167		mg/Kg		117	70 - 130	35	35
Ethylbenzene	0.100	0.1188		mg/Kg		119	70 - 130	33	35
m-Xylene & p-Xylene	0.200	0.2420		mg/Kg		121	70 - 130	34	35
o-Xylene	0.100	0.1192		mg/Kg		119	70 - 130	30	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	115		70 - 130
1,4-Difluorobenzene (Surr)	105		70 - 130

Lab Sample ID: 890-3063-A-1-D MS

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36328

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U *1 F1	0.100	0.06254	F1	mg/Kg		62	70 - 130
Toluene	<0.00201	U F1 F2	0.100	0.04666	F1	mg/Kg		46	70 - 130

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

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

Lab Sample ID: 890-3063-A-1-D MS

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36328

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1 F2	0.100	0.02857	F1	mg/Kg		28	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.201	0.05403	F1	mg/Kg		27	70 - 130
o-Xylene	<0.00201	U F1 F2	0.100	0.02669	F1	mg/Kg		27	70 - 130

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

Lab Sample ID: 890-3063-A-1-E MSD

Matrix: Solid

Analysis Batch: 36341

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36328

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U *1 F1	0.0998	0.08491		mg/Kg		85	70 - 130	30	35
Toluene	<0.00201	U F1 F2	0.0998	0.06815	F1 F2	mg/Kg		68	70 - 130	37	35
Ethylbenzene	<0.00201	U F1 F2	0.0998	0.04339	F1 F2	mg/Kg		43	70 - 130	41	35
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.200	0.07834	F1 F2	mg/Kg		39	70 - 130	37	35
o-Xylene	<0.00201	U F1 F2	0.0998	0.03992	F1 F2	mg/Kg		40	70 - 130	40	35

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

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130	09/29/22 08:29	09/29/22 09:45	1
o-Terphenyl	108		70 - 130	09/29/22 08:29	09/29/22 09:45	1

Lab Sample ID: LCS 880-35652/2-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	951.3		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	925.7		mg/Kg		93	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

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

Lab Sample ID: LCS 880-35652/2-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35652

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	103		70 - 130

Lab Sample ID: LCSD 880-35652/3-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35652

	Spike	LCSD	LCSD						%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit		
Gasoline Range Organics (GRO)-C6-C10	1000	1011		mg/Kg		101	70 - 130	6	20		
Diesel Range Organics (Over C10-C28)	1000	927.4		mg/Kg		93	70 - 130	0	20		

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	101		70 - 130
o-Terphenyl	105		70 - 130

Lab Sample ID: 890-3099-A-1-E MS

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35652

	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	215		998	1232		mg/Kg		102	70 - 130		
Diesel Range Organics (Over C10-C28)	250		998	1057		mg/Kg		81	70 - 130		

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	85		70 - 130

Lab Sample ID: 890-3099-A-1-F MSD

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35652

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	215		999	1237		mg/Kg		102	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	250		999	1062		mg/Kg		81	70 - 130	0	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	84		70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35685/1-A

Matrix: Solid

Analysis Batch: 35807

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 11:56	1

Lab Sample ID: LCS 880-35685/2-A

Matrix: Solid

Analysis Batch: 35807

Client Sample ID: Lab Control Sample

Prep Type: Soluble

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

Lab Sample ID: LCSD 880-35685/3-A

Matrix: Solid

Analysis Batch: 35807

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	243.5		mg/Kg		97	90 - 110	1	20

Lab Sample ID: 890-3085-A-1-C MS

Matrix: Solid

Analysis Batch: 35807

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	245		249	477.6		mg/Kg		93	90 - 110

Lab Sample ID: 890-3085-A-1-D MSD

Matrix: Solid

Analysis Batch: 35807

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	245		249	479.5		mg/Kg		94	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

GC VOA

Prep Batch: 36328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3086-1	HA02	Total/NA	Solid	5035	
890-3086-2	HA02	Total/NA	Solid	5035	
MB 880-36328/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36328/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36328/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3063-A-1-D MS	Matrix Spike	Total/NA	Solid	5035	
890-3063-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 36341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3086-1	HA02	Total/NA	Solid	8021B	36328
890-3086-2	HA02	Total/NA	Solid	8021B	36328
MB 880-36328/5-A	Method Blank	Total/NA	Solid	8021B	36328
LCS 880-36328/1-A	Lab Control Sample	Total/NA	Solid	8021B	36328
LCSD 880-36328/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36328
890-3063-A-1-D MS	Matrix Spike	Total/NA	Solid	8021B	36328
890-3063-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36328

Analysis Batch: 36415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3086-1	HA02	Total/NA	Solid	Total BTEX	
890-3086-2	HA02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 35641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3086-1	HA02	Total/NA	Solid	8015B NM	35652
890-3086-2	HA02	Total/NA	Solid	8015B NM	35652
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015B NM	35652
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35652
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35652
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	35652
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35652

Prep Batch: 35652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3086-1	HA02	Total/NA	Solid	8015NM Prep	
890-3086-2	HA02	Total/NA	Solid	8015NM Prep	
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 35764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3086-1	HA02	Total/NA	Solid	8015 NM	
890-3086-2	HA02	Total/NA	Solid	8015 NM	

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

HPLC/IC

Leach Batch: 35685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3086-1	HA02	Soluble	Solid	DI Leach	
890-3086-2	HA02	Soluble	Solid	DI Leach	
MB 880-35685/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35685/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35685/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3085-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3085-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3086-1	HA02	Soluble	Solid	300.0	35685
890-3086-2	HA02	Soluble	Solid	300.0	35685
MB 880-35685/1-A	Method Blank	Soluble	Solid	300.0	35685
LCS 880-35685/2-A	Lab Control Sample	Soluble	Solid	300.0	35685
LCSD 880-35685/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35685
890-3085-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	35685
890-3085-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35685

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

Client Sample ID: HA02

Lab Sample ID: 890-3086-1

Date Collected: 09/26/22 15:10

Matrix: Solid

Date Received: 09/28/22 08:29

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	36328	10/07/22 08:23	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36341	10/07/22 14:41	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			36415	10/07/22 17:23	SM	EET MID
Total/NA	Analysis	8015 NM		1			35764	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 13:17	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	35685	09/29/22 12:08	SMC	EET MID
Soluble	Analysis	300.0		1			35807	09/30/22 12:30	CH	EET MID

Client Sample ID: HA02

Lab Sample ID: 890-3086-2

Date Collected: 09/26/22 15:15

Matrix: Solid

Date Received: 09/28/22 08:29

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	36328	10/07/22 08:23	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36341	10/07/22 15:01	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			36415	10/07/22 17:23	SM	EET MID
Total/NA	Analysis	8015 NM		1			35764	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 13:38	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	35685	09/29/22 12:08	SMC	EET MID
Soluble	Analysis	300.0		1			35807	09/30/22 12:35	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: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

Laboratory: Eurofins Midland

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

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3086-1
SDG: Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3086-1	HA02	Solid	09/26/22 15:10	09/28/22 08:29	1
890-3086-2	HA02	Solid	09/26/22 15:15	09/28/22 08:29	2

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



Environment Testing
Xenco

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

Chain of Custody

Work Order No: _____

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Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolum.com and kjennings@ensolum.com

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

Project Name:	SEMU BMT	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code	ANALYSIS REQUEST																Preservative Codes		
Project Number:	03D2057013	Due Date:	5 Day TAT																None: NO	DI Water: H ₂ O			
Project Location:	Lea County, NM	TAT starts the day received by the lab, if received by 4:30pm																	Cool: Cool	MeOH: Me			
Sampler's Name:	Liz Chell																		HCL: HC	HNO ₃ : HN			
PO #:	N/A																		H ₂ SO ₄ : H ₂	NaOH: Na			
SAMPLE RECEIPT	Temp Blank: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Wet Ice: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No																	H ₃ PO ₄ : HP				
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Thermometer ID:	TM 1007																NaHSO ₄ : NABIS				
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Correction Factor:	-0.2																Na ₂ S ₂ O ₃ : NaSO ₃				
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Temperature Reading:	1.4																Zn Acetate+NaOH: Zn				
Total Containers:		Corrected Temperature:	1.4																NaOH+Ascorbic Acid: S APC				
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont																	Sample Comments
HA02	S	9/26/22	1510	1'	Comp	1														Incident ID: NAPP2217430297			
HA02	S	9/26/22	1515	2'	Comp	1														Cost Code - GA130323			
																				AFE00000000471			



890-3086 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	Ti	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	Ti	U													Hg: 1631 / 245.1 / 7470 / 7471
Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time																											
1	2	3	4	5	6																											

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$95.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3086-1

SDG Number: Lea County NM

Login Number: 3086

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3086-1

SDG Number: Lea County NM

Login Number: 3086

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3085-1

Laboratory Sample Delivery Group: 03D2057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

Authorized for release by:

10/10/2022 10:08:04 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3085-1
SDG: 03D2057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

Job ID: 890-3085-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3085-1

Receipt

The samples were received on 9/28/2022 8:29 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 1.4°C

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-36446 and analytical batch 880-36452 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: HA03 (890-3085-1). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

Client Sample ID: HA03

Lab Sample ID: 890-3085-1

Date Collected: 09/27/22 09:55

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 1

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		10/08/22 11:42	10/09/22 12:57	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 12:57	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 12:57	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		10/08/22 11:42	10/09/22 12:57	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 12:57	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		10/08/22 11:42	10/09/22 12:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	39	S1-	70 - 130	10/08/22 11:42	10/09/22 12:57	1
1,4-Difluorobenzene (Surr)	76		70 - 130	10/08/22 11:42	10/09/22 12:57	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			10/10/22 10:43	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	91.2		50.0	mg/Kg			09/30/22 09:27	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		09/29/22 08:29	09/29/22 14:00	1
Diesel Range Organics (Over C10-C28)	91.2		50.0	mg/Kg		09/29/22 08:29	09/29/22 14:00	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 14:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	76		70 - 130	09/29/22 08:29	09/29/22 14:00	1
o-Terphenyl	77		70 - 130	09/29/22 08:29	09/29/22 14:00	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	245		4.98	mg/Kg			09/30/22 12:11	1

Client Sample ID: HA03

Lab Sample ID: 890-3085-2

Date Collected: 09/27/22 10:00

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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		10/08/22 11:42	10/09/22 13:17	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/08/22 11:42	10/09/22 13:17	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/08/22 11:42	10/09/22 13:17	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/08/22 11:42	10/09/22 13:17	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/08/22 11:42	10/09/22 13:17	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/08/22 11:42	10/09/22 13:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	10/08/22 11:42	10/09/22 13:17	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

Client Sample ID: HA03

Lab Sample ID: 890-3085-2

Date Collected: 09/27/22 10:00

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	73		70 - 130	10/08/22 11:42	10/09/22 13:17	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/10/22 10:43	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	157		50.0	mg/Kg			09/30/22 09:27	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		09/29/22 08:29	09/29/22 14:21	1
Diesel Range Organics (Over C10-C28)	157		50.0	mg/Kg		09/29/22 08:29	09/29/22 14:21	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 14:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	102		70 - 130			09/29/22 08:29	09/29/22 14:21	1
o-Terphenyl	97		70 - 130			09/29/22 08:29	09/29/22 14:21	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	201		4.96	mg/Kg			09/30/22 12:25	1

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Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-20114-A-1-B MS	Matrix Spike	85	70
880-20114-A-1-C MSD	Matrix Spike Duplicate	115	98
890-3085-1	HA03	39 S1-	76
890-3085-2	HA03	109	73
LCS 880-36446/1-A	Lab Control Sample	96	97
LCSD 880-36446/2-A	Lab Control Sample Dup	99	97
MB 880-36446/5-A	Method Blank	103	82
MB 880-36448/5-A	Method Blank	90	86
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)
890-3085-1	HA03	76	77
890-3085-2	HA03	102	97
890-3099-A-1-E MS	Matrix Spike	88	85
890-3099-A-1-F MSD	Matrix Spike Duplicate	89	84
LCS 880-35652/2-A	Lab Control Sample	102	103
LCSD 880-35652/3-A	Lab Control Sample Dup	101	105
MB 880-35652/1-A	Method Blank	100	108
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36446/5-A

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36446

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 05:59	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 05:59	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 05:59	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/08/22 11:42	10/09/22 05:59	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 05:59	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/08/22 11:42	10/09/22 05:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	10/08/22 11:42	10/09/22 05:59	1
1,4-Difluorobenzene (Surr)	82		70 - 130	10/08/22 11:42	10/09/22 05:59	1

Lab Sample ID: LCS 880-36446/1-A

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36446

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09804		mg/Kg		98	70 - 130
Toluene	0.100	0.1009		mg/Kg		101	70 - 130
Ethylbenzene	0.100	0.09618		mg/Kg		96	70 - 130
m-Xylene & p-Xylene	0.200	0.2027		mg/Kg		101	70 - 130
o-Xylene	0.100	0.1031		mg/Kg		103	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: LCSD 880-36446/2-A

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36446

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09817		mg/Kg		98	70 - 130	0	35
Toluene	0.100	0.1022		mg/Kg		102	70 - 130	1	35
Ethylbenzene	0.100	0.09714		mg/Kg		97	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.2082		mg/Kg		104	70 - 130	3	35
o-Xylene	0.100	0.1073		mg/Kg		107	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 880-20114-A-1-B MS

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36446

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F1	0.0998	0.02036	F1	mg/Kg		20	70 - 130
Toluene	<0.00201	U F1	0.0998	0.03829	F1	mg/Kg		38	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

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

Lab Sample ID: 880-20114-A-1-B MS

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36446

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.0998	0.03986	F1	mg/Kg		40	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.200	0.07303	F1	mg/Kg		37	70 - 130
o-Xylene	<0.00201	U F1	0.0998	0.03911	F1	mg/Kg		39	70 - 130

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

Lab Sample ID: 880-20114-A-1-C MSD

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36446

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U F1	0.100	0.01643	F1	mg/Kg		16	70 - 130	21	35
Toluene	<0.00201	U F1	0.100	0.03029	F1	mg/Kg		30	70 - 130	23	35
Ethylbenzene	<0.00201	U F1	0.100	0.03128	F1	mg/Kg		31	70 - 130	24	35
m-Xylene & p-Xylene	<0.00402	U F1	0.201	0.06815	F1	mg/Kg		34	70 - 130	7	35
o-Xylene	<0.00201	U F1	0.100	0.03843	F1	mg/Kg		38	70 - 130	2	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	115		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: MB 880-36448/5-A

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36448

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:14	10/08/22 19:16	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:14	10/08/22 19:16	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:14	10/08/22 19:16	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/08/22 12:14	10/08/22 19:16	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:14	10/08/22 19:16	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/08/22 12:14	10/08/22 19:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130	10/08/22 12:14	10/08/22 19:16	1
1,4-Difluorobenzene (Surr)	86		70 - 130	10/08/22 12:14	10/08/22 19:16	1

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130			09/29/22 08:29	09/29/22 09:45	1
o-Terphenyl	108		70 - 130			09/29/22 08:29	09/29/22 09:45	1

Lab Sample ID: LCS 880-35652/2-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	951.3		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	925.7		mg/Kg		93	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	102		70 - 130				
o-Terphenyl	103		70 - 130				

Lab Sample ID: LCSD 880-35652/3-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1011		mg/Kg		101	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	1000	927.4		mg/Kg		93	70 - 130	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	101		70 - 130						
o-Terphenyl	105		70 - 130						

Lab Sample ID: 890-3099-A-1-E MS

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	215		998	1232		mg/Kg		102	70 - 130
Diesel Range Organics (Over C10-C28)	250		998	1057		mg/Kg		81	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	88		70 - 130						
o-Terphenyl	85		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

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

Lab Sample ID: 890-3099-A-1-F MSD

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35652

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	215		999	1237		mg/Kg		102	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	250		999	1062		mg/Kg		81	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	89		70 - 130								
o-Terphenyl	84		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35685/1-A

Matrix: Solid

Analysis Batch: 35807

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 11:56	1

Lab Sample ID: LCS 880-35685/2-A

Matrix: Solid

Analysis Batch: 35807

Client Sample ID: Lab Control Sample

Prep Type: Soluble

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

Lab Sample ID: LCSD 880-35685/3-A

Matrix: Solid

Analysis Batch: 35807

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	243.5		mg/Kg		97	90 - 110	1	20

Lab Sample ID: 890-3085-1 MS

Matrix: Solid

Analysis Batch: 35807

Client Sample ID: HA03

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	245		249	477.6		mg/Kg		93	90 - 110

Lab Sample ID: 890-3085-1 MSD

Matrix: Solid

Analysis Batch: 35807

Client Sample ID: HA03

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	245		249	479.5		mg/Kg		94	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

GC VOA

Prep Batch: 36446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3085-1	HA03	Total/NA	Solid	5035	
890-3085-2	HA03	Total/NA	Solid	5035	
MB 880-36446/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36446/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36446/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20114-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-20114-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 36448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36448/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3085-1	HA03	Total/NA	Solid	8021B	36446
890-3085-2	HA03	Total/NA	Solid	8021B	36446
MB 880-36446/5-A	Method Blank	Total/NA	Solid	8021B	36446
MB 880-36448/5-A	Method Blank	Total/NA	Solid	8021B	36448
LCS 880-36446/1-A	Lab Control Sample	Total/NA	Solid	8021B	36446
LCSD 880-36446/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36446
880-20114-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	36446
880-20114-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36446

Analysis Batch: 36564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3085-1	HA03	Total/NA	Solid	Total BTEX	
890-3085-2	HA03	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 35641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3085-1	HA03	Total/NA	Solid	8015B NM	35652
890-3085-2	HA03	Total/NA	Solid	8015B NM	35652
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015B NM	35652
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35652
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35652
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	35652
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35652

