



July 20, 2023

New Mexico Oil Conservation Division

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

**Re: Closure Request
SEMU Permian Battery
Incident Number NAPP2303271574
Lea County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of Maverick Permian, LLC (Maverick), has prepared this *Closure Request* to document assessment, excavation, and soil sampling activities performed at the SEMU Permian Battery (Site). The purpose of the Site assessment, excavation, and soil sampling activities was to address impacts to soil resulting from a release of crude oil and produced water 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 NAPP2303271574.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit K, Section 19, Township 20 South, Range 38 East, in Lea County, New Mexico (32.5584° N, 103.1906° W) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM).

On January 10, 2023, corrosion of a flowline resulted in the release of approximately 3.68 barrels (bbls) of crude oil and 0.92 bbls of produced water onto the surrounding pasture. No released fluids were recovered. Maverick reported the release to the New Mexico Oil Conservation Division (NMOCD) on a *Release Notification Form C-141* (Form C-141) on January 19, 2023. The release was assigned Incident Number NAPP2303271574.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

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

Depth to groundwater at the Site is estimated to be between 51 feet and 100 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater well with depth to groundwater data is United States Geological Survey (USGS) well 323307103113601, located

approximately 0.47 miles southwest of the Site. The groundwater well has a reported depth to groundwater of 82.73 feet bgs and a total depth of 115 feet bgs. All wells used for depth to groundwater determination are presented on Figure 1. The referenced well record is included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a intermittent stream, located approximately 2.6 miles east of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area). Site receptors are identified on Figure 1.

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

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

A reclamation requirement of 600 mg/kg chloride and 100 mg/kg TPH was applied to the top 4 feet of the pasture area that was impacted by the release, per 19.15.29.13.D (1) NMAC for the top 4 feet of areas that will be reclaimed following remediation.

SITE ASSESSMENT ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

On January 11, 2023, assessment activities were conducted at the Site to evaluate the release extent based on information provided on the Form C-141 and visible surface staining in the release area. Seven assesment soil samples (SS01 through SS07) were collected within and around the release extent at a depth of 0.25 feet bgs to assess the extent of the release. The soil samples were field screened for volatile aromatic hydrocarbons (VOCs) utilizing a calibrated photoionization detector (PID) and chloride Hach® chloride QuanTab® test strips. The release extent and assessment soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation was completed during the Site visit and a photographic log is included in Appendix B.

The 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 Cardinal Laboratories (Cardinal) in Hobbs, New Mexico, for analysis of the following constituents of concern (COC): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 4500.

Laboratory analytical results for assessment soil samples SS01 through SS03, collected within the release extent, indicated that TPH concentrations exceeded the Site Closure Criteria and reclamation requirements. Laboratory analytical results for assessment soil samples SS04 through SS07, collected around the release extent, indicated that all COC concentrations were compliant with the most stringent Table I Closure Criteria and provided lateral definition of the release. Based on visible staining in the

release area and laboratory analytical results for assessment soil samples SS01 through SS03, excavation activities were warranted.

EXCAVATION ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

Between June 19 and June 20, 2023, Ensolum personnel were at the Site to oversee excavation of impacted soil as indicated by visible staining in the release area and laboratory analytical results for assessment soil samples SS01 through SS03. To direct excavation activities, soil was field screened for VOCs and chloride. Excavation activities were performed utilizing a backhoe and transport vehicles. The excavation was completed to a depth of 4 feet bgs.

Following removal of impacted soil, 5-point composite soil samples were collected every 200 square feet from the floor and sidewalls of the excavation. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples FS01 through FS06 were collected from the floor of the excavation at a depth of 4 feet bgs. Composite soil samples SW01 and SW02 were collected from the sidewalls of the excavation at depths ranging from the ground surface to 4 feet bgs. The excavation soil samples were handled and analyzed following the same procedures as described above. The excavation extent and excavation soil sample locations were mapped utilizing a handheld GPS and are presented on Figure 3.

Laboratory analytical results for excavation soil samples FS01 through FS06, SW01, and SW02 indicated all COC concentrations were compliant with the Site Closure Criteria and reclamation requirements. Laboratory analytical results are summarized on Table 1 and the complete laboratory analytical reports are included as Appendix C.