Prep Batch: 35652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3085-1	HA03	Total/NA	Solid	8015NM Prep	
890-3085-2	HA03	Total/NA	Solid	8015NM Prep	
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

GC Semi VOA

Analysis Batch: 35765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3085-1	HA03	Total/NA	Solid	8015 NM	
890-3085-2	HA03	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 35685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3085-1	HA03	Soluble	Solid	DI Leach	
890-3085-2	HA03	Soluble	Solid	DI Leach	
MB 880-35685/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35685/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35685/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3085-1 MS	HA03	Soluble	Solid	DI Leach	
890-3085-1 MSD	HA03	Soluble	Solid	DI Leach	

Analysis Batch: 35807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3085-1	HA03	Soluble	Solid	300.0	35685
890-3085-2	HA03	Soluble	Solid	300.0	35685
MB 880-35685/1-A	Method Blank	Soluble	Solid	300.0	35685
LCS 880-35685/2-A	Lab Control Sample	Soluble	Solid	300.0	35685
LCSD 880-35685/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35685
890-3085-1 MS	HA03	Soluble	Solid	300.0	35685
890-3085-1 MSD	HA03	Soluble	Solid	300.0	35685

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

Client Sample ID: HA03

Lab Sample ID: 890-3085-1

Date Collected: 09/27/22 09:55

Matrix: Solid

Date Received: 09/28/22 08:29

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	36446	10/08/22 11:42	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36452	10/09/22 12:57	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36564	10/10/22 10:43	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35765	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 14:00	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	35685	09/29/22 12:08	SMC	EET MID
Soluble	Analysis	300.0		1			35807	09/30/22 12:11	CH	EET MID

Client Sample ID: HA03

Lab Sample ID: 890-3085-2

Date Collected: 09/27/22 10:00

Matrix: Solid

Date Received: 09/28/22 08:29

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	36446	10/08/22 11:42	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36452	10/09/22 13:17	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36564	10/10/22 10:43	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35765	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 14:21	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	35685	09/29/22 12:08	SMC	EET MID
Soluble	Analysis	300.0		1			35807	09/30/22 12:25	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: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3085-1
SDG: 03D2057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3085-1	HA03	Solid	09/27/22 09:55	09/28/22 08:29	1
890-3085-2	HA03	Solid	09/27/22 10:00	09/28/22 08:29	2

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



Environment Testing
Xenco

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

Chain of Custody

Work Order No: _____

www.xenco.com Page 1 of 1

Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolum.com and kjennings@ensolum.com

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

Project Name:	SEMU BMT	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code	ANALYSIS REQUEST																Preservative Codes																
Project Number:	03D2057013	Due Date:	5 Day TAT																		None: NO	DI Water: H ₂ O															
Project Location:	Lea County, NM	TAT starts the day received by the lab, if received by 4:30pm																			Cool: Cool	MeOH: Me															
Sampler's Name:	Liz Chell																				HCL: HC	HNO ₃ : HN															
PO #:	N/A																				H ₂ SO ₄ : H ₂	NaOH: Na															
SAMPLE RECEIPT	Temp Blank: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Wet Ice: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No																			H ₃ PO ₄ : HP																
Samples Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Thermometer ID:	TTM-003																		NaHSO ₄ : NABIS																
Cooler Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Correction Factor:	-0.2																		Na ₂ S ₂ O ₃ : NaSO ₃																
Sample Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Temperature Reading:	1.4																		Zn Acetate+NaOH: Zn																
Total Containers:		Corrected Temperature:	1.4																		NaOH+Ascorbic Acid: SAPC																
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	CHLORIDES (EPA: 300.0)										TPH (8015)										BTEX (8021)										Sample Comments
HA03	S	9/27/22	955	1'	Comp	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Incident ID: NAPP2217430297											
HA03	S	9/27/22	1000	2'	Comp	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Cost Code - GA130323												
																									AE000000000471												



890-3085 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 SiO₂ Na Sr Ti 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 Ti U Hg: 1631 / 245.1 / 7470 / 7471

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3085-1

SDG Number: 03D2057013

Login Number: 3085

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3085-1

SDG Number: 03D2057013

Login Number: 3085

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3088-1

Laboratory Sample Delivery Group: 03D2057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

Authorized for release by:

10/10/2022 10:08:34 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3088-1
SDG: 03D2057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

Job ID: 890-3088-1

Laboratory: Eurofins Carlsbad

Narrative

**Job Narrative
890-3088-1**

Receipt

The samples were received on 9/28/2022 8:29 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 1.4°C

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-36446 and analytical batch 880-36452 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: HA04 (890-3088-2). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

Client Sample ID: HA04

Lab Sample ID: 890-3088-1

Date Collected: 09/27/22 10:05

Matrix: Solid

Date Received: 09/28/22 08:29

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		10/08/22 11:42	10/09/22 13:38	1
Toluene	<0.00201	U	0.00201	mg/Kg		10/08/22 11:42	10/09/22 13:38	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		10/08/22 11:42	10/09/22 13:38	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		10/08/22 11:42	10/09/22 13:38	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		10/08/22 11:42	10/09/22 13:38	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		10/08/22 11:42	10/09/22 13:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	10/08/22 11:42	10/09/22 13:38	1
1,4-Difluorobenzene (Surr)	71		70 - 130	10/08/22 11:42	10/09/22 13:38	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			10/10/22 10:43	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	430		49.9	mg/Kg			09/30/22 09:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 16:09	1
Diesel Range Organics (Over C10-C28)	351		49.9	mg/Kg		09/29/22 08:29	09/29/22 16:09	1
Oil Range Organics (Over C28-C36)	79.0		49.9	mg/Kg		09/29/22 08:29	09/29/22 16:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	74		70 - 130	09/29/22 08:29	09/29/22 16:09	1
o-Terphenyl	73		70 - 130	09/29/22 08:29	09/29/22 16:09	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	405		5.01	mg/Kg			09/30/22 01:07	1

Client Sample ID: HA04

Lab Sample ID: 890-3088-2

Date Collected: 09/27/22 10:10

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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		10/08/22 11:42	10/09/22 13:59	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/08/22 11:42	10/09/22 13:59	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/08/22 11:42	10/09/22 13:59	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/08/22 11:42	10/09/22 13:59	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/08/22 11:42	10/09/22 13:59	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/08/22 11:42	10/09/22 13:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	42	S1-	70 - 130	10/08/22 11:42	10/09/22 13:59	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

Client Sample ID: HA04

Lab Sample ID: 890-3088-2

Date Collected: 09/27/22 10:10

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	73		70 - 130	10/08/22 11:42	10/09/22 13:59	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/10/22 10:43	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	236		50.0	mg/Kg			09/30/22 09:27	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		09/29/22 08:29	09/29/22 16:30	1
Diesel Range Organics (Over C10-C28)	236		50.0	mg/Kg		09/29/22 08:29	09/29/22 16:30	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 16:30	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	79		70 - 130			09/29/22 08:29	09/29/22 16:30	1
o-Terphenyl	78		70 - 130			09/29/22 08:29	09/29/22 16:30	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	237		5.01	mg/Kg			09/30/22 01:12	1

Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-20114-A-1-B MS	Matrix Spike	85	70
880-20114-A-1-C MSD	Matrix Spike Duplicate	115	98
890-3088-1	HA04	110	71
890-3088-2	HA04	42 S1-	73
LCS 880-36446/1-A	Lab Control Sample	96	97
LCSD 880-36446/2-A	Lab Control Sample Dup	99	97
MB 880-36446/5-A	Method Blank	103	82
MB 880-36448/5-A	Method Blank	90	86
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)
890-3088-1	HA04	74	73
890-3088-2	HA04	79	78
890-3099-A-1-E MS	Matrix Spike	88	85
890-3099-A-1-F MSD	Matrix Spike Duplicate	89	84
LCS 880-35652/2-A	Lab Control Sample	102	103
LCSD 880-35652/3-A	Lab Control Sample Dup	101	105
MB 880-35652/1-A	Method Blank	100	108
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36446/5-A

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36446

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 05:59	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 05:59	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 05:59	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/08/22 11:42	10/09/22 05:59	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 11:42	10/09/22 05:59	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/08/22 11:42	10/09/22 05:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	10/08/22 11:42	10/09/22 05:59	1
1,4-Difluorobenzene (Surr)	82		70 - 130	10/08/22 11:42	10/09/22 05:59	1

Lab Sample ID: LCS 880-36446/1-A

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36446

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09804		mg/Kg		98	70 - 130
Toluene	0.100	0.1009		mg/Kg		101	70 - 130
Ethylbenzene	0.100	0.09618		mg/Kg		96	70 - 130
m-Xylene & p-Xylene	0.200	0.2027		mg/Kg		101	70 - 130
o-Xylene	0.100	0.1031		mg/Kg		103	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: LCSD 880-36446/2-A

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36446

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09817		mg/Kg		98	70 - 130	0	35
Toluene	0.100	0.1022		mg/Kg		102	70 - 130	1	35
Ethylbenzene	0.100	0.09714		mg/Kg		97	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.2082		mg/Kg		104	70 - 130	3	35
o-Xylene	0.100	0.1073		mg/Kg		107	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 880-20114-A-1-B MS

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36446

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F1	0.0998	0.02036	F1	mg/Kg		20	70 - 130
Toluene	<0.00201	U F1	0.0998	0.03829	F1	mg/Kg		38	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

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

Lab Sample ID: 880-20114-A-1-B MS

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36446

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.0998	0.03986	F1	mg/Kg		40	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.200	0.07303	F1	mg/Kg		37	70 - 130
o-Xylene	<0.00201	U F1	0.0998	0.03911	F1	mg/Kg		39	70 - 130

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

Lab Sample ID: 880-20114-A-1-C MSD

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36446

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U F1	0.100	0.01643	F1	mg/Kg		16	70 - 130	21	35
Toluene	<0.00201	U F1	0.100	0.03029	F1	mg/Kg		30	70 - 130	23	35
Ethylbenzene	<0.00201	U F1	0.100	0.03128	F1	mg/Kg		31	70 - 130	24	35
m-Xylene & p-Xylene	<0.00402	U F1	0.201	0.06815	F1	mg/Kg		34	70 - 130	7	35
o-Xylene	<0.00201	U F1	0.100	0.03843	F1	mg/Kg		38	70 - 130	2	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	115		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: MB 880-36448/5-A

Matrix: Solid

Analysis Batch: 36452

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36448

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:14	10/08/22 19:16	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:14	10/08/22 19:16	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:14	10/08/22 19:16	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/08/22 12:14	10/08/22 19:16	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:14	10/08/22 19:16	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/08/22 12:14	10/08/22 19:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130	10/08/22 12:14	10/08/22 19:16	1
1,4-Difluorobenzene (Surr)	86		70 - 130	10/08/22 12:14	10/08/22 19:16	1

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130			09/29/22 08:29	09/29/22 09:45	1
o-Terphenyl	108		70 - 130			09/29/22 08:29	09/29/22 09:45	1

Lab Sample ID: LCS 880-35652/2-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	951.3		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	925.7		mg/Kg		93	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	102		70 - 130				
o-Terphenyl	103		70 - 130				

Lab Sample ID: LCSD 880-35652/3-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1011		mg/Kg		101	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	1000	927.4		mg/Kg		93	70 - 130	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	101		70 - 130						
o-Terphenyl	105		70 - 130						

Lab Sample ID: 890-3099-A-1-E MS

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	215		998	1232		mg/Kg		102	70 - 130
Diesel Range Organics (Over C10-C28)	250		998	1057		mg/Kg		81	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	88		70 - 130						
o-Terphenyl	85		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

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

Lab Sample ID: 890-3099-A-1-F MSD

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35652

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	215		999	1237		mg/Kg		102	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	250		999	1062		mg/Kg		81	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	89		70 - 130								
o-Terphenyl	84		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35682/1-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 00:33	1

Lab Sample ID: LCS 880-35682/2-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	248.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-35682/3-A

Matrix: Solid

Analysis Batch: 35722

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	249.0		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-3080-A-25-B MS

Matrix: Solid

Analysis Batch: 35722

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	67.0		250	312.2		mg/Kg		98	90 - 110

Lab Sample ID: 890-3080-A-25-C MSD

Matrix: Solid

Analysis Batch: 35722

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	67.0		250	313.7		mg/Kg		99	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

GC VOA

Prep Batch: 36446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3088-1	HA04	Total/NA	Solid	5035	
890-3088-2	HA04	Total/NA	Solid	5035	
MB 880-36446/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36446/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36446/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20114-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-20114-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 36448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36448/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3088-1	HA04	Total/NA	Solid	8021B	36446
890-3088-2	HA04	Total/NA	Solid	8021B	36446
MB 880-36446/5-A	Method Blank	Total/NA	Solid	8021B	36446
MB 880-36448/5-A	Method Blank	Total/NA	Solid	8021B	36448
LCS 880-36446/1-A	Lab Control Sample	Total/NA	Solid	8021B	36446
LCSD 880-36446/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36446
880-20114-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	36446
880-20114-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36446

Analysis Batch: 36565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3088-1	HA04	Total/NA	Solid	Total BTEX	
890-3088-2	HA04	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 35641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3088-1	HA04	Total/NA	Solid	8015B NM	35652
890-3088-2	HA04	Total/NA	Solid	8015B NM	35652
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015B NM	35652
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35652
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35652
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	35652
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35652

Prep Batch: 35652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3088-1	HA04	Total/NA	Solid	8015NM Prep	
890-3088-2	HA04	Total/NA	Solid	8015NM Prep	
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

GC Semi VOA

Analysis Batch: 35767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3088-1	HA04	Total/NA	Solid	8015 NM	
890-3088-2	HA04	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 35682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3088-1	HA04	Soluble	Solid	DI Leach	
890-3088-2	HA04	Soluble	Solid	DI Leach	
MB 880-35682/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3080-A-25-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3080-A-25-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3088-1	HA04	Soluble	Solid	300.0	35682
890-3088-2	HA04	Soluble	Solid	300.0	35682
MB 880-35682/1-A	Method Blank	Soluble	Solid	300.0	35682
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	300.0	35682
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35682
890-3080-A-25-B MS	Matrix Spike	Soluble	Solid	300.0	35682
890-3080-A-25-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35682

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

Client Sample ID: HA04

Lab Sample ID: 890-3088-1

Date Collected: 09/27/22 10:05

Matrix: Solid

Date Received: 09/28/22 08:29

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	36446	10/08/22 11:42	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36452	10/09/22 13:38	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36565	10/10/22 10:43	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35767	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 16:09	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 01:07	CH	EET MID

Client Sample ID: HA04

Lab Sample ID: 890-3088-2

Date Collected: 09/27/22 10:10

Matrix: Solid

Date Received: 09/28/22 08:29

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	36446	10/08/22 11:42	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36452	10/09/22 13:59	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36565	10/10/22 10:43	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35767	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 16:30	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 01:12	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: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

Laboratory: Eurofins Midland

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

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3088-1
SDG: 03D2057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3088-1	HA04	Solid	09/27/22 10:05	09/28/22 08:29	1
890-3088-2	HA04	Solid	09/27/22 10:10	09/28/22 08:29	2

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



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


Chain of Custody

Work Order No:

Page 1 of 1

Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolum.com and kjennings@ensolum.com

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

Project Name:		SEMU BMT		Turn Around		Pres. Code		ANALYSIS REQUEST												Preservative Codes					
Project Number:		03D2057013		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush																None: NO					
Project Location:		Lea County, NM		Due Date:		5 Day TAT														Cool: Cool					
Sampler's Name:		Liz Chell		TAT starts the day received by the lab, if received by 4:30pm																HCL: HC					
PO #:		N/A																		H ₂ SO ₄ : H ₂					
SAMPLE RECEIPT		Temp Blank:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Wet Ice:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No														H ₃ PO ₄ : HP			
Samples Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Thermometer ID:		MUN007														NaHSO ₄ : NABIS					
Cooler Custody Seals:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Correction Factor:		-0.0														Na ₂ S ₂ O ₃ : NaSO ₃					
Sample Custody Seals:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Temperature Reading:		1.6														Zn Acetate+NaOH: Zn					
Total Containers:				Corrected Temperature:		1.4														NaOH+Ascorbic Acid: SACP					
RIDES (EPA: 300.0)																									
015)																									
8021																									
890-3088 Chain of Custody																									

[illegible]

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 Ti Sn U V Zn
TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U			Hg: 1631 / 245.1 / 7470 / 7471

(Notice: Signature of this document, relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xeno, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xeno will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xeno. A minimum charge of \$85.00 will be applied to each project and a charge of \$3 for each sample submitted to Eurofins Xeno, but not analyzed. These terms will be enforced unless previously negotiated.)

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>[Signature]</i>	<i>[Signature]</i>	9.28.2023			
3 <i>[Signature]</i>					

Student Date: 09/28/2023 Row: 3028

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3088-1

SDG Number: 03D2057013

Login Number: 3088

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3088-1

SDG Number: 03D2057013

Login Number: 3088

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3089-1

Laboratory Sample Delivery Group: 03D2057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

Authorized for release by:

10/10/2022 10:08:34 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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results through



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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3089-1
SDG: 03D2057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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.
α	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: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

Job ID: 890-3089-1

Laboratory: Eurofins Carlsbad

Narrative	
	Job Narrative 890-3089-1

Receipt

The samples were received on 9/28/2022 8:29 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 1.4°C

GC VOA

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-36449 and analytical batch 880-36442 recovered outside control limits for the following analytes: Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene Due to a misinjection.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (LCS 880-36449/1-A). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

Client Sample ID: HA05

Lab Sample ID: 890-3089-1

Date Collected: 09/27/22 10:15

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U *- *1 F1	0.00202	mg/Kg		10/08/22 12:21	10/09/22 02:45	1
Toluene	<0.00202	U *- *1 F1	0.00202	mg/Kg		10/08/22 12:21	10/09/22 02:45	1
Ethylbenzene	<0.00202	U *- *1 F1	0.00202	mg/Kg		10/08/22 12:21	10/09/22 02:45	1
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.00403	mg/Kg		10/08/22 12:21	10/09/22 02:45	1
o-Xylene	<0.00202	U *+ *1 F1	0.00202	mg/Kg		10/08/22 12:21	10/09/22 02:45	1
Xylenes, Total	<0.00403	U F1	0.00403	mg/Kg		10/08/22 12:21	10/09/22 02:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	10/08/22 12:21	10/09/22 02:45	1
1,4-Difluorobenzene (Surr)	90		70 - 130	10/08/22 12:21	10/09/22 02:45	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			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	158		49.9	mg/Kg			09/30/22 09:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 16:52	1
Diesel Range Organics (Over C10-C28)	158		49.9	mg/Kg		09/29/22 08:29	09/29/22 16:52	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 16:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	78		70 - 130	09/29/22 08:29	09/29/22 16:52	1
o-Terphenyl	78		70 - 130	09/29/22 08:29	09/29/22 16:52	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	183		4.97	mg/Kg			09/30/22 01:16	1

Client Sample ID: HA05

Lab Sample ID: 890-3089-2

Date Collected: 09/27/22 10:30

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U *- *1	0.00198	mg/Kg		10/08/22 12:21	10/09/22 03:05	1
Toluene	<0.00198	U *- *1	0.00198	mg/Kg		10/08/22 12:21	10/09/22 03:05	1
Ethylbenzene	<0.00198	U *- *1	0.00198	mg/Kg		10/08/22 12:21	10/09/22 03:05	1
m-Xylene & p-Xylene	<0.00396	U *- *1	0.00396	mg/Kg		10/08/22 12:21	10/09/22 03:05	1
o-Xylene	<0.00198	U *+ *1	0.00198	mg/Kg		10/08/22 12:21	10/09/22 03:05	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		10/08/22 12:21	10/09/22 03:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		70 - 130	10/08/22 12:21	10/09/22 03:05	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

Client Sample ID: HA05

Lab Sample ID: 890-3089-2

Date Collected: 09/27/22 10:30

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	89		70 - 130	10/08/22 12:21	10/09/22 03:05	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	113		50.0	mg/Kg			09/30/22 09:27	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		09/29/22 08:29	09/29/22 17:13	1
Diesel Range Organics (Over C10-C28)	113		50.0	mg/Kg		09/29/22 08:29	09/29/22 17:13	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 17:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	93		70 - 130			09/29/22 08:29	09/29/22 17:13	1
o-Terphenyl	93		70 - 130			09/29/22 08:29	09/29/22 17:13	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	78.1		4.95	mg/Kg			09/30/22 01:31	1

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Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

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)
890-3089-1	HA05	92	90
890-3089-1 MS	HA05	106	91
890-3089-1 MSD	HA05	96	81
890-3089-2	HA05	74	89
LCS 880-36449/1-A	Lab Control Sample	171 S1+	117
LCSD 880-36449/2-A	Lab Control Sample Dup	98	94
MB 880-36293/5-A	Method Blank	83	92
MB 880-36449/5-A	Method Blank	87	87
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)
890-3089-1	HA05	78	78
890-3089-2	HA05	93	93
890-3099-A-1-E MS	Matrix Spike	88	85
890-3099-A-1-F MSD	Matrix Spike Duplicate	89	84
LCS 880-35652/2-A	Lab Control Sample	102	103
LCSD 880-35652/3-A	Lab Control Sample Dup	101	105
MB 880-35652/1-A	Method Blank	100	108
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36293/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36293

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130	10/06/22 15:51	10/08/22 15:47	1
1,4-Difluorobenzene (Surr)	92		70 - 130	10/06/22 15:51	10/08/22 15:47	1

Lab Sample ID: MB 880-36449/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36449

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1

Lab Sample ID: LCS 880-36449/1-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.01884	*-	mg/Kg		19	70 - 130
Toluene	0.100	0.01832	*-	mg/Kg		18	70 - 130
Ethylbenzene	0.100	0.02039	*-	mg/Kg		20	70 - 130
m-Xylene & p-Xylene	0.200	0.05373	*-	mg/Kg		27	70 - 130
o-Xylene	0.100	0.3177	*+	mg/Kg		318	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	171	S1+	70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09908	*1	mg/Kg		99	70 - 130	136	35

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

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

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08768	*1	mg/Kg		88	70 - 130	131	35
Ethylbenzene	0.100	0.08396	*1	mg/Kg		84	70 - 130	122	35
m-Xylene & p-Xylene	0.200	0.1727	*1	mg/Kg		86	70 - 130	105	35
o-Xylene	0.100	0.09883	*1	mg/Kg		99	70 - 130	105	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3089-1 MS

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: HA05

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U *- *1 F1	0.0998	0.04456	F1	mg/Kg		45	70 - 130
Toluene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
Ethylbenzene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.200	0.07327	F1	mg/Kg		37	70 - 130
o-Xylene	<0.00202	U + *1 F1	0.0998	0.04861	F1	mg/Kg		49	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 890-3089-1 MSD

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: HA05

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U *- *1 F1	0.101	0.03882	F1	mg/Kg		39	70 - 130	14	35
Toluene	<0.00202	U *- *1 F1	0.101	0.04506	F1	mg/Kg		45	70 - 130	1	35
Ethylbenzene	<0.00202	U *- *1 F1	0.101	0.04374	F1	mg/Kg		43	70 - 130	2	35
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.201	0.06634	F1	mg/Kg		33	70 - 130	10	35
o-Xylene	<0.00202	U + *1 F1	0.101	0.04504	F1	mg/Kg		45	70 - 130	8	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	81		70 - 130

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130			09/29/22 08:29	09/29/22 09:45	1
o-Terphenyl	108		70 - 130			09/29/22 08:29	09/29/22 09:45	1

Lab Sample ID: LCS 880-35652/2-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	951.3		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	925.7		mg/Kg		93	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	102		70 - 130				
o-Terphenyl	103		70 - 130				

Lab Sample ID: LCSD 880-35652/3-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1011		mg/Kg		101	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	1000	927.4		mg/Kg		93	70 - 130	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	101		70 - 130						
o-Terphenyl	105		70 - 130						

Lab Sample ID: 890-3099-A-1-E MS

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	215		998	1232		mg/Kg		102	70 - 130
Diesel Range Organics (Over C10-C28)	250		998	1057		mg/Kg		81	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	88		70 - 130						
o-Terphenyl	85		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

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

Lab Sample ID: 890-3099-A-1-F MSD

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35652

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	215		999	1237		mg/Kg		102	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	250		999	1062		mg/Kg		81	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	89		70 - 130								
o-Terphenyl	84		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35682/1-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 00:33	1

Lab Sample ID: LCS 880-35682/2-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	248.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-35682/3-A

Matrix: Solid

Analysis Batch: 35722

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	249.0		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-3080-A-25-B MS

Matrix: Solid

Analysis Batch: 35722

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	67.0		250	312.2		mg/Kg		98	90 - 110

Lab Sample ID: 890-3080-A-25-C MSD

Matrix: Solid

Analysis Batch: 35722

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	67.0		250	313.7		mg/Kg		99	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

GC VOA

Prep Batch: 36293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36293/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3089-1	HA05	Total/NA	Solid	8021B	36449
890-3089-2	HA05	Total/NA	Solid	8021B	36449
MB 880-36293/5-A	Method Blank	Total/NA	Solid	8021B	36293
MB 880-36449/5-A	Method Blank	Total/NA	Solid	8021B	36449
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	8021B	36449
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36449
890-3089-1 MS	HA05	Total/NA	Solid	8021B	36449
890-3089-1 MSD	HA05	Total/NA	Solid	8021B	36449

Prep Batch: 36449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3089-1	HA05	Total/NA	Solid	5035	
890-3089-2	HA05	Total/NA	Solid	5035	
MB 880-36449/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3089-1 MS	HA05	Total/NA	Solid	5035	
890-3089-1 MSD	HA05	Total/NA	Solid	5035	

Analysis Batch: 36554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3089-1	HA05	Total/NA	Solid	Total BTEX	
890-3089-2	HA05	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 35641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3089-1	HA05	Total/NA	Solid	8015B NM	35652
890-3089-2	HA05	Total/NA	Solid	8015B NM	35652
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015B NM	35652
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35652
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35652
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	35652
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35652

Prep Batch: 35652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3089-1	HA05	Total/NA	Solid	8015NM Prep	
890-3089-2	HA05	Total/NA	Solid	8015NM Prep	
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

GC Semi VOA

Analysis Batch: 35768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3089-1	HA05	Total/NA	Solid	8015 NM	
890-3089-2	HA05	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 35682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3089-1	HA05	Soluble	Solid	DI Leach	
890-3089-2	HA05	Soluble	Solid	DI Leach	
MB 880-35682/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3080-A-25-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3080-A-25-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3089-1	HA05	Soluble	Solid	300.0	35682
890-3089-2	HA05	Soluble	Solid	300.0	35682
MB 880-35682/1-A	Method Blank	Soluble	Solid	300.0	35682
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	300.0	35682
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35682
890-3080-A-25-B MS	Matrix Spike	Soluble	Solid	300.0	35682
890-3080-A-25-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35682

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

Client Sample ID: HA05

Lab Sample ID: 890-3089-1

Date Collected: 09/27/22 10:15

Matrix: Solid

Date Received: 09/28/22 08:29

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	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 02:45	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36554	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35768	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 16:52	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 01:16	CH	EET MID

Client Sample ID: HA05

Lab Sample ID: 890-3089-2

Date Collected: 09/27/22 10:30

Matrix: Solid

Date Received: 09/28/22 08:29

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	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 03:05	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36554	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35768	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 17:13	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 01:31	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: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3089-1
SDG: 03D2057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3089-1	HA05	Solid	09/27/22 10:15	09/28/22 08:29	1
890-3089-2	HA05	Solid	09/27/22 10:30	09/28/22 08:29	2

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- 11
- 12
- 13
- 14



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

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

[illegible]

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>[Signature]</i>	<i>[Signature]</i>	4-25-2023			
2 <i>[Signature]</i>					
3					
4					
5					
6					

Revised Date 08/25/2020 Rev 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3089-1

SDG Number: 03D2057013

Login Number: 3089

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3089-1

SDG Number: 03D2057013

Login Number: 3089

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3090-1

Laboratory Sample Delivery Group: 03D2057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

Authorized for release by:

10/10/2022 10:09:06 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3090-1
SDG: 03D2057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

Qualifiers

GC VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
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.

GC Semi VOA

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

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

Job ID: 890-3090-1

Laboratory: Eurofins Carlsbad

Narrative

**Job Narrative
890-3090-1**

Receipt

The samples were received on 9/28/2022 8:29 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 1.4°C

GC VOA

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-36449 and analytical batch 880-36442 recovered outside control limits for the following analytes: Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene Due to a misinjection.

Method 8021B: Surrogate recovery for the following samples were outside control limits: HA06 (890-3090-1), HA06 (890-3090-2) and (LCS 880-36449/1-A). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

Client Sample ID: HA06

Lab Sample ID: 890-3090-1

Date Collected: 09/27/22 11:15

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 03:26	1
Toluene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 03:26	1
Ethylbenzene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 03:26	1
m-Xylene & p-Xylene	<0.00399	U *- *1	0.00399	mg/Kg		10/08/22 12:21	10/09/22 03:26	1
o-Xylene	<0.00200	U *+ *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 03:26	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		10/08/22 12:21	10/09/22 03:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	69	S1-	70 - 130	10/08/22 12:21	10/09/22 03:26	1
1,4-Difluorobenzene (Surr)	89		70 - 130	10/08/22 12:21	10/09/22 03:26	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	222		49.9	mg/Kg			09/30/22 09:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 17:35	1
Diesel Range Organics (Over C10-C28)	222		49.9	mg/Kg		09/29/22 08:29	09/29/22 17:35	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 17:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	74		70 - 130	09/29/22 08:29	09/29/22 17:35	1
o-Terphenyl	72		70 - 130	09/29/22 08:29	09/29/22 17:35	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	338		5.05	mg/Kg			09/30/22 01:36	1

Client Sample ID: HA06

Lab Sample ID: 890-3090-2

Date Collected: 09/27/22 11:30

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 3

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.00758	*- *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 03:46	1
Toluene	0.00875	*- *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 03:46	1
Ethylbenzene	0.00384	*- *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 03:46	1
m-Xylene & p-Xylene	0.00717	*- *1	0.00398	mg/Kg		10/08/22 12:21	10/09/22 03:46	1
o-Xylene	0.00706	*+ *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 03:46	1
Xylenes, Total	0.0142		0.00398	mg/Kg		10/08/22 12:21	10/09/22 03:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		70 - 130	10/08/22 12:21	10/09/22 03:46	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

Client Sample ID: HA06

Lab Sample ID: 890-3090-2

Date Collected: 09/27/22 11:30

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 3

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	141	S1+	70 - 130	10/08/22 12:21	10/09/22 03:46	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.0344		0.00398	mg/Kg			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	324		49.9	mg/Kg			09/30/22 09:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 17:56	1
Diesel Range Organics (Over C10-C28)	324		49.9	mg/Kg		09/29/22 08:29	09/29/22 17:56	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 17:56	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	77		70 - 130			09/29/22 08:29	09/29/22 17:56	1
o-Terphenyl	74		70 - 130			09/29/22 08:29	09/29/22 17:56	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	223		5.03	mg/Kg			09/30/22 01:41	1

Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

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)
890-3089-A-1-F MS	Matrix Spike	106	91
890-3089-A-1-G MSD	Matrix Spike Duplicate	96	81
890-3090-1	HA06	69 S1-	89
890-3090-2	HA06	86	141 S1+
LCS 880-36449/1-A	Lab Control Sample	171 S1+	117
LCSD 880-36449/2-A	Lab Control Sample Dup	98	94
MB 880-36293/5-A	Method Blank	83	92
MB 880-36449/5-A	Method Blank	87	87
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)
890-3090-1	HA06	74	72
890-3090-2	HA06	77	74
890-3099-A-1-E MS	Matrix Spike	88	85
890-3099-A-1-F MSD	Matrix Spike Duplicate	89	84
LCS 880-35652/2-A	Lab Control Sample	102	103
LCSD 880-35652/3-A	Lab Control Sample Dup	101	105
MB 880-35652/1-A	Method Blank	100	108
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36293/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36293

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130	10/06/22 15:51	10/08/22 15:47	1
1,4-Difluorobenzene (Surr)	92		70 - 130	10/06/22 15:51	10/08/22 15:47	1

Lab Sample ID: MB 880-36449/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36449

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1

Lab Sample ID: LCS 880-36449/1-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.01884	*-	mg/Kg		19	70 - 130
Toluene	0.100	0.01832	*-	mg/Kg		18	70 - 130
Ethylbenzene	0.100	0.02039	*-	mg/Kg		20	70 - 130
m-Xylene & p-Xylene	0.200	0.05373	*-	mg/Kg		27	70 - 130
o-Xylene	0.100	0.3177	*+	mg/Kg		318	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	171	S1+	70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09908	*1	mg/Kg		99	70 - 130	136	35

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

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

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08768	*1	mg/Kg		88	70 - 130	131	35
Ethylbenzene	0.100	0.08396	*1	mg/Kg		84	70 - 130	122	35
m-Xylene & p-Xylene	0.200	0.1727	*1	mg/Kg		86	70 - 130	105	35
o-Xylene	0.100	0.09883	*1	mg/Kg		99	70 - 130	105	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3089-A-1-F MS

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U *- *1 F1	0.0998	0.04456	F1	mg/Kg		45	70 - 130
Toluene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
Ethylbenzene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.200	0.07327	F1	mg/Kg		37	70 - 130
o-Xylene	<0.00202	U + *1 F1	0.0998	0.04861	F1	mg/Kg		49	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 890-3089-A-1-G MSD

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U *- *1 F1	0.101	0.03882	F1	mg/Kg		39	70 - 130	14	35
Toluene	<0.00202	U *- *1 F1	0.101	0.04506	F1	mg/Kg		45	70 - 130	1	35
Ethylbenzene	<0.00202	U *- *1 F1	0.101	0.04374	F1	mg/Kg		43	70 - 130	2	35
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.201	0.06634	F1	mg/Kg		33	70 - 130	10	35
o-Xylene	<0.00202	U + *1 F1	0.101	0.04504	F1	mg/Kg		45	70 - 130	8	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	81		70 - 130

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130			09/29/22 08:29	09/29/22 09:45	1
o-Terphenyl	108		70 - 130			09/29/22 08:29	09/29/22 09:45	1

Lab Sample ID: LCS 880-35652/2-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	951.3		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	925.7		mg/Kg		93	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	102		70 - 130				
o-Terphenyl	103		70 - 130				

Lab Sample ID: LCSD 880-35652/3-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1011		mg/Kg		101	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	1000	927.4		mg/Kg		93	70 - 130	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	101		70 - 130						
o-Terphenyl	105		70 - 130						

Lab Sample ID: 890-3099-A-1-E MS

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	215		998	1232		mg/Kg		102	70 - 130
Diesel Range Organics (Over C10-C28)	250		998	1057		mg/Kg		81	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	88		70 - 130						
o-Terphenyl	85		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