The excavation measured approximately 1,085 square feet in areal extent. A total of approximately 165 cubic yards of impacted soil was removed during the excavation activities. The impacted soil was transported and properly disposed of at the R360 Disposal Facility located in Hobbs, New Mexico. After completion of confirmation sampling, the excavation was secured with fencing.

CLOSURE REQUEST

Site assessment and excavation activities were conducted at the Site to address the January 10, 2023, release of crude oil and produced water. Laboratory analytical results for the excavation soil samples indicated all COC concentrations were compliant with the most stringent Table I Closure Criteria. Based on the laboratory analytical results, no further remediation is required. Maverick will backfill the excavation with material purchased locally and recontour the Site to match pre-existing conditions.

Excavation of impacted soil has mitigated impacts at this Site. Depth to groundwater has been estimated to be between 51 feet and 100 feet bgs and no sensitive receptors were identified near the release extent. Maverick believes the remedial actions completed are protective of human health, the environment, and groundwater and respectfully requests closure for Incident NAPP2303271574. NMOCD Notifications are included in Appendix D and the final Form C-141 is included in Appendix E.

Maverick Permian, LLC
Closure Request
SEMU Permian Battery


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If you have any questions or comments, please contact Ms. Aimee Cole at (720) 384-7365 or acole@ensolum.com.

Sincerely,
Ensolum, LLC



Kalei Jennings
Senior Scientist



Aimee Cole
Senior Managing Scientist

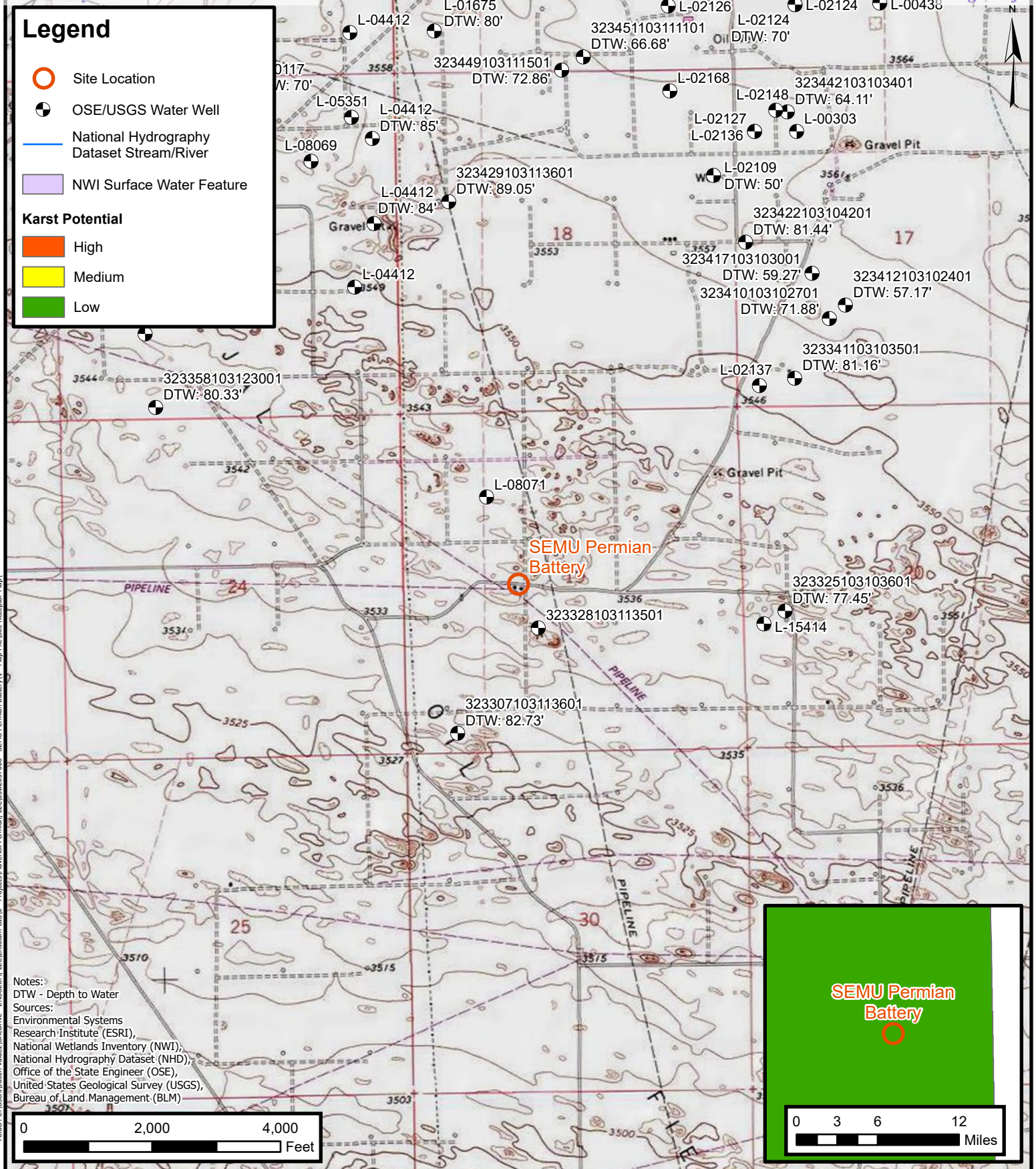
cc: Bryce Wagoner, Maverick Natural Resources
Bureau of Land Management

Appendices:

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



FIGURES

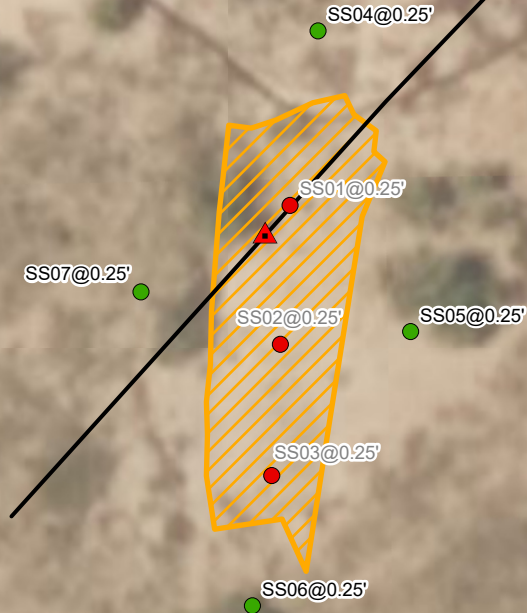


Site Receptor Map
 Maverick Permian, LLC
 SEMU Permian Battery
 Incident Number: NAPP2303271574
 Unit K, Sec 19, T20S, R38E
 Lea County, New Mexico

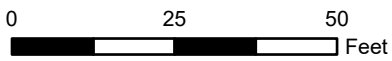
FIGURE
1

Legend

- Assessment Soil Sample in Compliance with Closure Criteria
- Assessment Soil Sample exceeding Closure Criteria
- ▲ Point of Release (POR)
- Utility Line
- ▨ Release Extent



Notes:
Sample ID @ Depth Below Ground Surface.
Samples in bold indicate sample exceeded applicable closure criteria
Samples in grey indicate samples were removed during excavation activities.



Sources: Environmental Systems Research Institute (ESRI)



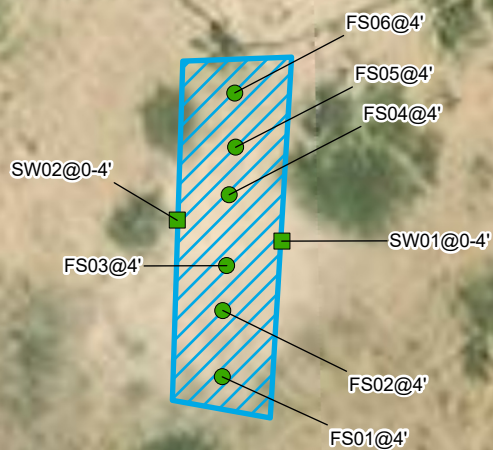
Assessment Soil Sample Locations

Maverick Permian, LLC
SEMU Permian Battery
Incident Number: NAPP2303271574
Unit K, Sec 19, T20S, R38E
Lea County, New Mexico

FIGURE
2

Legend

- Excavation Floor Sample in Compliance with Closure Criteria
- Excavation Sidewall Sample in Compliance with Closure Criteria
- ▨ Excavation Extent



Notes:
Sample ID @ Depth Below Ground Surface.