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

Lab Sample ID: 890-3099-A-1-F MSD

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35652

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	215		999	1237		mg/Kg		102	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	250		999	1062		mg/Kg		81	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	89		70 - 130								
o-Terphenyl	84		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35682/1-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 00:33	1

Lab Sample ID: LCS 880-35682/2-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	248.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-35682/3-A

Matrix: Solid

Analysis Batch: 35722

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	249.0		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-3080-A-25-B MS

Matrix: Solid

Analysis Batch: 35722

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	67.0		250	312.2		mg/Kg		98	90 - 110

Lab Sample ID: 890-3080-A-25-C MSD

Matrix: Solid

Analysis Batch: 35722

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	67.0		250	313.7		mg/Kg		99	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

GC VOA

Prep Batch: 36293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36293/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3090-1	HA06	Total/NA	Solid	8021B	36449
890-3090-2	HA06	Total/NA	Solid	8021B	36449
MB 880-36293/5-A	Method Blank	Total/NA	Solid	8021B	36293
MB 880-36449/5-A	Method Blank	Total/NA	Solid	8021B	36449
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	8021B	36449
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36449
890-3089-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	36449
890-3089-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36449

Prep Batch: 36449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3090-1	HA06	Total/NA	Solid	5035	
890-3090-2	HA06	Total/NA	Solid	5035	
MB 880-36449/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3089-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	
890-3089-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 36555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3090-1	HA06	Total/NA	Solid	Total BTEX	
890-3090-2	HA06	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 35641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3090-1	HA06	Total/NA	Solid	8015B NM	35652
890-3090-2	HA06	Total/NA	Solid	8015B NM	35652
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015B NM	35652
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35652
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35652
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	35652
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35652

Prep Batch: 35652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3090-1	HA06	Total/NA	Solid	8015NM Prep	
890-3090-2	HA06	Total/NA	Solid	8015NM Prep	
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

GC Semi VOA

Analysis Batch: 35769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3090-1	HA06	Total/NA	Solid	8015 NM	
890-3090-2	HA06	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 35682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3090-1	HA06	Soluble	Solid	DI Leach	
890-3090-2	HA06	Soluble	Solid	DI Leach	
MB 880-35682/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3080-A-25-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3080-A-25-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3090-1	HA06	Soluble	Solid	300.0	35682
890-3090-2	HA06	Soluble	Solid	300.0	35682
MB 880-35682/1-A	Method Blank	Soluble	Solid	300.0	35682
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	300.0	35682
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35682
890-3080-A-25-B MS	Matrix Spike	Soluble	Solid	300.0	35682
890-3080-A-25-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35682

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

Client Sample ID: HA06

Lab Sample ID: 890-3090-1

Date Collected: 09/27/22 11:15

Matrix: Solid

Date Received: 09/28/22 08:29

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	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 03:26	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36555	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35769	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 17:35	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 01:36	CH	EET MID

Client Sample ID: HA06

Lab Sample ID: 890-3090-2

Date Collected: 09/27/22 11:30

Matrix: Solid

Date Received: 09/28/22 08:29

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	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 03:46	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36555	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35769	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 17:56	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 01:41	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

Laboratory: Eurofins Midland

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

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3090-1
SDG: 03D2057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3090-1	HA06	Solid	09/27/22 11:15	09/28/22 08:29	2
890-3090-2	HA06	Solid	09/27/22 11:30	09/28/22 08:29	3

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



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

Chain of Custody

Work Order No:

Page _____ of _____
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Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolum.com and klemmings@ensolum.com

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

[illegible]

Total	200.7 / 6010	200.8 / 6020:	8RCRA	13PFM	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	Ti	Sn	U	V	Zn
Circle Method(s) and Metal(s) to be analyzed			TC1P / SPLP 6010:		8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U													
<p>Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions for service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$86.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.</p>																																		
<p>Hq: 1631 / 245.1 / 7470 / 7471</p>																																		

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		9.28.22 837			
3					
5					

Revised Date: 08/25/2020 Rev. 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3090-1

SDG Number: 03D2057013

Login Number: 3090

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3090-1

SDG Number: 03D2057013

Login Number: 3090

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3091-1

Laboratory Sample Delivery Group: Lea County NM
Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

A handwritten signature in black ink that reads "Jessica Kramer".

Authorized for release by:

10/10/2022 10:09:26 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3091-1
SDG: Lea County NM

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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.
α	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: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

Job ID: 890-3091-1

Laboratory: Eurofins Carlsbad

Narrative	
	Job Narrative 890-3091-1

Receipt

The samples were received on 9/28/2022 8:29 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 1.4°C

GC VOA

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-36449 and analytical batch 880-36442 recovered outside control limits for the following analytes: Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene Due to a misinjection.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (LCS 880-36449/1-A). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

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

HPLC/IC

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

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

Client Sample ID: HA07

Lab Sample ID: 890-3091-1

Date Collected: 09/27/22 12:00

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *- *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 04:07	1
Toluene	<0.00199	U *- *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 04:07	1
Ethylbenzene	<0.00199	U *- *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 04:07	1
m-Xylene & p-Xylene	<0.00398	U *- *1	0.00398	mg/Kg		10/08/22 12:21	10/09/22 04:07	1
o-Xylene	<0.00199	U *+ *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 04:07	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/08/22 12:21	10/09/22 04:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	10/08/22 12:21	10/09/22 04:07	1
1,4-Difluorobenzene (Surr)	85		70 - 130	10/08/22 12:21	10/09/22 04:07	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	106		50.0	mg/Kg			09/30/22 09:27	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		09/29/22 08:29	09/29/22 18:17	1
Diesel Range Organics (Over C10-C28)	106		50.0	mg/Kg		09/29/22 08:29	09/29/22 18:17	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 18:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	76		70 - 130	09/29/22 08:29	09/29/22 18:17	1
o-Terphenyl	75		70 - 130	09/29/22 08:29	09/29/22 18:17	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	35.8		5.02	mg/Kg			09/30/22 01:45	1

Client Sample ID: HA07

Lab Sample ID: 890-3091-2

Date Collected: 09/27/22 12:05

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U *- *1	0.00201	mg/Kg		10/08/22 12:21	10/09/22 04:27	1
Toluene	<0.00201	U *- *1	0.00201	mg/Kg		10/08/22 12:21	10/09/22 04:27	1
Ethylbenzene	<0.00201	U *- *1	0.00201	mg/Kg		10/08/22 12:21	10/09/22 04:27	1
m-Xylene & p-Xylene	<0.00402	U *- *1	0.00402	mg/Kg		10/08/22 12:21	10/09/22 04:27	1
o-Xylene	<0.00201	U *+ *1	0.00201	mg/Kg		10/08/22 12:21	10/09/22 04:27	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		10/08/22 12:21	10/09/22 04:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	10/08/22 12:21	10/09/22 04:27	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

Client Sample ID: HA07

Lab Sample ID: 890-3091-2

Date Collected: 09/27/22 12:05

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	89		70 - 130	10/08/22 12:21	10/09/22 04:27	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	147		49.9	mg/Kg			09/30/22 09:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 18:39	1
Diesel Range Organics (Over C10-C28)	147		49.9	mg/Kg		09/29/22 08:29	09/29/22 18:39	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/29/22 08:29	09/29/22 18:39	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	76		70 - 130			09/29/22 08:29	09/29/22 18:39	1
o-Terphenyl	75		70 - 130			09/29/22 08:29	09/29/22 18:39	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	122		5.00	mg/Kg			09/30/22 01:50	1

Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

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)
890-3089-A-1-F MS	Matrix Spike	106	91
890-3089-A-1-G MSD	Matrix Spike Duplicate	96	81
890-3091-1	HA07	92	85
890-3091-2	HA07	99	89
LCS 880-36449/1-A	Lab Control Sample	171 S1+	117
LCSD 880-36449/2-A	Lab Control Sample Dup	98	94
MB 880-36293/5-A	Method Blank	83	92
MB 880-36449/5-A	Method Blank	87	87
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)
890-3091-1	HA07	76	75
890-3091-2	HA07	76	75
890-3099-A-1-E MS	Matrix Spike	88	85
890-3099-A-1-F MSD	Matrix Spike Duplicate	89	84
LCS 880-35652/2-A	Lab Control Sample	102	103
LCSD 880-35652/3-A	Lab Control Sample Dup	101	105
MB 880-35652/1-A	Method Blank	100	108
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36293/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36293

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130	10/06/22 15:51	10/08/22 15:47	1
1,4-Difluorobenzene (Surr)	92		70 - 130	10/06/22 15:51	10/08/22 15:47	1

Lab Sample ID: MB 880-36449/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36449

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1

Lab Sample ID: LCS 880-36449/1-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.01884	*-	mg/Kg		19	70 - 130
Toluene	0.100	0.01832	*-	mg/Kg		18	70 - 130
Ethylbenzene	0.100	0.02039	*-	mg/Kg		20	70 - 130
m-Xylene & p-Xylene	0.200	0.05373	*-	mg/Kg		27	70 - 130
o-Xylene	0.100	0.3177	*+	mg/Kg		318	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	171	S1+	70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09908	*1	mg/Kg		99	70 - 130	136	35

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

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

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08768	*1	mg/Kg		88	70 - 130	131	35
Ethylbenzene	0.100	0.08396	*1	mg/Kg		84	70 - 130	122	35
m-Xylene & p-Xylene	0.200	0.1727	*1	mg/Kg		86	70 - 130	105	35
o-Xylene	0.100	0.09883	*1	mg/Kg		99	70 - 130	105	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3089-A-1-F MS

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U *- *1 F1	0.0998	0.04456	F1	mg/Kg		45	70 - 130
Toluene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
Ethylbenzene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.200	0.07327	F1	mg/Kg		37	70 - 130
o-Xylene	<0.00202	U *+ *1 F1	0.0998	0.04861	F1	mg/Kg		49	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 890-3089-A-1-G MSD

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U *- *1 F1	0.101	0.03882	F1	mg/Kg		39	70 - 130	14	35
Toluene	<0.00202	U *- *1 F1	0.101	0.04506	F1	mg/Kg		45	70 - 130	1	35
Ethylbenzene	<0.00202	U *- *1 F1	0.101	0.04374	F1	mg/Kg		43	70 - 130	2	35
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.201	0.06634	F1	mg/Kg		33	70 - 130	10	35
o-Xylene	<0.00202	U *+ *1 F1	0.101	0.04504	F1	mg/Kg		45	70 - 130	8	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	81		70 - 130

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130			09/29/22 08:29	09/29/22 09:45	1
o-Terphenyl	108		70 - 130			09/29/22 08:29	09/29/22 09:45	1

Lab Sample ID: LCS 880-35652/2-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	951.3		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	925.7		mg/Kg		93	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	102		70 - 130				
o-Terphenyl	103		70 - 130				

Lab Sample ID: LCSD 880-35652/3-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1011		mg/Kg		101	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	1000	927.4		mg/Kg		93	70 - 130	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	101		70 - 130						
o-Terphenyl	105		70 - 130						

Lab Sample ID: 890-3099-A-1-E MS

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	215		998	1232		mg/Kg		102	70 - 130
Diesel Range Organics (Over C10-C28)	250		998	1057		mg/Kg		81	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	88		70 - 130						
o-Terphenyl	85		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

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

Lab Sample ID: 890-3099-A-1-F MSD

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35652

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	215		999	1237		mg/Kg		102	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	250		999	1062		mg/Kg		81	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	89		70 - 130								
o-Terphenyl	84		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35682/1-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 00:33	1

Lab Sample ID: LCS 880-35682/2-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	248.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-35682/3-A

Matrix: Solid

Analysis Batch: 35722

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	249.0		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-3080-A-25-B MS

Matrix: Solid

Analysis Batch: 35722

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	67.0		250	312.2		mg/Kg		98	90 - 110

Lab Sample ID: 890-3080-A-25-C MSD

Matrix: Solid

Analysis Batch: 35722

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	67.0		250	313.7		mg/Kg		99	90 - 110	0	20

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

GC VOA

Prep Batch: 36293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36293/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3091-1	HA07	Total/NA	Solid	8021B	36449
890-3091-2	HA07	Total/NA	Solid	8021B	36449
MB 880-36293/5-A	Method Blank	Total/NA	Solid	8021B	36293
MB 880-36449/5-A	Method Blank	Total/NA	Solid	8021B	36449
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	8021B	36449
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36449
890-3089-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	36449
890-3089-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36449

Prep Batch: 36449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3091-1	HA07	Total/NA	Solid	5035	
890-3091-2	HA07	Total/NA	Solid	5035	
MB 880-36449/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3089-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	
890-3089-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 36556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3091-1	HA07	Total/NA	Solid	Total BTEX	
890-3091-2	HA07	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 35641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3091-1	HA07	Total/NA	Solid	8015B NM	35652
890-3091-2	HA07	Total/NA	Solid	8015B NM	35652
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015B NM	35652
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35652
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35652
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	35652
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35652

Prep Batch: 35652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3091-1	HA07	Total/NA	Solid	8015NM Prep	
890-3091-2	HA07	Total/NA	Solid	8015NM Prep	
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

GC Semi VOA

Analysis Batch: 35770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3091-1	HA07	Total/NA	Solid	8015 NM	
890-3091-2	HA07	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 35682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3091-1	HA07	Soluble	Solid	DI Leach	
890-3091-2	HA07	Soluble	Solid	DI Leach	
MB 880-35682/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3080-A-25-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3080-A-25-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3091-1	HA07	Soluble	Solid	300.0	35682
890-3091-2	HA07	Soluble	Solid	300.0	35682
MB 880-35682/1-A	Method Blank	Soluble	Solid	300.0	35682
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	300.0	35682
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35682
890-3080-A-25-B MS	Matrix Spike	Soluble	Solid	300.0	35682
890-3080-A-25-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35682

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

Client Sample ID: HA07

Lab Sample ID: 890-3091-1

Date Collected: 09/27/22 12:00

Matrix: Solid

Date Received: 09/28/22 08:29

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	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 04:07	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36556	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35770	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 18:17	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 01:45	CH	EET MID

Client Sample ID: HA07

Lab Sample ID: 890-3091-2

Date Collected: 09/27/22 12:05

Matrix: Solid

Date Received: 09/28/22 08:29

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	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 04:27	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36556	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35770	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 18:39	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 01:50	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: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

Laboratory: Eurofins Midland

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

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3091-1
SDG: Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3091-1	HA07	Solid	09/27/22 12:00	09/28/22 08:29	1
890-3091-2	HA07	Solid	09/27/22 12:05	09/28/22 08:29	2

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



Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 505-3333
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Chain of Custody

Work Order No:

www.xenco.com Page 1 of 1

Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolum.com and kjennings@ensolum.com

Work Order Comments

Program: UST/PST ☐ RRP ☐ Brownfields ☐ RRC ☐ Superfund ☐

State of Project:

Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐



Deliverables: EDD ☐ ADAPT ☐ Other: _____

Project Name:		SEMU BMT		Turn Around		Pres. Code		ANALYSIS REQUEST		Preservative Codes	
Project Number:		03D2057013		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush						None: NO	
Project Location:		Lea County, NM		Due Date:		5 Day TAT				Cool: Cool	
Sampler's Name:		Liz Chell		TAT starts the day received by the lab, if received by 4:30pm						HCL: HC	
PO #:		N/A								H ₂ SO ₄ : H ₂	
SAMPLE RECEIPT		Temp Blank:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Wet Ice:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		H ₃ PO ₄ : HP	
Samples Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Thermometer ID:		7292007				NaHSO ₄ : NABIS	
Cooler Custody Seals:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Correction Factor:		-0.2				Na ₂ S ₂ O ₃ : NaSO ₃	
Sample Custody Seals:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Temperature Reading:		1.6				Zn Acetate+NaOH: Zn	
Total Containers:				Corrected Temperature:		1.4				NaOH+Ascorbic Acid: SACP	

[illegible]

Total	200.7 / 6010	200.8 / 6020:
Circle Method(s) and Metal(s) to be analyzed	8RCRA TCLP / SPLP 6010:	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 Ti Sn U V Zn 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631/245,1/7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xeno, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xeno will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xeno. A minimum charge of \$85.00 will be applied to each project and a charge of \$8 for each sample submitted to Eurofins Xeno, but not analyzed. These terms will be enforced unless previously negotiated.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			9.28.22 5:31			
3						
5						

Revised Date: 08/25/2020 Rev: 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3091-1

SDG Number: Lea County NM

Login Number: 3091

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3091-1

SDG Number: Lea County NM

Login Number: 3091

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3092-1

Laboratory Sample Delivery Group: 03D2057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

Authorized for release by:

10/10/2022 10:09:57 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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results through



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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3092-1
SDG: 03D2057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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.
α	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: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

Job ID: 890-3092-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3092-1

Receipt

The samples were received on 9/28/2022 8:29 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 1.4°C

GC VOA

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-36449 and analytical batch 880-36442 recovered outside control limits for the following analytes: Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene Due to a misinjection.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (LCS 880-36449/1-A). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

Client Sample ID: HA08

Lab Sample ID: 890-3092-1

Date Collected: 09/27/22 12:10

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 04:48	1
Toluene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 04:48	1
Ethylbenzene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 04:48	1
m-Xylene & p-Xylene	<0.00401	U *- *1	0.00401	mg/Kg		10/08/22 12:21	10/09/22 04:48	1
o-Xylene	<0.00200	U *+ *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 04:48	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		10/08/22 12:21	10/09/22 04:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		70 - 130	10/08/22 12:21	10/09/22 04:48	1
1,4-Difluorobenzene (Surr)	78		70 - 130	10/08/22 12:21	10/09/22 04:48	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	69.2		50.0	mg/Kg			09/30/22 09:27	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		09/29/22 08:29	09/29/22 19:00	1
Diesel Range Organics (Over C10-C28)	69.2		50.0	mg/Kg		09/29/22 08:29	09/29/22 19:00	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 19:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	72		70 - 130	09/29/22 08:29	09/29/22 19:00	1
o-Terphenyl	72		70 - 130	09/29/22 08:29	09/29/22 19:00	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	64.0		4.97	mg/Kg			09/30/22 01:55	1