0 25 50
Feet

Sources: Environmental Systems Research Institute (ESRI)



Excavation Soil Sample Locations

Maverick Permian, LLC
SEMU Permian Battery
Incident Number: NAPP2303271574
Unit K, Sec 19, T20S, R38E
Lea County, New Mexico

FIGURE

3



TABLES



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
 SEMU Permian Battery
 Maverick Permian, 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	10,000
Assessment Soil Samples										
SS01*	01/11/2023	0.25	0.489	71.6	2,040	3,980	<250	6,020	6,020	8.36
SS02*	01/11/2023	0.25	<0.201	12.3	<250	1,050	<250	1,050	1,050	56.7
SS03*	01/11/2023	0.25	0.359	35.2	1,220	1,820	<250	3,040	3,040	<4.97
SS04*	01/11/2023	0.25	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	<4.98
SS05*	01/11/2023	0.25	<0.00199	<0.00398	<49.8	<49.8	<49.8	<49.8	<49.8	45.9
SS06*	01/11/2023	0.25	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	11.9
SS07*	01/11/2023	0.25	<0.00201	<0.00402	<49.8	<49.8	<49.8	<49.8	<49.8	53.7
Excavation Floor Soil Samples										
FS01	06/20/2023	4	<0.050	<0.300	<10.0	50.1	34.6	50.1	84.7	48.0
FS02	06/20/2023	4	<0.050	<0.300	<10.0	48.0	43.1	58.0	91.1	32.0
FS03	06/20/2023	4	<0.050	<0.300	<10.0	20.0	12.3	20.0	32.3	32.0
FS04	06/20/2023	4	<0.050	<0.300	<10.0	17.4	11.7	17.4	29.1	64.0
FS05	06/20/2023	4	<0.050	<0.300	<10.0	37.2	25.6	37.2	62.8	32.0
FS06	06/20/2023	4	<0.050	<0.300	<10.0	45.6	35.5	45.6	81.1	16.0
Excavation Sidewall Soil Samples										
SW01*	06/20/2023	0 - 4	<0.050	<0.300	<10.0	22.9	15.1	22.9	38.0	<16.0
SW02*	06/20/2023	0 - 4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0

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.**Grey** text represents samples that have been excavated

* indicates sample was collected in area to be reclaimed after remediation is complete; reclamation standard in the top 4 feet is 600 mg/kg for chloride and 100 mg/kg for TPH.



APPENDIX A

Referenced Well Records

Output formats

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

Date	Time	Water-level date-time accuracy	Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	Status	Method of measurement	Measuring agency	Source of measurement	Water-level approval status
1954-04-02		D	62610		3454.12	NGVD29	1	Z			A
1954-04-02		D	62611		3455.23	NAVD88	1	Z			A
1954-04-02		D	72019	78.77			1	Z			A
1961-02-28		D	62610		3453.28	NGVD29	1	Z			A
1961-02-28		D	62611		3454.39	NAVD88	1	Z			A
1961-02-28		D	72019	79.61			1	Z			A
1966-03-08		D	62610		3446.84	NGVD29	1	Z			A
1966-03-08		D	62611		3447.95	NAVD88	1	Z			A
1966-03-08		D	72019	86.05			1	Z			A
1968-04-08		D	62610		3451.86	NGVD29	1	Z			A
1968-04-08		D	62611		3452.97	NAVD88	1	Z			A
1968-04-08		D	72019	81.03			1	Z			A
1971-01-28		D	62610		3451.34	NGVD29	1	Z			A
1971-01-28		D	62611		3452.45	NAVD88	1	Z			A
1971-01-28		D	72019	81.55			1	Z			A
1976-01-29		D	62610		3450.16	NGVD29	1	Z			A
1976-01-29		D	62611		3451.27	NAVD88	1	Z			A
1976-01-29		D	72019	82.73			1	Z			A
Released to Imaging: 10/16/2023 8:41:20 AM											



New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
L 04412 S		4	4	2	13	20S	37E	669189	3605491*



Driller License: 46 **Driller Company:** ABBOTT BROTHERS COMPANY

Driller Name: MURRELL ABBOTT

Drill Start Date: 03/07/1967	Drill Finish Date: 03/08/1967	Plug Date:
Log File Date: 03/16/1967	PCW Rcv Date: 05/24/1967	Source: Shallow
Pump Type: TURBIN	Pipe Discharge Size:	Estimated Yield:
Casing Size: 9.63	Depth Well: 155 feet	Depth Water: 84 feet

Water Bearing Stratifications:	Top	Bottom	Description
	84	90	Sandstone/Gravel/Conglomerate
	100	121	Sandstone/Gravel/Conglomerate
	125	145	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	95	155

*UTM location was derived from PLSS - see Help

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

10/10/22 1:15 PM

POINT OF DIVERSION SUMMARY



APPENDIX B

Photographic Log



Photographic Log
Maverick Permian, LLC
SEMU Permian Battery
Incident Number NAPP2303271574



Photograph 1 Date: 01/16/2023
Description: Photo of release area taken during initial site assessment activities.



Photograph 2 Date: 01/16/2023
Description: Photo of release area taken during initial site assessment activities.



Photograph 3 Date: 06/19/2023
Description: Photo of excavation extent taken during excavation activities.



Photograph 4 Date: 06/19/2023
Description: Photo of excavation extent taken during excavation activities.



APPENDIX C

Laboratory Analytical Reports & Chain of Custody Documentation



Environment Testing

1

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10

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13

14

ANALYTICAL REPORT

PREPARED FOR

Attn: Kalei Jennings
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 1/30/2023 9:52:45 AM

JOB DESCRIPTION

SEMU Permian Battery
SDG NUMBER 03D2057068

JOB NUMBER

890-3844-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad**Job Notes**

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

Authorization

Generated
1/30/2023 9:52:45 AM

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

Client: Ensolum
Project/Site: SEMU Permian Battery

Laboratory Job ID: 890-3844-1
SDG: 03D2057068

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Qualifiers

GC VOA

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

GC Semi 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.
F2	MS/MSD RPD exceeds control limits
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

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)

Eurofins Carlsbad

Definitions/Glossary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TNTC	Too Numerous To Count

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

Case Narrative

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Job ID: 890-3844-1

Laboratory: Eurofins Carlsbad

Narrative**Job Narrative
890-3844-1****Receipt**

The samples were received on 1/13/2023 2:13 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 1.0°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: SS01 (890-3844-1), SS02 (890-3844-2) and SS03 (890-3844-3).

GC VOA

Method 8021B: Surrogate recovery for the following sample was outside control limits: SS01 (890-3844-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-44342 and analytical batch 880-44418 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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

GC Semi VOA

Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-44231 and analytical batch 880-44896 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected.

Method 8015MOD_NM: The laboratory control sample duplicate (LCSD) for preparation batch 880-44231 and analytical batch 880-44896 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28). These analytes were biased high in the LCSD but were acceptable in the corresponding LCS; therefore, the data have been reported.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (LCS 880-44231/2-A), (LCSD 880-44231/3-A), (MB 880-44231/1-A), (890-3848-A-1-C MS) and (890-3848-A-1-D MSD). Evidence of matrix interferences is not obvious.

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Client Sample ID: SS01

Lab Sample ID: 890-3844-1

Date Collected: 01/11/23 13:45

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.489		0.198	mg/Kg		01/18/23 16:20	01/19/23 18:39	100
Toluene	14.8		0.198	mg/Kg		01/18/23 16:20	01/19/23 18:39	100
Ethylbenzene	19.2		0.198	mg/Kg		01/18/23 16:20	01/19/23 18:39	100
m-Xylene & p-Xylene	27.3		0.396	mg/Kg		01/18/23 16:20	01/19/23 18:39	100
o-Xylene	9.82		0.198	mg/Kg		01/18/23 16:20	01/19/23 18:39	100
Xylenes, Total	37.1		0.396	mg/Kg		01/18/23 16:20	01/19/23 18:39	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	150	S1+	70 - 130	01/18/23 16:20	01/19/23 18:39	100
1,4-Difluorobenzene (Surr)	106		70 - 130	01/18/23 16:20	01/19/23 18:39	100