Client Sample ID: HA08

Lab Sample ID: 890-3092-2

Date Collected: 09/27/22 12:15

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U *- *1	0.00198	mg/Kg		10/08/22 12:21	10/09/22 05:08	1
Toluene	<0.00198	U *- *1	0.00198	mg/Kg		10/08/22 12:21	10/09/22 05:08	1
Ethylbenzene	<0.00198	U *- *1	0.00198	mg/Kg		10/08/22 12:21	10/09/22 05:08	1
m-Xylene & p-Xylene	<0.00396	U *- *1	0.00396	mg/Kg		10/08/22 12:21	10/09/22 05:08	1
o-Xylene	<0.00198	U *+ *1	0.00198	mg/Kg		10/08/22 12:21	10/09/22 05:08	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		10/08/22 12:21	10/09/22 05:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	10/08/22 12:21	10/09/22 05:08	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

Client Sample ID: HA08

Lab Sample ID: 890-3092-2

Date Collected: 09/27/22 12:15

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	108		70 - 130	10/08/22 12:21	10/09/22 05:08	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	142		50.0	mg/Kg			09/30/22 09:27	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		09/29/22 08:29	09/29/22 19:22	1
Diesel Range Organics (Over C10-C28)	142		50.0	mg/Kg		09/29/22 08:29	09/29/22 19:22	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 19:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	88		70 - 130			09/29/22 08:29	09/29/22 19:22	1
o-Terphenyl	90		70 - 130			09/29/22 08:29	09/29/22 19:22	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	126		4.99	mg/Kg			09/30/22 02:10	1

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Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

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)
890-3089-A-1-F MS	Matrix Spike	106	91
890-3089-A-1-G MSD	Matrix Spike Duplicate	96	81
890-3092-1	HA08	89	78
890-3092-2	HA08	97	108
LCS 880-36449/1-A	Lab Control Sample	171 S1+	117
LCSD 880-36449/2-A	Lab Control Sample Dup	98	94
MB 880-36293/5-A	Method Blank	83	92
MB 880-36449/5-A	Method Blank	87	87
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)
890-3092-1	HA08	72	72
890-3092-2	HA08	88	90
890-3099-A-1-E MS	Matrix Spike	88	85
890-3099-A-1-F MSD	Matrix Spike Duplicate	89	84
LCS 880-35652/2-A	Lab Control Sample	102	103
LCSD 880-35652/3-A	Lab Control Sample Dup	101	105
MB 880-35652/1-A	Method Blank	100	108
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36293/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36293

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130	10/06/22 15:51	10/08/22 15:47	1
1,4-Difluorobenzene (Surr)	92		70 - 130	10/06/22 15:51	10/08/22 15:47	1

Lab Sample ID: MB 880-36449/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36449

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1

Lab Sample ID: LCS 880-36449/1-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.01884	*-	mg/Kg		19	70 - 130
Toluene	0.100	0.01832	*-	mg/Kg		18	70 - 130
Ethylbenzene	0.100	0.02039	*-	mg/Kg		20	70 - 130
m-Xylene & p-Xylene	0.200	0.05373	*-	mg/Kg		27	70 - 130
o-Xylene	0.100	0.3177	*+	mg/Kg		318	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	171	S1+	70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09908	*1	mg/Kg		99	70 - 130	136	35

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

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

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08768	*1	mg/Kg		88	70 - 130	131	35
Ethylbenzene	0.100	0.08396	*1	mg/Kg		84	70 - 130	122	35
m-Xylene & p-Xylene	0.200	0.1727	*1	mg/Kg		86	70 - 130	105	35
o-Xylene	0.100	0.09883	*1	mg/Kg		99	70 - 130	105	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3089-A-1-F MS

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U *- *1 F1	0.0998	0.04456	F1	mg/Kg		45	70 - 130
Toluene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
Ethylbenzene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.200	0.07327	F1	mg/Kg		37	70 - 130
o-Xylene	<0.00202	U *+ *1 F1	0.0998	0.04861	F1	mg/Kg		49	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 890-3089-A-1-G MSD

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U *- *1 F1	0.101	0.03882	F1	mg/Kg		39	70 - 130	14	35
Toluene	<0.00202	U *- *1 F1	0.101	0.04506	F1	mg/Kg		45	70 - 130	1	35
Ethylbenzene	<0.00202	U *- *1 F1	0.101	0.04374	F1	mg/Kg		43	70 - 130	2	35
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.201	0.06634	F1	mg/Kg		33	70 - 130	10	35
o-Xylene	<0.00202	U *+ *1 F1	0.101	0.04504	F1	mg/Kg		45	70 - 130	8	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	81		70 - 130

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

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

Lab Sample ID: MB 880-35652/1-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35652

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 08:29	09/29/22 09:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130			09/29/22 08:29	09/29/22 09:45	1
o-Terphenyl	108		70 - 130			09/29/22 08:29	09/29/22 09:45	1

Lab Sample ID: LCS 880-35652/2-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	951.3		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	925.7		mg/Kg		93	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	102		70 - 130				
o-Terphenyl	103		70 - 130				

Lab Sample ID: LCSD 880-35652/3-A

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1011		mg/Kg		101	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	1000	927.4		mg/Kg		93	70 - 130	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	101		70 - 130						
o-Terphenyl	105		70 - 130						

Lab Sample ID: 890-3099-A-1-E MS

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35652

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	215		998	1232		mg/Kg		102	70 - 130
Diesel Range Organics (Over C10-C28)	250		998	1057		mg/Kg		81	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	88		70 - 130						
o-Terphenyl	85		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

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

Lab Sample ID: 890-3099-A-1-F MSD

Matrix: Solid

Analysis Batch: 35641

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35652

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	215		999	1237		mg/Kg		102	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	250		999	1062		mg/Kg		81	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	89		70 - 130								
o-Terphenyl	84		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35682/1-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 00:33	1

Lab Sample ID: LCS 880-35682/2-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	248.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-35682/3-A

Matrix: Solid

Analysis Batch: 35722

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	249.0		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-3092-1 MS

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: HA08

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	64.0		249	309.7		mg/Kg		99	90 - 110

Lab Sample ID: 890-3092-1 MSD

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: HA08

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	64.0		249	309.1		mg/Kg		99	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

GC VOA

Prep Batch: 36293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36293/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3092-1	HA08	Total/NA	Solid	8021B	36449
890-3092-2	HA08	Total/NA	Solid	8021B	36449
MB 880-36293/5-A	Method Blank	Total/NA	Solid	8021B	36293
MB 880-36449/5-A	Method Blank	Total/NA	Solid	8021B	36449
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	8021B	36449
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36449
890-3089-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	36449
890-3089-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36449

Prep Batch: 36449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3092-1	HA08	Total/NA	Solid	5035	
890-3092-2	HA08	Total/NA	Solid	5035	
MB 880-36449/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3089-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	
890-3089-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 36557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3092-1	HA08	Total/NA	Solid	Total BTEX	
890-3092-2	HA08	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 35641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3092-1	HA08	Total/NA	Solid	8015B NM	35652
890-3092-2	HA08	Total/NA	Solid	8015B NM	35652
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015B NM	35652
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35652
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35652
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	35652
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35652

Prep Batch: 35652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3092-1	HA08	Total/NA	Solid	8015NM Prep	
890-3092-2	HA08	Total/NA	Solid	8015NM Prep	
MB 880-35652/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35652/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35652/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3099-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3099-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

GC Semi VOA

Analysis Batch: 35771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3092-1	HA08	Total/NA	Solid	8015 NM	
890-3092-2	HA08	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 35682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3092-1	HA08	Soluble	Solid	DI Leach	
890-3092-2	HA08	Soluble	Solid	DI Leach	
MB 880-35682/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3092-1 MS	HA08	Soluble	Solid	DI Leach	
890-3092-1 MSD	HA08	Soluble	Solid	DI Leach	

Analysis Batch: 35722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3092-1	HA08	Soluble	Solid	300.0	35682
890-3092-2	HA08	Soluble	Solid	300.0	35682
MB 880-35682/1-A	Method Blank	Soluble	Solid	300.0	35682
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	300.0	35682
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35682
890-3092-1 MS	HA08	Soluble	Solid	300.0	35682
890-3092-1 MSD	HA08	Soluble	Solid	300.0	35682

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

Client Sample ID: HA08
Date Collected: 09/27/22 12:10
Date Received: 09/28/22 08:29

Lab Sample ID: 890-3092-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 04:48	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36557	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35771	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 19:00	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 01:55	CH	EET MID

Client Sample ID: HA08
Date Collected: 09/27/22 12:15
Date Received: 09/28/22 08:29

Lab Sample ID: 890-3092-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 05:08	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36557	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35771	09/30/22 09:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	35652	09/29/22 08:29	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35641	09/29/22 19:22	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 02:10	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: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3092-1
SDG: 03D2057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3092-1	HA08	Solid	09/27/22 12:10	09/28/22 08:29	1
890-3092-2	HA08	Solid	09/27/22 12:15	09/28/22 08:29	2

- 1
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- 7
- 8
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- 10
- 11
- 12
- 13
- 14



Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 505-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Chain of Custody

Work Order No.:

Page _____ of _____

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Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolum.com and klenings@ensolum.com

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

[illegible][illegible]

Total	200.7 / 6070	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 Ti Sn U V Zn
TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U			Hg: 1631 / 245, 1 / 7470 / 7471

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		9.05.22 839			
2		4			
3					
4					
5		6			

Revised Date 08/25/2020 Rev 2020



Environment Testing
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Midland, TX (432) 704-5440, San Antonio, TX (210) 505-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Chain of Custody


Work Order No.:

Page _____ of _____

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Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolum.com and kjennings@ensolum.com



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

Project Name:		SEMU BMT		Turn Around		Pres. Code	ANALYSIS REQUEST										Preservative Codes						
Project Number:		03D2067013		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush													None: NO DI Water: H ₂ O						
Project Location:		Lea County, NM		Due Date:		5 Day TAT											Cool: Cool MeOH: Me						
Sampler's Name:		Liz Chell		TAT starts the day received by the lab, if received by 4:30pm													HCL: HC HNO ₃ : HN						
PO #:		N/A															H ₂ SO ₄ : H ₂ NaOH: Na						
SAMPLE RECEIPT		Temp Blank:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No												H ₃ PO ₄ : HP				
Samples Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Thermometer ID:		7024207												NaHSO ₄ : NABIS					
Cooler Custody Seals:		Yes		No		Correction Factor:		-0.2												Na ₂ S ₂ O ₃ : NaSO ₃			
Sample Custody Seals:		Yes		No		Temperature Reading:		1.6												Zn Acetate+NaOH: Zn			
Total Containers:				Corrected Temperature:		1.4												NaOH+Ascorbic Acid: SAPC					
RIDES (EPA: 300.0)																							
015)																							
8021																							
																							
890-3091 Chain of Custody																							

[illegible]

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 Ti Sn U V Zr
TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U			Hg: 163.1 / 245.1 / 7470 / 7471

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1 		9.28.22 5:31			
3					
5					
6					

Printed Date: 08/29/2020 Row: 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3092-1

SDG Number: 03D2057013

Login Number: 3092

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3092-1

SDG Number: 03D2057013

Login Number: 3092

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3093-1

Laboratory Sample Delivery Group: 0332057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

Authorized for release by:

10/10/2022 10:10:16 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3093-1
SDG: 0332057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

Job ID: 890-3093-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3093-1

Receipt

The samples were received on 9/28/2022 8:29 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 1.4°C

GC VOA

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-36449 and analytical batch 880-36442 recovered outside control limits for the following analytes: Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene Due to a misinjection.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (LCS 880-36449/1-A). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-35711 and analytical batch 880-35736 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

Client Sample ID: HA09

Lab Sample ID: 890-3093-1

Date Collected: 09/27/22 12:30

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 05:28	1
Toluene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 05:28	1
Ethylbenzene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 05:28	1
m-Xylene & p-Xylene	<0.00399	U *- *1	0.00399	mg/Kg		10/08/22 12:21	10/09/22 05:28	1
o-Xylene	<0.00200	U *+ *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 05:28	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		10/08/22 12:21	10/09/22 05:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		70 - 130	10/08/22 12:21	10/09/22 05:28	1
1,4-Difluorobenzene (Surr)	77		70 - 130	10/08/22 12:21	10/09/22 05:28	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	81.9		50.0	mg/Kg			10/03/22 11:24	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		09/29/22 13:24	09/30/22 23:06	1
Diesel Range Organics (Over C10-C28)	81.9		50.0	mg/Kg		09/29/22 13:24	09/30/22 23:06	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 23:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130	09/29/22 13:24	09/30/22 23:06	1
o-Terphenyl	100		70 - 130	09/29/22 13:24	09/30/22 23:06	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	58.2		4.95	mg/Kg			09/30/22 02:15	1

Client Sample ID: HA09

Lab Sample ID: 890-3093-2

Date Collected: 09/27/22 12:35

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *- *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 05:49	1
Toluene	<0.00199	U *- *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 05:49	1
Ethylbenzene	<0.00199	U *- *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 05:49	1
m-Xylene & p-Xylene	<0.00398	U *- *1	0.00398	mg/Kg		10/08/22 12:21	10/09/22 05:49	1
o-Xylene	<0.00199	U *+ *1	0.00199	mg/Kg		10/08/22 12:21	10/09/22 05:49	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/08/22 12:21	10/09/22 05:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		70 - 130	10/08/22 12:21	10/09/22 05:49	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

Client Sample ID: HA09

Lab Sample ID: 890-3093-2

Date Collected: 09/27/22 12:35

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	83		70 - 130	10/08/22 12:21	10/09/22 05:49	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	77.6		49.8	mg/Kg			10/03/22 11:24	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		09/29/22 13:24	09/30/22 23:28	1
Diesel Range Organics (Over C10-C28)	77.6		49.8	mg/Kg		09/29/22 13:24	09/30/22 23:28	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		09/29/22 13:24	09/30/22 23:28	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130			09/29/22 13:24	09/30/22 23:28	1
o-Terphenyl	113		70 - 130			09/29/22 13:24	09/30/22 23:28	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	200		4.96	mg/Kg			09/30/22 02:29	1

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Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

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)
890-3089-A-1-F MS	Matrix Spike	106	91
890-3089-A-1-G MSD	Matrix Spike Duplicate	96	81
890-3093-1	HA09	89	77
890-3093-2	HA09	79	83
LCS 880-36449/1-A	Lab Control Sample	171 S1+	117
LCSD 880-36449/2-A	Lab Control Sample Dup	98	94
MB 880-36293/5-A	Method Blank	83	92
MB 880-36449/5-A	Method Blank	87	87
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)
890-3080-A-21-C MS	Matrix Spike	106	89
890-3080-A-21-D MSD	Matrix Spike Duplicate	96	80
890-3093-1	HA09	100	100
890-3093-2	HA09	113	113
LCS 880-35711/2-A	Lab Control Sample	118	103
LCSD 880-35711/3-A	Lab Control Sample Dup	109	110
MB 880-35711/1-A	Method Blank	119	109
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36293/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36293

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130	10/06/22 15:51	10/08/22 15:47	1
1,4-Difluorobenzene (Surr)	92		70 - 130	10/06/22 15:51	10/08/22 15:47	1

Lab Sample ID: MB 880-36449/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36449

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1

Lab Sample ID: LCS 880-36449/1-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.01884	*-	mg/Kg		19	70 - 130
Toluene	0.100	0.01832	*-	mg/Kg		18	70 - 130
Ethylbenzene	0.100	0.02039	*-	mg/Kg		20	70 - 130
m-Xylene & p-Xylene	0.200	0.05373	*-	mg/Kg		27	70 - 130
o-Xylene	0.100	0.3177	*+	mg/Kg		318	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	171	S1+	70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09908	*1	mg/Kg		99	70 - 130	136	35

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

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

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08768	*1	mg/Kg		88	70 - 130	131	35
Ethylbenzene	0.100	0.08396	*1	mg/Kg		84	70 - 130	122	35
m-Xylene & p-Xylene	0.200	0.1727	*1	mg/Kg		86	70 - 130	105	35
o-Xylene	0.100	0.09883	*1	mg/Kg		99	70 - 130	105	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3089-A-1-F MS

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U *- *1 F1	0.0998	0.04456	F1	mg/Kg		45	70 - 130
Toluene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
Ethylbenzene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.200	0.07327	F1	mg/Kg		37	70 - 130
o-Xylene	<0.00202	U *+ *1 F1	0.0998	0.04861	F1	mg/Kg		49	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 890-3089-A-1-G MSD

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U *- *1 F1	0.101	0.03882	F1	mg/Kg		39	70 - 130	14	35
Toluene	<0.00202	U *- *1 F1	0.101	0.04506	F1	mg/Kg		45	70 - 130	1	35
Ethylbenzene	<0.00202	U *- *1 F1	0.101	0.04374	F1	mg/Kg		43	70 - 130	2	35
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.201	0.06634	F1	mg/Kg		33	70 - 130	10	35
o-Xylene	<0.00202	U *+ *1 F1	0.101	0.04504	F1	mg/Kg		45	70 - 130	8	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	81		70 - 130