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	71.6		0.396	mg/Kg			01/20/23 13:52	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	6020		250	mg/Kg			01/30/23 10:22	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	2040		250	mg/Kg		01/18/23 10:15	01/27/23 23:37	5
Diesel Range Organics (Over C10-C28)	3980	*+ *1	250	mg/Kg		01/18/23 10:15	01/27/23 23:37	5
Oil Range Organics (Over C28-C36)	<250	U	250	mg/Kg		01/18/23 10:15	01/27/23 23:37	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	99		70 - 130	01/18/23 10:15	01/27/23 23:37	5
o-Terphenyl	101		70 - 130	01/18/23 10:15	01/27/23 23:37	5

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.36		5.03	mg/Kg			01/19/23 04:28	1

Client Sample ID: SS02

Lab Sample ID: 890-3844-2

Date Collected: 01/11/23 13:50

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.201	U	0.201	mg/Kg		01/18/23 16:20	01/19/23 19:00	100
Toluene	2.25		0.201	mg/Kg		01/18/23 16:20	01/19/23 19:00	100
Ethylbenzene	3.22		0.201	mg/Kg		01/18/23 16:20	01/19/23 19:00	100
m-Xylene & p-Xylene	5.03		0.402	mg/Kg		01/18/23 16:20	01/19/23 19:00	100
o-Xylene	1.82		0.201	mg/Kg		01/18/23 16:20	01/19/23 19:00	100
Xylenes, Total	6.85		0.402	mg/Kg		01/18/23 16:20	01/19/23 19:00	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		70 - 130	01/18/23 16:20	01/19/23 19:00	100

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Client Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Client Sample ID: SS02

Lab Sample ID: 890-3844-2

Date Collected: 01/11/23 13:50

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	98		70 - 130	01/18/23 16:20	01/19/23 19:00	100

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	12.3		0.402	mg/Kg			01/20/23 13:52	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	1050		250	mg/Kg			01/30/23 10:22	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	<250	U	250	mg/Kg		01/18/23 10:15	01/27/23 23:59	5
Diesel Range Organics (Over C10-C28)	1050	*+ *1	250	mg/Kg		01/18/23 10:15	01/27/23 23:59	5
Oil Range Organics (Over C28-C36)	<250	U	250	mg/Kg		01/18/23 10:15	01/27/23 23:59	5
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	77		70 - 130			01/18/23 10:15	01/27/23 23:59	5
o-Terphenyl	92		70 - 130			01/18/23 10:15	01/27/23 23:59	5

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	56.7		5.00	mg/Kg			01/19/23 04:46	1

Client Sample ID: SS03

Lab Sample ID: 890-3844-3

Date Collected: 01/11/23 13:55

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.359		0.201	mg/Kg		01/19/23 13:17	01/21/23 19:47	100
Toluene	6.85		0.201	mg/Kg		01/19/23 13:17	01/21/23 19:47	100
Ethylbenzene	8.23		0.201	mg/Kg		01/19/23 13:17	01/21/23 19:47	100
m-Xylene & p-Xylene	14.5		0.402	mg/Kg		01/19/23 13:17	01/21/23 19:47	100
o-Xylene	5.29		0.201	mg/Kg		01/19/23 13:17	01/21/23 19:47	100
Xylenes, Total	19.8		0.402	mg/Kg		01/19/23 13:17	01/21/23 19:47	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130	01/19/23 13:17	01/21/23 19:47	100
1,4-Difluorobenzene (Surr)	92		70 - 130	01/19/23 13:17	01/21/23 19:47	100

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	35.2		0.402	mg/Kg			01/23/23 12:52	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	3040		250	mg/Kg			01/30/23 10:22	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Client Sample ID: SS03

Lab Sample ID: 890-3844-3

Date Collected: 01/11/23 13:55

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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	1220		250	mg/Kg		01/18/23 10:15	01/28/23 00:21	5	
Diesel Range Organics (Over C10-C28)	1820	*+ *1	250	mg/Kg		01/18/23 10:15	01/28/23 00:21	5	
Oll Range Organics (Over C28-C36)	<250	U	250	mg/Kg		01/18/23 10:15	01/28/23 00:21	5	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	83		70 - 130			01/18/23 10:15	01/28/23 00:21	5	
o-Terphenyl	91		70 - 130			01/18/23 10:15	01/28/23 00:21	5	

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	<4.97	U	4.97	mg/Kg			01/19/23 04:52	1	

Surrogate Summary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	BFB1	DFBZ1				
		(70-130)	(70-130)				
880-23720-A-61-G MS	Matrix Spike	98	113				
880-23720-A-61-H MSD	Matrix Spike Duplicate	101	112				
880-23861-A-1-A MS	Matrix Spike	113	87				
880-23861-A-1-B MSD	Matrix Spike Duplicate	93	103				
890-3844-1	SS01	150 S1+	106				
890-3844-2	SS02	107	98				
890-3844-3	SS03	83	92				
LCS 880-44290/1-A	Lab Control Sample	89	98				
LCS 880-44342/1-A	Lab Control Sample	96	114				
LCSD 880-44290/2-A	Lab Control Sample Dup	93	102				
LCSD 880-44342/2-A	Lab Control Sample Dup	96	115				
MB 880-44290/5-A	Method Blank	88	97				
MB 880-44340/5-A	Method Blank	97	112				
MB 880-44342/5-A	Method Blank	95	111				
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	OTPH1				
		(70-130)	(70-130)				
890-3844-1	SS01	99	101				
890-3844-2	SS02	77	92				
890-3844-3	SS03	83	91				
890-3848-A-1-C MS	Matrix Spike	56 S1-	53 S1-				
890-3848-A-1-D MSD	Matrix Spike Duplicate	57 S1-	50 S1-				
LCS 880-44231/2-A	Lab Control Sample	141 S1+	154 S1+				
LCSD 880-44231/3-A	Lab Control Sample Dup	136 S1+	135 S1+				
MB 880-44231/1-A	Method Blank	171 S1+	166 S1+				
Surrogate Legend							
1CO = 1-Chlorooctane							
OTPH = o-Terphenyl							

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QC Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-44290/5-A

Matrix: Solid

Analysis Batch: 44311

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 44290

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		01/18/23 16:20	01/19/23 11:20	1
Toluene	<0.00200	U	0.00200	mg/Kg		01/18/23 16:20	01/19/23 11:20	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/18/23 16:20	01/19/23 11:20	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		01/18/23 16:20	01/19/23 11:20	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/18/23 16:20	01/19/23 11:20	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		01/18/23 16:20	01/19/23 11:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		70 - 130	01/18/23 16:20	01/19/23 11:20	1
1,4-Difluorobenzene (Surr)	97		70 - 130	01/18/23 16:20	01/19/23 11:20	1

Lab Sample ID: LCS 880-44290/1-A

Matrix: Solid

Analysis Batch: 44311

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 44290

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1090		mg/Kg		109	70 - 130
Toluene	0.100	0.1012		mg/Kg		101	70 - 130
Ethylbenzene	0.100	0.1080		mg/Kg		108	70 - 130
m-Xylene & p-Xylene	0.200	0.1965		mg/Kg		98	70 - 130
o-Xylene	0.100	0.09984		mg/Kg		100	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: LCSD 880-44290/2-A

Matrix: Solid

Analysis Batch: 44311

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 44290

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1103		mg/Kg		110	70 - 130	1	35
Toluene	0.100	0.1026		mg/Kg		103	70 - 130	1	35
Ethylbenzene	0.100	0.1118		mg/Kg		112	70 - 130	3	35
m-Xylene & p-Xylene	0.200	0.2046		mg/Kg		102	70 - 130	4	35
o-Xylene	0.100	0.1041		mg/Kg		104	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: 880-23861-A-1-A MS

Matrix: Solid

Analysis Batch: 44311

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 44290

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.100	0.07154		mg/Kg		71	70 - 130
Toluene	<0.00201	U	0.100	0.08808		mg/Kg		88	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

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

Lab Sample ID: 880-23861-A-1-A MS

Matrix: Solid

Analysis Batch: 44311

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 44290

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.100	0.1254		mg/Kg		125	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2249		mg/Kg		111	70 - 130
o-Xylene	<0.00201	U	0.100	0.1122		mg/Kg		110	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	87		70 - 130

Lab Sample ID: 880-23861-A-1-B MSD

Matrix: Solid

Analysis Batch: 44311

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 44290

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0990	0.09766		mg/Kg		99	70 - 130	31	35
Toluene	<0.00201	U	0.0990	0.08982		mg/Kg		91	70 - 130	2	35
Ethylbenzene	<0.00201	U	0.0990	0.09844		mg/Kg		99	70 - 130	24	35
m-Xylene & p-Xylene	<0.00402	U	0.198	0.1823		mg/Kg		91	70 - 130	21	35
o-Xylene	<0.00201	U	0.0990	0.09234		mg/Kg		92	70 - 130	19	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: MB 880-44340/5-A