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

Lab Sample ID: MB 880-35711/1-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35711

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 19:10	1

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

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

Lab Sample ID: MB 880-35711/1-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35711

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 19:10	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 19:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130			09/29/22 13:24	09/30/22 19:10	1
o-Terphenyl	109		70 - 130			09/29/22 13:24	09/30/22 19:10	1

Lab Sample ID: LCS 880-35711/2-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	825.2		mg/Kg		83	70 - 130
Diesel Range Organics (Over C10-C28)	1000	990.0		mg/Kg		99	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	118		70 - 130				
o-Terphenyl	103		70 - 130				

Lab Sample ID: LCSD 880-35711/3-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	929.3		mg/Kg		93	70 - 130	12	20
Diesel Range Organics (Over C10-C28)	1000	1053		mg/Kg		105	70 - 130	6	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	109		70 - 130						
o-Terphenyl	110		70 - 130						

Lab Sample ID: 890-3080-A-21-C MS

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	998	661.8	F1	mg/Kg		66	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	998	955.8		mg/Kg		93	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	106		70 - 130						
o-Terphenyl	89		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

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

Lab Sample ID: 890-3080-A-21-D MSD

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	999	693.2	F1	mg/Kg		69	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	<50.0	U	999	867.0		mg/Kg		84	70 - 130	10	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	96		70 - 130								
o-Terphenyl	80		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35682/1-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 00:33	1

Lab Sample ID: LCS 880-35682/2-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	248.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-35682/3-A

Matrix: Solid

Analysis Batch: 35722

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	249.0		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-3092-A-1-C MS

Matrix: Solid

Analysis Batch: 35722

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	64.0		249	309.7		mg/Kg		99	90 - 110

Lab Sample ID: 890-3092-A-1-D MSD

Matrix: Solid

Analysis Batch: 35722

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	64.0		249	309.1		mg/Kg		99	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

GC VOA

Prep Batch: 36293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36293/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Total/NA	Solid	8021B	36449
890-3093-2	HA09	Total/NA	Solid	8021B	36449
MB 880-36293/5-A	Method Blank	Total/NA	Solid	8021B	36293
MB 880-36449/5-A	Method Blank	Total/NA	Solid	8021B	36449
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	8021B	36449
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36449
890-3089-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	36449
890-3089-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36449

Prep Batch: 36449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Total/NA	Solid	5035	
890-3093-2	HA09	Total/NA	Solid	5035	
MB 880-36449/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3089-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	
890-3089-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 36558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Total/NA	Solid	Total BTEX	
890-3093-2	HA09	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 35711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Total/NA	Solid	8015NM Prep	
890-3093-2	HA09	Total/NA	Solid	8015NM Prep	
MB 880-35711/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35711/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35711/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3080-A-21-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3080-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 35736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Total/NA	Solid	8015B NM	35711
890-3093-2	HA09	Total/NA	Solid	8015B NM	35711
MB 880-35711/1-A	Method Blank	Total/NA	Solid	8015B NM	35711
LCS 880-35711/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35711
LCSD 880-35711/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35711
890-3080-A-21-C MS	Matrix Spike	Total/NA	Solid	8015B NM	35711
890-3080-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35711

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

GC Semi VOA

Analysis Batch: 35959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Total/NA	Solid	8015 NM	
890-3093-2	HA09	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 35682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Soluble	Solid	DI Leach	
890-3093-2	HA09	Soluble	Solid	DI Leach	
MB 880-35682/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3092-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3092-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Soluble	Solid	300.0	35682
890-3093-2	HA09	Soluble	Solid	300.0	35682
MB 880-35682/1-A	Method Blank	Soluble	Solid	300.0	35682
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	300.0	35682
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35682
890-3092-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	35682
890-3092-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35682

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

Client Sample ID: HA09

Lab Sample ID: 890-3093-1

Date Collected: 09/27/22 12:30

Matrix: Solid

Date Received: 09/28/22 08:29

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	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 05:28	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36558	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35959	10/03/22 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	35711	09/29/22 13:24	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35736	09/30/22 23:06	AJ	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 02:15	CH	EET MID

Client Sample ID: HA09

Lab Sample ID: 890-3093-2

Date Collected: 09/27/22 12:35

Matrix: Solid

Date Received: 09/28/22 08:29

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	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 05:49	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36558	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35959	10/03/22 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	35711	09/29/22 13:24	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35736	09/30/22 23:28	AJ	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 02:29	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: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-1
SDG: 0332057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3093-1	HA09	Solid	09/27/22 12:30	09/28/22 08:29	1
890-3093-2	HA09	Solid	09/27/22 12:35	09/28/22 08:29	2

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Environment Testing
Xenco

Chain of Custody

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

Work Order No: _____

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Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolum.com and kjennings@ensolum.com

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

Project Name:	SEMU BMT	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code	ANALYSIS REQUEST										Preservative Codes			
Project Number:	03D2057013														None: NO DI Water: H ₂ O			
Project Location:	Lea County, NM	Due Date:	5 Day TAT												Cool: Cool MeOH: Me			
Sampler's Name:	Liz Chell	TAT starts the day received by the lab, if received by 4:30pm													HCL: HC HNO ₃ : HN			
PO #:	N/A														H ₂ SO ₄ : H ₂ NaOH: Na			
SAMPLE RECEIPT	Temp Blank: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Ice: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No													H ₃ PO ₄ : HP			
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID: TW1007													NaHSO ₄ : NABIS			
Cooler Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Correction Factor: -0.2													Na ₂ S ₂ O ₅ : NaSO ₃			
Sample Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Temperature Reading: 1.10													Zn Acetate+NaOH: Zn			
Total Containers:		Corrected Temperature: 1.4													NaOH+Ascorbic Acid: SAPC			
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	CHLORIDES (EPA: 300.0)										Sample Comments	
HA09	S	9/27/22	1230	1'	Grab/	1	X	X	X	X	X	X	X	X	X	Incident ID: NAPP2217430297		
HA09	S	9/27/22	1235	2'	Grab/	1	X	X	X	X	X	X	X	X	X	Cost Code - GA130323		
																AFE00000000471		



890-3093 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 Ti 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 Ti U	Hg: 1631 / 245.1 / 7470 / 7471	

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		9.25.22 8:31			



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

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

890-3093 Chain of Custody

Preservative Codes	
None: NO	DI Water:
Cool: Cool	MeOH: Me
HCL: HC	HNO ₃ : HN
H ₂ SO ₄ : H ₂	NaOH: Na
H ₃ PO ₄ : HP	
NaHSO ₄ : NABIS	
Na ₂ S ₂ O ₃ : NaSO ₃	
Zn Acetate+NaOH: Zn	

Hg: 1631 / 245.1 / 7470 / 7471

usly negotiated

Revised Date: 08/25/2020 Rev. 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3093-1

SDG Number: 0332057013

Login Number: 3093

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3093-1

SDG Number: 0332057013

Login Number: 3093

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3093-2

Laboratory Sample Delivery Group: 0332057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

Authorized for release by:

10/3/2022 10:57:59 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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results through



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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3093-2
SDG: 0332057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

Qualifiers

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

Job ID: 890-3093-2

Laboratory: Eurofins Carlsbad

Narrative	Job Narrative 890-3093-2
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Receipt

The samples were received on 9/28/2022 8:29 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 1.4°C

GC Semi VOA

Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-35711 and analytical batch 880-35736 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

Client Sample ID: HA09

Lab Sample ID: 890-3093-1

Date Collected: 09/27/22 12:30

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	81.9		50.0	mg/Kg			10/03/22 11:24	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 23:06	1
Diesel Range Organics (Over C10-C28)	81.9		50.0	mg/Kg		09/29/22 13:24	09/30/22 23:06	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 23:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130			09/29/22 13:24	09/30/22 23:06	1
o-Terphenyl	100		70 - 130			09/29/22 13:24	09/30/22 23:06	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	58.2		4.95	mg/Kg			09/30/22 02:15	1

Client Sample ID: HA09

Lab Sample ID: 890-3093-2

Date Collected: 09/27/22 12:35

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	77.6		49.8	mg/Kg			10/03/22 11:24	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		09/29/22 13:24	09/30/22 23:28	1
Diesel Range Organics (Over C10-C28)	77.6		49.8	mg/Kg		09/29/22 13:24	09/30/22 23:28	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		09/29/22 13:24	09/30/22 23:28	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130			09/29/22 13:24	09/30/22 23:28	1
o-Terphenyl	113		70 - 130			09/29/22 13:24	09/30/22 23:28	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	200		4.96	mg/Kg			09/30/22 02:29	1

Eurofins Carlsbad

Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

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	OTPH1				
		(70-130)	(70-130)				
890-3080-A-21-C MS	Matrix Spike	106	89				
890-3080-A-21-D MSD	Matrix Spike Duplicate	96	80				
890-3093-1	HA09	100	100				
890-3093-2	HA09	113	113				
LCS 880-35711/2-A	Lab Control Sample	118	103				
LCSD 880-35711/3-A	Lab Control Sample Dup	109	110				
MB 880-35711/1-A	Method Blank	119	109				
Surrogate Legend							
1CO = 1-Chlorooctane							
OTPH = o-Terphenyl							

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

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

Lab Sample ID: MB 880-35711/1-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35711

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 19:10	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 19:10	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 19:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130			09/29/22 13:24	09/30/22 19:10	1
o-Terphenyl	109		70 - 130			09/29/22 13:24	09/30/22 19:10	1

Lab Sample ID: LCS 880-35711/2-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	825.2		mg/Kg		83	70 - 130
Diesel Range Organics (Over C10-C28)	1000	990.0		mg/Kg		99	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	118		70 - 130				
o-Terphenyl	103		70 - 130				

Lab Sample ID: LCSD 880-35711/3-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	929.3		mg/Kg		93	70 - 130	12	20
Diesel Range Organics (Over C10-C28)	1000	1053		mg/Kg		105	70 - 130	6	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	109		70 - 130						
o-Terphenyl	110		70 - 130						

Lab Sample ID: 890-3080-A-21-C MS

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	998	661.8	F1	mg/Kg		66	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	998	955.8		mg/Kg		93	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

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

Lab Sample ID: 890-3080-A-21-C MS

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35711

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	106		70 - 130
o-Terphenyl	89		70 - 130

Lab Sample ID: 890-3080-A-21-D MSD

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	999	693.2	F1	mg/Kg		69	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	<50.0	U	999	867.0		mg/Kg		84	70 - 130	10	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	96		70 - 130
o-Terphenyl	80		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35682/1-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 00:33	1

Lab Sample ID: LCS 880-35682/2-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	248.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-35682/3-A

Matrix: Solid

Analysis Batch: 35722

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	249.0		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-3092-A-1-C MS

Matrix: Solid

Analysis Batch: 35722

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	64.0		249	309.7		mg/Kg		99	90 - 110

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-3092-A-1-D MSD					Client Sample ID: Matrix Spike Duplicate							
Matrix: Solid					Prep Type: Soluble							
Analysis Batch: 35722												
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit	
Chloride	64.0		249	309.1		mg/Kg		99	90 - 110	0	20	

QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

GC Semi VOA

Prep Batch: 35711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Total/NA	Solid	8015NM Prep	
890-3093-2	HA09	Total/NA	Solid	8015NM Prep	
MB 880-35711/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35711/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35711/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3080-A-21-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3080-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 35736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Total/NA	Solid	8015B NM	35711
890-3093-2	HA09	Total/NA	Solid	8015B NM	35711
MB 880-35711/1-A	Method Blank	Total/NA	Solid	8015B NM	35711
LCS 880-35711/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35711
LCSD 880-35711/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35711
890-3080-A-21-C MS	Matrix Spike	Total/NA	Solid	8015B NM	35711
890-3080-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35711

Analysis Batch: 35959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Total/NA	Solid	8015 NM	
890-3093-2	HA09	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 35682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Soluble	Solid	DI Leach	
890-3093-2	HA09	Soluble	Solid	DI Leach	
MB 880-35682/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3092-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3092-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3093-1	HA09	Soluble	Solid	300.0	35682
890-3093-2	HA09	Soluble	Solid	300.0	35682
MB 880-35682/1-A	Method Blank	Soluble	Solid	300.0	35682
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	300.0	35682
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35682
890-3092-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	35682
890-3092-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35682

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

Client Sample ID: HA09
Date Collected: 09/27/22 12:30
Date Received: 09/28/22 08:29

Lab Sample ID: 890-3093-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			35959	10/03/22 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	35711	09/29/22 13:24	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35736	09/30/22 23:06	AJ	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 02:15	CH	EET MID

Client Sample ID: HA09
Date Collected: 09/27/22 12:35
Date Received: 09/28/22 08:29

Lab Sample ID: 890-3093-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			35959	10/03/22 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	35711	09/29/22 13:24	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35736	09/30/22 23:28	AJ	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 02:29	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: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

Laboratory: Eurofins Midland

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

Method	Method Description	Protocol	Laboratory
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

- ASTM = ASTM International
- MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3093-2
SDG: 0332057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3093-1	HA09	Solid	09/27/22 12:30	09/28/22 08:29	1
890-3093-2	HA09	Solid	09/27/22 12:35	09/28/22 08:29	2

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



Environment Testing
Xenco

Chain of Custody

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

Work Order No: _____

www.xenco.com Page 1 of 1

Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolum	Company Name:	Ensolum
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolum.com and kjennings@ensolum.com

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

Project Name:	SEMU BMT	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code	ANALYSIS REQUEST												Preservative Codes													
Project Number:	03D2057013																	None: NO DI Water: H ₂ O												
Project Location:	Lea County, NM	Due Date:	5 Day TAT															Cool: Cool MeOH: Me												
Sampler's Name:	Liz Chell	TAT starts the day received by the lab, if received by 4:30pm																HCL: HC HNO ₃ : HN												
PO #:	N/A																	H ₂ SO ₄ : H ₂ NaOH: Na												
SAMPLE RECEIPT	Temp Blank: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Well Ice: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No																H ₃ PO ₄ : HP												
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID:	711007															NaHSO ₄ : NABIS												
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor:	-0.3															Na ₂ S ₂ O ₃ : NaSO ₃												
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Temperature Reading:	1.10															Zn Acetate+NaOH: Zn												
Total Containers:		Corrected Temperature:	1.4															NaOH+Ascorbic Acid: SAPC												
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Cont	# of Cont	CHLORIDES (EPA: 300.0)												Sample Comments											
							TPH (8015)												Incident ID: NAPP2217430297											
							BTEX (8021)												Cost Code - GA130323											
																			AFE00000000471											

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 Ti 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 Ti U		Hg: 1631 / 245.1 / 7470 / 7471	
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.					
Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		9.25.22 4:31			



Environment Testing
Xenco

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

Chain of Custody

Work Order No.: _____

Page 1 of 1

Project Manager:	Josh Adams	Bill to: (if different)	Josh Adams
Company Name:	Ensolium	Company Name:	Ensolium
Address:	3122 National Parks Hwy.	Address:	3122 National Parks Hwy.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	3035178437	Email:	jadams@ensolium.com and klenings@ensolium.com



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

Project Name:		SEMU BMT		Turn Around		Pres. Code		ANALYSIS REQUEST										Preservative Codes					
Project Number:		03D2067013		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush														None: NO					
Project Location:		Lea County, NM		Due Date:		5 Day TAT												Cool: Cool					
Sampler's Name:		Liz Chell		TAT starts the day received by the lab, if received by 4:30pm														HCL: HC					
PO #:		N/A																H ₂ SO ₄ : H ₂					
SAMPLE RECEIPT		Temp Blank:		Yes No		Wet Ice:		Yes No												H ₃ PO ₄ : HP			
Samples Received Intact:		Yes No		Thermometer I.D.:		TMM007														NaHSO ₄ : NABIS			
Cooler Custody Seals:		Yes No		N/A		Correction Factor:		-0.3												Na ₂ S ₂ O ₃ : NaSO ₃			
Sample Custody Seals:		Yes No		N/A		Temperature Reading:		1.10												Zn Acetate+NaOH: Zn			
Total Containers:						Corrected Temperature:		1.4												NaOH+Ascorbic Acid: SAPC			

[illegible]

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	Ti	Sn	U	V	Zn
Circle Method(s)	and Metal(s)	to be analyzed	TC1P/SPLP	6010:	8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U					Hg:	1631 / 245.1 / 7470	7471						

Notes: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xeno, the affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xeno will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client, if such losses are due to circumstances beyond the control of Eurofins Xeno. A minimum charge of \$26.00 will be applied to each project and a charge of \$3 for each sample submitted to Eurofins Xeno, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		9.25.22 8:31			
3		4			
5		6			

Revised Date: 08/25/2020 Rev: 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3093-2

SDG Number: 0332057013

Login Number: 3093

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3093-2

SDG Number: 0332057013

Login Number: 3093

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3094-1

Laboratory Sample Delivery Group: 03D2057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

A handwritten signature in black ink that reads "Jessica Kramer".

Authorized for release by:

10/10/2022 10:10:32 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

LINKS

Review your project
results through



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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3094-1
SDG: 03D2057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

Job ID: 890-3094-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-3094-1****Receipt**

The samples were received on 9/28/2022 8:29 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 1.4°C

GC VOA

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-36449 and analytical batch 880-36442 recovered outside control limits for the following analytes: Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene Due to a misinjection.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (LCS 880-36449/1-A). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-35711 and analytical batch 880-35736 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

Client Sample ID: HA10

Lab Sample ID: 890-3094-1

Date Collected: 09/27/22 12:40

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U *- *1	0.00202	mg/Kg		10/08/22 12:21	10/09/22 07:11	1
Toluene	<0.00202	U *- *1	0.00202	mg/Kg		10/08/22 12:21	10/09/22 07:11	1
Ethylbenzene	<0.00202	U *- *1	0.00202	mg/Kg		10/08/22 12:21	10/09/22 07:11	1
m-Xylene & p-Xylene	<0.00404	U *- *1	0.00404	mg/Kg		10/08/22 12:21	10/09/22 07:11	1
o-Xylene	<0.00202	U *+ *1	0.00202	mg/Kg		10/08/22 12:21	10/09/22 07:11	1
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		10/08/22 12:21	10/09/22 07:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		70 - 130	10/08/22 12:21	10/09/22 07:11	1
1,4-Difluorobenzene (Surr)	98		70 - 130	10/08/22 12:21	10/09/22 07:11	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			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	112		49.9	mg/Kg			10/03/22 11:24	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/29/22 13:24	09/30/22 23:49	1
Diesel Range Organics (Over C10-C28)	112		49.9	mg/Kg		09/29/22 13:24	09/30/22 23:49	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/29/22 13:24	09/30/22 23:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	121		70 - 130	09/29/22 13:24	09/30/22 23:49	1
o-Terphenyl	119		70 - 130	09/29/22 13:24	09/30/22 23:49	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	136		5.04	mg/Kg			09/30/22 02:34	1

Client Sample ID: HA10

Lab Sample ID: 890-3094-2

Date Collected: 09/27/22 12:45

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 07:32	1
Toluene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 07:32	1
Ethylbenzene	<0.00200	U *- *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 07:32	1
m-Xylene & p-Xylene	<0.00399	U *- *1	0.00399	mg/Kg		10/08/22 12:21	10/09/22 07:32	1
o-Xylene	<0.00200	U *+ *1	0.00200	mg/Kg		10/08/22 12:21	10/09/22 07:32	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		10/08/22 12:21	10/09/22 07:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	10/08/22 12:21	10/09/22 07:32	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

Client Sample ID: HA10

Lab Sample ID: 890-3094-2

Date Collected: 09/27/22 12:45

Matrix: Solid

Date Received: 09/28/22 08:29

Sample Depth: 2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	94		70 - 130	10/08/22 12:21	10/09/22 07:32	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			10/10/22 10:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	54.1		49.9	mg/Kg			10/03/22 11:24	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/29/22 13:24	10/01/22 00:11	1
Diesel Range Organics (Over C10-C28)	54.1		49.9	mg/Kg		09/29/22 13:24	10/01/22 00:11	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/29/22 13:24	10/01/22 00:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	128		70 - 130			09/29/22 13:24	10/01/22 00:11	1
o-Terphenyl	127		70 - 130			09/29/22 13:24	10/01/22 00:11	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	234		5.03	mg/Kg			09/30/22 02:39	1

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Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

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)
890-3089-A-1-F MS	Matrix Spike	106	91
890-3089-A-1-G MSD	Matrix Spike Duplicate	96	81
890-3094-1	HA10	82	98
890-3094-2	HA10	99	94
LCS 880-36449/1-A	Lab Control Sample	171 S1+	117
LCSD 880-36449/2-A	Lab Control Sample Dup	98	94
MB 880-36293/5-A	Method Blank	83	92
MB 880-36449/5-A	Method Blank	87	87
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)
890-3080-A-21-C MS	Matrix Spike	106	89
890-3080-A-21-D MSD	Matrix Spike Duplicate	96	80
890-3094-1	HA10	121	119
890-3094-2	HA10	128	127
LCS 880-35711/2-A	Lab Control Sample	118	103
LCSD 880-35711/3-A	Lab Control Sample Dup	109	110
MB 880-35711/1-A	Method Blank	119	109
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36293/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36293

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/06/22 15:51	10/08/22 15:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/06/22 15:51	10/08/22 15:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130	10/06/22 15:51	10/08/22 15:47	1
1,4-Difluorobenzene (Surr)	92		70 - 130	10/06/22 15:51	10/08/22 15:47	1

Lab Sample ID: MB 880-36449/5-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36449

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/08/22 12:21	10/09/22 02:23	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/08/22 12:21	10/09/22 02:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/08/22 12:21	10/09/22 02:23	1

Lab Sample ID: LCS 880-36449/1-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.01884	*-	mg/Kg		19	70 - 130
Toluene	0.100	0.01832	*-	mg/Kg		18	70 - 130
Ethylbenzene	0.100	0.02039	*-	mg/Kg		20	70 - 130
m-Xylene & p-Xylene	0.200	0.05373	*-	mg/Kg		27	70 - 130
o-Xylene	0.100	0.3177	*+	mg/Kg		318	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	171	S1+	70 - 130
1,4-Difluorobenzene (Surr)	117		70 - 130

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09908	*1	mg/Kg		99	70 - 130	136	35

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

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

Lab Sample ID: LCSD 880-36449/2-A

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08768	*1	mg/Kg		88	70 - 130	131	35
Ethylbenzene	0.100	0.08396	*1	mg/Kg		84	70 - 130	122	35
m-Xylene & p-Xylene	0.200	0.1727	*1	mg/Kg		86	70 - 130	105	35
o-Xylene	0.100	0.09883	*1	mg/Kg		99	70 - 130	105	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3089-A-1-F MS

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U *- *1 F1	0.0998	0.04456	F1	mg/Kg		45	70 - 130
Toluene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
Ethylbenzene	<0.00202	U *- *1 F1	0.0998	0.04470	F1	mg/Kg		45	70 - 130
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.200	0.07327	F1	mg/Kg		37	70 - 130
o-Xylene	<0.00202	U *+ *1 F1	0.0998	0.04861	F1	mg/Kg		49	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: 890-3089-A-1-G MSD

Matrix: Solid

Analysis Batch: 36442

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36449

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U *- *1 F1	0.101	0.03882	F1	mg/Kg		39	70 - 130	14	35
Toluene	<0.00202	U *- *1 F1	0.101	0.04506	F1	mg/Kg		45	70 - 130	1	35
Ethylbenzene	<0.00202	U *- *1 F1	0.101	0.04374	F1	mg/Kg		43	70 - 130	2	35
m-Xylene & p-Xylene	<0.00403	U *- *1 F1	0.201	0.06634	F1	mg/Kg		33	70 - 130	10	35
o-Xylene	<0.00202	U *+ *1 F1	0.101	0.04504	F1	mg/Kg		45	70 - 130	8	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	81		70 - 130

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

Lab Sample ID: MB 880-35711/1-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35711

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 19:10	1

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

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

Lab Sample ID: MB 880-35711/1-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 35711

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 19:10	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/29/22 13:24	09/30/22 19:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130			09/29/22 13:24	09/30/22 19:10	1
o-Terphenyl	109		70 - 130			09/29/22 13:24	09/30/22 19:10	1

Lab Sample ID: LCS 880-35711/2-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	825.2		mg/Kg		83	70 - 130
Diesel Range Organics (Over C10-C28)	1000	990.0		mg/Kg		99	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	118		70 - 130				
o-Terphenyl	103		70 - 130				

Lab Sample ID: LCSD 880-35711/3-A

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	929.3		mg/Kg		93	70 - 130	12	20
Diesel Range Organics (Over C10-C28)	1000	1053		mg/Kg		105	70 - 130	6	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	109		70 - 130						
o-Terphenyl	110		70 - 130						

Lab Sample ID: 890-3080-A-21-C MS

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	998	661.8	F1	mg/Kg		66	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	998	955.8		mg/Kg		93	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	106		70 - 130						
o-Terphenyl	89		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

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

Lab Sample ID: 890-3080-A-21-D MSD

Matrix: Solid

Analysis Batch: 35736

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 35711

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	999	693.2	F1	mg/Kg		69	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	<50.0	U	999	867.0		mg/Kg		84	70 - 130	10	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	96		70 - 130								
o-Terphenyl	80		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35682/1-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/30/22 00:33	1

Lab Sample ID: LCS 880-35682/2-A

Matrix: Solid

Analysis Batch: 35722

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	248.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-35682/3-A

Matrix: Solid

Analysis Batch: 35722

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	249.0		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-3092-A-1-C MS

Matrix: Solid

Analysis Batch: 35722

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	64.0		249	309.7		mg/Kg		99	90 - 110

Lab Sample ID: 890-3092-A-1-D MSD

Matrix: Solid

Analysis Batch: 35722

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	64.0		249	309.1		mg/Kg		99	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

GC VOA

Prep Batch: 36293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36293/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3094-1	HA10	Total/NA	Solid	8021B	36449
890-3094-2	HA10	Total/NA	Solid	8021B	36449
MB 880-36293/5-A	Method Blank	Total/NA	Solid	8021B	36293
MB 880-36449/5-A	Method Blank	Total/NA	Solid	8021B	36449
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	8021B	36449
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36449
890-3089-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	36449
890-3089-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36449

Prep Batch: 36449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3094-1	HA10	Total/NA	Solid	5035	
890-3094-2	HA10	Total/NA	Solid	5035	
MB 880-36449/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36449/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36449/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3089-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	
890-3089-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 36559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3094-1	HA10	Total/NA	Solid	Total BTEX	
890-3094-2	HA10	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 35711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3094-1	HA10	Total/NA	Solid	8015NM Prep	
890-3094-2	HA10	Total/NA	Solid	8015NM Prep	
MB 880-35711/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35711/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35711/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3080-A-21-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3080-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 35736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3094-1	HA10	Total/NA	Solid	8015B NM	35711
890-3094-2	HA10	Total/NA	Solid	8015B NM	35711
MB 880-35711/1-A	Method Blank	Total/NA	Solid	8015B NM	35711
LCS 880-35711/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35711
LCSD 880-35711/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35711
890-3080-A-21-C MS	Matrix Spike	Total/NA	Solid	8015B NM	35711
890-3080-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35711

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

GC Semi VOA

Analysis Batch: 35960

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3094-1	HA10	Total/NA	Solid	8015 NM	
890-3094-2	HA10	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 35682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3094-1	HA10	Soluble	Solid	DI Leach	
890-3094-2	HA10	Soluble	Solid	DI Leach	
MB 880-35682/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3092-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3092-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3094-1	HA10	Soluble	Solid	300.0	35682
890-3094-2	HA10	Soluble	Solid	300.0	35682
MB 880-35682/1-A	Method Blank	Soluble	Solid	300.0	35682
LCS 880-35682/2-A	Lab Control Sample	Soluble	Solid	300.0	35682
LCSD 880-35682/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35682
890-3092-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	35682
890-3092-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35682

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

Client Sample ID: HA10

Lab Sample ID: 890-3094-1

Date Collected: 09/27/22 12:40

Matrix: Solid

Date Received: 09/28/22 08:29

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	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 07:11	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36559	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35960	10/03/22 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	35711	09/29/22 13:24	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35736	09/30/22 23:49	AJ	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 02:34	CH	EET MID

Client Sample ID: HA10

Lab Sample ID: 890-3094-2

Date Collected: 09/27/22 12:45

Matrix: Solid

Date Received: 09/28/22 08:29

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	36449	10/08/22 12:21	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36442	10/09/22 07:32	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36559	10/10/22 10:40	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35960	10/03/22 11:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	35711	09/29/22 13:24	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35736	10/01/22 00:11	AJ	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	35682	09/29/22 12:06	SMC	EET MID
Soluble	Analysis	300.0		1			35722	09/30/22 02:39	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: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

Laboratory: Eurofins Midland

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

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3094-1
SDG: 03D2057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3094-1	HA10	Solid	09/27/22 12:40	09/28/22 08:29	1
890-3094-2	HA10	Solid	09/27/22 12:45	09/28/22 08:29	2

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



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



Chain of Custody

Work Order No:

www.xenco.com Page _____ of _____

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

[illegible][illegible]

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			9-25-20 837			
2						
3						
4						
5						
6						

Revised Date: 08/25/2020 Rev: 20/20

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3094-1

SDG Number: 03D2057013

Login Number: 3094

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3094-1

SDG Number: 03D2057013

Login Number: 3094

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 09/29/22 11:12 AM

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



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-3132-1

Laboratory Sample Delivery Group: 03D2057013

Client Project/Site: SEMU BMT

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Josh Adams

Authorized for release by:

10/5/2022 11:38:44 AM

Jessica Kramer, Project Manager
(432)704-5440

Jessica.Kramer@et.eurofinsus.com

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

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

Client: Ensolum
Project/Site: SEMU BMT

Laboratory Job ID: 890-3132-1
SDG: 03D2057013

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

Job ID: 890-3132-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-3132-1****Receipt**

The samples were received on 10/3/2022 2:22 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.2°C

Receipt Exceptions

The following samples analyzed for method <FRACTION_METHOD> were received and analyzed from an unpreserved bulk soil jar: FS01 (890-3132-1) and FS02 (890-3132-2). SAMPLES RECEIVED FROM UNPRESERVED BULK SOLID

GC VOA

Method 8021B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 880-36062 and analytical batch 880-36055 recovered outside control limits for the following analytes: Benzene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36062 and analytical batch 880-36055 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (LCS 880-36062/1-A). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (890-3122-A-1-C MS). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following samples were outside control limits: FS01 (890-3132-1) and FS02 (890-3132-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

GC Semi VOA

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-36000 and analytical batch 880-36021 was outside the upper control limits.

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

HPLC/IC

Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36067 and 880-36067 and analytical batch 880-36101 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

Client Sample ID: FS01

Lab Sample ID: 890-3132-1

Date Collected: 10/03/22 11:00

Matrix: Solid

Date Received: 10/03/22 14:22

Sample Depth: 1

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		10/04/22 13:56	10/05/22 00:45	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/04/22 13:56	10/05/22 00:45	1
Ethylbenzene	<0.00200	U **	0.00200	mg/Kg		10/04/22 13:56	10/05/22 00:45	1
m-Xylene & p-Xylene	<0.00401	U **	0.00401	mg/Kg		10/04/22 13:56	10/05/22 00:45	1
o-Xylene	<0.00200	U **	0.00200	mg/Kg		10/04/22 13:56	10/05/22 00:45	1
Xylenes, Total	<0.00401	U **	0.00401	mg/Kg		10/04/22 13:56	10/05/22 00:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	132	S1+	70 - 130	10/04/22 13:56	10/05/22 00:45	1
1,4-Difluorobenzene (Surr)	87		70 - 130	10/04/22 13:56	10/05/22 00:45	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			10/05/22 12:21	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			10/05/22 09:54	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		10/04/22 09:00	10/04/22 14:06	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/04/22 09:00	10/04/22 14:06	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/04/22 09:00	10/04/22 14:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130	10/04/22 09:00	10/04/22 14:06	1
o-Terphenyl	97		70 - 130	10/04/22 09:00	10/04/22 14:06	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	91.6		5.01	mg/Kg			10/05/22 00:25	1

Client Sample ID: FS02

Lab Sample ID: 890-3132-2

Date Collected: 10/03/22 12:30

Matrix: Solid

Date Received: 10/03/22 14:22

Sample Depth: 1

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		10/04/22 13:56	10/05/22 01:11	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/04/22 13:56	10/05/22 01:11	1
Ethylbenzene	<0.00200	U **	0.00200	mg/Kg		10/04/22 13:56	10/05/22 01:11	1
m-Xylene & p-Xylene	<0.00399	U **	0.00399	mg/Kg		10/04/22 13:56	10/05/22 01:11	1
o-Xylene	<0.00200	U **	0.00200	mg/Kg		10/04/22 13:56	10/05/22 01:11	1
Xylenes, Total	<0.00399	U **	0.00399	mg/Kg		10/04/22 13:56	10/05/22 01:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	133	S1+	70 - 130	10/04/22 13:56	10/05/22 01:11	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

Client Sample ID: FS02

Lab Sample ID: 890-3132-2

Date Collected: 10/03/22 12:30

Matrix: Solid

Date Received: 10/03/22 14:22

Sample Depth: 1

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	91		70 - 130	10/04/22 13:56	10/05/22 01:11	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			10/05/22 12:21	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	153		50.0	mg/Kg			10/05/22 09:54	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		10/04/22 09:00	10/04/22 13:44	1
Diesel Range Organics (Over C10-C28)	153		50.0	mg/Kg		10/04/22 09:00	10/04/22 13:44	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/04/22 09:00	10/04/22 13:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130			10/04/22 09:00	10/04/22 13:44	1
o-Terphenyl	104		70 - 130			10/04/22 09:00	10/04/22 13:44	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	515		5.03	mg/Kg			10/05/22 00:31	1

Surrogate Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

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)
890-3122-A-1-C MS	Matrix Spike	135 S1+	97
890-3122-A-1-D MSD	Matrix Spike Duplicate	124	91
890-3132-1	FS01	132 S1+	87
890-3132-2	FS02	133 S1+	91
LCS 880-36062/1-A	Lab Control Sample	138 S1+	104
LCSD 880-36062/2-A	Lab Control Sample Dup	120	94
MB 880-36062/5-A	Method Blank	86	88
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)
890-3113-A-41-B MS	Matrix Spike	82	76
890-3113-A-41-C MSD	Matrix Spike Duplicate	83	75
890-3132-1	FS01	105	97
890-3132-2	FS02	114	104
LCS 880-36000/2-A	Lab Control Sample	98	102
LCSD 880-36000/3-A	Lab Control Sample Dup	113	101
MB 880-36000/1-A	Method Blank	147 S1+	143 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36062/5-A

Matrix: Solid

Analysis Batch: 36055

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36062

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/04/22 13:56	10/04/22 16:01	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/04/22 13:56	10/04/22 16:01	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/04/22 13:56	10/04/22 16:01	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/04/22 13:56	10/04/22 16:01	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/04/22 13:56	10/04/22 16:01	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/04/22 13:56	10/04/22 16:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		70 - 130	10/04/22 13:56	10/04/22 16:01	1
1,4-Difluorobenzene (Surr)	88		70 - 130	10/04/22 13:56	10/04/22 16:01	1

Lab Sample ID: LCS 880-36062/1-A

Matrix: Solid

Analysis Batch: 36055

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36062

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1337	*+	mg/Kg		134	70 - 130
Toluene	0.100	0.1188		mg/Kg		119	70 - 130
Ethylbenzene	0.100	0.1392	*+	mg/Kg		139	70 - 130
m-Xylene & p-Xylene	0.200	0.2792	*+	mg/Kg		140	70 - 130
o-Xylene	0.100	0.1441	*+	mg/Kg		144	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	138	S1+	70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-36062/2-A

Matrix: Solid

Analysis Batch: 36055

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36062

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1174		mg/Kg		117	70 - 130	13	35
Toluene	0.100	0.1208		mg/Kg		121	70 - 130	2	35
Ethylbenzene	0.100	0.1192		mg/Kg		119	70 - 130	15	35
m-Xylene & p-Xylene	0.200	0.2376		mg/Kg		119	70 - 130	16	35
o-Xylene	0.100	0.1201		mg/Kg		120	70 - 130	18	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	120		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3122-A-1-C MS

Matrix: Solid

Analysis Batch: 36055

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36062

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00198	U F1 *+	0.0998	0.1312	F1	mg/Kg		131	70 - 130
Toluene	<0.00198	U F1	0.0998	0.1402	F1	mg/Kg		140	70 - 130

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

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

Lab Sample ID: 890-3122-A-1-C MS

Matrix: Solid

Analysis Batch: 36055

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36062

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00198	U F1 *+	0.0998	0.1398	F1	mg/Kg		140	70 - 130
m-Xylene & p-Xylene	<0.00396	U F1 *+	0.200	0.2793	F1	mg/Kg		140	70 - 130
o-Xylene	<0.00198	U F1 *+	0.0998	0.1352	F1	mg/Kg		136	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	135	S1+	70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 890-3122-A-1-D MSD

Matrix: Solid

Analysis Batch: 36055

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36062

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00198	U F1 *+	0.0996	0.1158		mg/Kg		116	70 - 130	12	35
Toluene	<0.00198	U F1	0.0996	0.1192		mg/Kg		120	70 - 130	16	35
Ethylbenzene	<0.00198	U F1 *+	0.0996	0.1180		mg/Kg		119	70 - 130	17	35
m-Xylene & p-Xylene	<0.00396	U F1 *+	0.199	0.2364		mg/Kg		119	70 - 130	17	35
o-Xylene	<0.00198	U F1 *+	0.0996	0.1185		mg/Kg		119	70 - 130	13	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	124		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

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

Lab Sample ID: MB 880-36000/1-A

Matrix: Solid

Analysis Batch: 36021

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36000

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		10/03/22 14:25	10/04/22 10:16	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/03/22 14:25	10/04/22 10:16	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/03/22 14:25	10/04/22 10:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	147	S1+	70 - 130	10/03/22 14:25	10/04/22 10:16	1
o-Terphenyl	143	S1+	70 - 130	10/03/22 14:25	10/04/22 10:16	1

Lab Sample ID: LCS 880-36000/2-A

Matrix: Solid

Analysis Batch: 36021

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36000

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	825.3		mg/Kg		83	70 - 130
Diesel Range Organics (Over C10-C28)	1000	980.5		mg/Kg		98	70 - 130

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

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

Lab Sample ID: LCS 880-36000/2-A

Matrix: Solid

Analysis Batch: 36021

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36000

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	98		70 - 130
o-Terphenyl	102		70 - 130

Lab Sample ID: LCSD 880-36000/3-A

Matrix: Solid

Analysis Batch: 36021

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36000

	Spike	LCSD	LCSD						%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit			
Gasoline Range Organics (GRO)-C6-C10	1000	825.4		mg/Kg		83	70 - 130	0	20			
Diesel Range Organics (Over C10-C28)	1000	976.9		mg/Kg		98	70 - 130	0	20			

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	113		70 - 130
o-Terphenyl	101		70 - 130

Lab Sample ID: 890-3113-A-41-B MS

Matrix: Solid

Analysis Batch: 36021

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 36000

	Sample	Sample	Spike	MS	MS				%Rec			
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	798.8		mg/Kg		80	70 - 130			
Diesel Range Organics (Over C10-C28)	<50.0	U	998	945.0		mg/Kg		92	70 - 130			

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	82		70 - 130
o-Terphenyl	76		70 - 130

Lab Sample ID: 890-3113-A-41-C MSD

Matrix: Solid

Analysis Batch: 36021

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 36000

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	827.4		mg/Kg		83	70 - 130	4	20	
Diesel Range Organics (Over C10-C28)	<50.0	U	999	952.9		mg/Kg		93	70 - 130	1	20	

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	83		70 - 130
o-Terphenyl	75		70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36067/1-A

Matrix: Solid

Analysis Batch: 36101

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			10/04/22 21:42	1

Lab Sample ID: LCS 880-36067/2-A

Matrix: Solid

Analysis Batch: 36101

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	250.7		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 880-36067/3-A

Matrix: Solid

Analysis Batch: 36101

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	240.2		mg/Kg		96	90 - 110	4	20

Lab Sample ID: 890-3124-A-7-C MS

Matrix: Solid

Analysis Batch: 36101

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	176	F1	250	367.2	F1	mg/Kg		77	90 - 110

Lab Sample ID: 890-3124-A-7-D MSD

Matrix: Solid

Analysis Batch: 36101

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	176	F1	250	394.9	F1	mg/Kg		88	90 - 110	7	20

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

GC VOA

Analysis Batch: 36055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3132-1	FS01	Total/NA	Solid	8021B	36062
890-3132-2	FS02	Total/NA	Solid	8021B	36062
MB 880-36062/5-A	Method Blank	Total/NA	Solid	8021B	36062
LCS 880-36062/1-A	Lab Control Sample	Total/NA	Solid	8021B	36062
LCSD 880-36062/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36062
890-3122-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	36062
890-3122-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36062

Prep Batch: 36062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3132-1	FS01	Total/NA	Solid	5035	
890-3132-2	FS02	Total/NA	Solid	5035	
MB 880-36062/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36062/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36062/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3122-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3122-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 36179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3132-1	FS01	Total/NA	Solid	Total BTEX	
890-3132-2	FS02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 36000

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3132-1	FS01	Total/NA	Solid	8015NM Prep	
890-3132-2	FS02	Total/NA	Solid	8015NM Prep	
MB 880-36000/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36000/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36000/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3113-A-41-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3113-A-41-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 36021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3132-1	FS01	Total/NA	Solid	8015B NM	36000
890-3132-2	FS02	Total/NA	Solid	8015B NM	36000
MB 880-36000/1-A	Method Blank	Total/NA	Solid	8015B NM	36000
LCS 880-36000/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36000
LCSD 880-36000/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36000
890-3113-A-41-B MS	Matrix Spike	Total/NA	Solid	8015B NM	36000
890-3113-A-41-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	36000

Analysis Batch: 36148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3132-1	FS01	Total/NA	Solid	8015 NM	
890-3132-2	FS02	Total/NA	Solid	8015 NM	

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QC Association Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

HPLC/IC

Leach Batch: 36067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3132-1	FS01	Soluble	Solid	DI Leach	
890-3132-2	FS02	Soluble	Solid	DI Leach	
MB 880-36067/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36067/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36067/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3124-A-7-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3124-A-7-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 36101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3132-1	FS01	Soluble	Solid	300.0	36067
890-3132-2	FS02	Soluble	Solid	300.0	36067
MB 880-36067/1-A	Method Blank	Soluble	Solid	300.0	36067
LCS 880-36067/2-A	Lab Control Sample	Soluble	Solid	300.0	36067
LCSD 880-36067/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36067
890-3124-A-7-C MS	Matrix Spike	Soluble	Solid	300.0	36067
890-3124-A-7-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36067

Lab Chronicle

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

Client Sample ID: FS01

Lab Sample ID: 890-3132-1

Date Collected: 10/03/22 11:00

Matrix: Solid

Date Received: 10/03/22 14:22

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	36062	10/04/22 13:56	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36055	10/05/22 00:45	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36179	10/05/22 12:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			36148	10/05/22 09:54	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	36000	10/04/22 09:00	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36021	10/04/22 14:06	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	36067	10/04/22 15:07	KS	EET MID
Soluble	Analysis	300.0		1			36101	10/05/22 00:25	CH	EET MID

Client Sample ID: FS02

Lab Sample ID: 890-3132-2

Date Collected: 10/03/22 12:30

Matrix: Solid

Date Received: 10/03/22 14:22

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	36062	10/04/22 13:56	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36055	10/05/22 01:11	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36179	10/05/22 12:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			36148	10/05/22 09:54	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36000	10/04/22 09:00	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36021	10/04/22 13:44	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	36067	10/04/22 15:07	KS	EET MID
Soluble	Analysis	300.0		1			36101	10/05/22 00:31	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: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

Laboratory: Eurofins Midland

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

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: SEMU BMT

Job ID: 890-3132-1
SDG: 03D2057013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3132-1	FS01	Solid	10/03/22 11:00	10/03/22 14:22	1
890-3132-2	FS02	Solid	10/03/22 12:30	10/03/22 14:22	1

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



Environment Testing

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

Chain of Custody

Work Order No:

www.xenco.com Page 1 of 1

[illegible]

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3132-1

SDG Number: 03D2057013

Login Number: 3132

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: 890-3132-1

SDG Number: 03D2057013

Login Number: 3132

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 10/04/22 10:34 AM

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



APPENDIX C

Photographic Log



Photographic Log
COG Operating, LLC
SEMU BMT
NAPP2216134591



Photograph 1 Date: 7/25/2022

Description: View of the release area prior to remediation, looking south



Photograph 2 Date: 10/3/2022

Description: View of the release area after excavation activities, looking east



Photograph 3 Date: 10/03/2022

Description: View of the release area after excavation activities, looking west



Photograph 4 Date: 10/03/2022

Description: View of the release area after excavation activities, looking north



APPENDIX D

Final C141

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	NAPP2216134591
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)

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


Cause of Release

Incident ID	NAPP2216134591
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input type="checkbox"/> 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

<input type="checkbox"/> The source of the release has been stopped.	
<input type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
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: <u></u>	Date: _____
email: _____	Telephone: _____
<u>OCD Only</u>	
Received by: <u>Jocelyn Harimon</u>	Date: <u>06/10/2022</u>

L48 Spill Volume Estimate Form

NAPP2216134591

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~~Received by OCD: 11/29/2022 2:52:18 PM~~

& Number:	SEMU BMT Battery water tank
Asset Area:	HPA03
Release Discovery Date & Time:	5/27/2022 1:40
Release Type:	Produced Water
Provide any known details about the event:	SWD had no power causing tank to fill up and over flow

Spill Calculation - Subsurface Spill - Rectangle

Was the release on pad or off-pad?				See reference table below		
Has it rained at least a half inch in the last 24 hours?				See reference table below		
Convert Irregular shape into a series of rectangles	Length (ft.)	Width (ft.)	Depth (in.)	Soil Spilled-Fluid Saturation	Estimated volume of each area (bbl.)	Total Estimated Volume of Spill (bbl.)
Rectangle A	83.0	46.0	2.50	10.50%	141.584	14.866
Rectangle B	35.0	75.0	0.25	10.50%	9.734	1.022
Rectangle C	142.0	29.0	0.50	10.50%	30.542	3.207
Rectangle D	110.0	49.0	2.00	10.50%	159.903	16.790
Rectangle E	7.0	34.0	3.50	15.16%	12.356	1.873
Rectangle F					0.000	0.000
Rectangle G					0.000	0.000
Rectangle H					0.000	0.000
Rectangle I					0.000	0.000
Released to Imaging: 1/4/2023 11:44:06 AM					0.000	0.000
					Total Volume Release:	37.758

Incident ID	NAPP2216134591
District RP	
Facility ID	fOY1727735163
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?	<u>>100 feet bgs</u>
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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

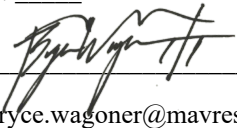
Characterization Report Checklist: *Each of the following items must be included in the report.*

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

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

Incident ID	NAPP2216134591
District RP	
Facility ID	fOY1727735163
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: Bryce Wagoner Title: Permian HSE Specialist II
Signature:  Date: 11/28/2022
email: bryce.wagoner@mavresources.com Telephone: 928-241-1862

OCD Only

Received by: Jocelyn Harimon Date: 11/29/2022

Incident ID	NAPP2216134591
District RP	
Facility ID	fOY1727735163
Application ID	

Closure


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

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

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

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

Printed Name: Bryce Wagoner Title: Permian HSE Specialist II

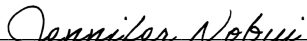
Signature:  Date: 11/28/2022

email: bryce.wagoner@mavresources.com Telephone: 928-241-1862

OCD Only

Received by: Jocelyn Harimon Date: 11/29/2022

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

Closure Approved by:  Date: 01/04/2023

Printed Name: Jennifer Nobui Title: Environmental Specialist A



APPENDIX E

NMOCD Notifications

From: OCDOnline@state.nm.us
To: [Kalei Jennings](#)
Subject: The Oil Conservation Division (OCD) has approved the application, Application ID: 138121
Date: Wednesday, August 31, 2022 11:14:29 AM

[**EXTERNAL EMAIL**]

To whom it may concern (c/o Kalei Jennings for Maverick Permian LLC),

The OCD has approved the submitted *Application for administrative approval of a release notification and corrective action* (C-141), for incident ID (n#) nAPP2216134591, with the following conditions:

- **Remediation Plan Approved with Conditions. The depth to groundwater has not been adequately determined. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided in the submission. The responsible party may choose to remediate to the most stringent levels listed in Table 1 of 19.15.29 NMAC in lieu of drilling to determine the depth to groundwater. Please delineate soils both vertically and laterally to 600 mg/kg chloride and 100 mg/kg TPH.**

The signed C-141 can be found in the OCD Online: Imaging under the incident ID (n#).

If you have any questions regarding this application, please contact me.

Thank you,
Jennifer Nobui
Environmental Specialist-Advanced
505-470-3407
Jennifer.Nobui@state.nm.us

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

From: [Nobui, Jennifer, EMNRD](#)
To: [Kalei Jennings](#)
Cc: [Bratcher, Michael, EMNRD](#); [Hamlet, Robert, EMNRD](#); [Harimon, Jocelyn, EMNRD](#)
Subject: FW: [EXTERNAL] Maverick- Sampling Notification (Week of 09/26/22-09/30/22)
Date: Thursday, September 22, 2022 2:12:51 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

[**EXTERNAL EMAIL**]

Kalei

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.

Thanks,
Jennifer Nobui

From: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Sent: Thursday, September 22, 2022 2:08 PM
To: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Subject: Fw: [EXTERNAL] Maverick- Sampling Notification (Week of 09/26/22-09/30/22)

From: Kalei Jennings <kjennings@ensolum.com>
Sent: Thursday, September 22, 2022 2:04 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Subject: [EXTERNAL] Maverick- Sampling Notification (Week of 09/26/22-09/30/22)

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

All,

Maverick Natural Resources plans to complete final sampling activities at the following sites the week of September 26, 2022.

Monday:

- SEMU BMT/NAPP2216134591
- MCA 2A Main Line / NAPP2225231205

Tuesday:

- SEMU BMT/NAPP2216134591
- MCA 2A Main Line / NAPP2225231205

Wednesday:

Thursday:

- MCA 94 / NAPP2212531906

Friday:

- MCA 94 / NAPP2212531906

Thank you,



Kalei Jennings

Senior Scientist

817-683-2503

Ensolum, LLC



From: [Nobui, Jennifer, EMNRD](#)
To: [Kalei Jennings](#)
Cc: [Bratcher, Michael, EMNRD](#); [Hamlet, Robert, EMNRD](#); [Harimon, Jocelyn, EMNRD](#)
Subject: FW: [EXTERNAL] Maverick- Sampling Notifications (10/3/22-10/7/22)
Date: Thursday, September 29, 2022 2:42:15 PM

[**EXTERNAL EMAIL **]

Kalei

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.

Thanks,
Jennifer Nobui

From: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Sent: Thursday, September 29, 2022 1:58 PM
To: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Subject: Fw: [EXTERNAL] Maverick- Sampling Notifications (10/3/22-10/7/22)

From: Kalei Jennings <kjennings@ensolum.com>
Sent: Thursday, September 29, 2022 11:15 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Subject: [EXTERNAL] Maverick- Sampling Notifications (10/3/22-10/7/22)

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

All,

Maverick Natural Resources (Maverick) plans to complete final sampling activities at the following sites the week of October 3, 2022.

Monday (10/3/2022)

- SEMU BMT/ NAPP2216134591
- MCA 94/ NAPP2212531906

Tuesday (10/4/2022)

- SEMU BMT/ NAPP2216134591

Wednesday (10/5/2022)

- SEMU BMT/ NAPP2216134591

Thursday (10/6/2022)

- MCA 94/ NAPP2212531906

Thank you,

Kalei Jennings

Senior Scientist

817-683-2503

Ensolum, LLC

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 162268

CONDITIONS

Operator: Maverick Permian LLC 1111 Bagby Street Suite 1600 Houston, TX 77002	OGRID: 331199
	Action Number: 162268
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Closure Report Approved. Please implement 19.15.29.13 NMAC when completing P&A.	1/4/2023