Matrix: Solid

Analysis Batch: 44418

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 44340

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		01/19/23 13:13	01/21/23 00:19	1
Toluene	<0.00200	U	0.00200	mg/Kg		01/19/23 13:13	01/21/23 00:19	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/19/23 13:13	01/21/23 00:19	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		01/19/23 13:13	01/21/23 00:19	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/19/23 13:13	01/21/23 00:19	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		01/19/23 13:13	01/21/23 00:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	01/19/23 13:13	01/21/23 00:19	1
1,4-Difluorobenzene (Surr)	112		70 - 130	01/19/23 13:13	01/21/23 00:19	1

Lab Sample ID: MB 880-44342/5-A

Matrix: Solid

Analysis Batch: 44418

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 44342

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		01/19/23 13:17	01/21/23 11:57	1
Toluene	<0.00200	U	0.00200	mg/Kg		01/19/23 13:17	01/21/23 11:57	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/19/23 13:17	01/21/23 11:57	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		01/19/23 13:17	01/21/23 11:57	1

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QC Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

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

Lab Sample ID: MB 880-44342/5-A

Matrix: Solid

Analysis Batch: 44418

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 44342

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/19/23 13:17	01/21/23 11:57	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		01/19/23 13:17	01/21/23 11:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130	01/19/23 13:17	01/21/23 11:57	1
1,4-Difluorobenzene (Surr)	111		70 - 130	01/19/23 13:17	01/21/23 11:57	1

Lab Sample ID: LCS 880-44342/1-A

Matrix: Solid

Analysis Batch: 44418

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 44342

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09578		mg/Kg		96	70 - 130
Toluene	0.100	0.08907		mg/Kg		89	70 - 130
Ethylbenzene	0.100	0.08538		mg/Kg		85	70 - 130
m-Xylene & p-Xylene	0.200	0.1726		mg/Kg		86	70 - 130
o-Xylene	0.100	0.08413		mg/Kg		84	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	114		70 - 130

Lab Sample ID: LCSD 880-44342/2-A

Matrix: Solid

Analysis Batch: 44418

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 44342

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09760		mg/Kg		98	70 - 130	2	35
Toluene	0.100	0.09010		mg/Kg		90	70 - 130	1	35
Ethylbenzene	0.100	0.08582		mg/Kg		86	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.1730		mg/Kg		86	70 - 130	0	35
o-Xylene	0.100	0.08489		mg/Kg		85	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	115		70 - 130

Lab Sample ID: 880-23720-A-61-G MS

Matrix: Solid

Analysis Batch: 44418

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 44342

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U F2 F1	0.0996	0.06497	F1	mg/Kg		65	70 - 130
Toluene	<0.00202	U F2 F1	0.0996	0.06294	F1	mg/Kg		63	70 - 130
Ethylbenzene	<0.00202	U F2 F1	0.0996	0.06079	F1	mg/Kg		61	70 - 130
m-Xylene & p-Xylene	<0.00404	U F2 F1	0.199	0.1231	F1	mg/Kg		62	70 - 130
o-Xylene	<0.00202	U F2 F1	0.0996	0.06114	F1	mg/Kg		61	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

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

Lab Sample ID: 880-23720-A-61-G MS

Matrix: Solid

Analysis Batch: 44418

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 44342

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	113		70 - 130

Lab Sample ID: 880-23720-A-61-H MSD

Matrix: Solid

Analysis Batch: 44418

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 44342

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U F2 F1	0.0990	0.02872	F2 F1	mg/Kg		29	70 - 130	77	35
Toluene	<0.00202	U F2 F1	0.0990	0.02996	F2 F1	mg/Kg		30	70 - 130	71	35
Ethylbenzene	<0.00202	U F2 F1	0.0990	0.03097	F2 F1	mg/Kg		31	70 - 130	65	35
m-Xylene & p-Xylene	<0.00404	U F2 F1	0.198	0.06516	F2 F1	mg/Kg		33	70 - 130	62	35
o-Xylene	<0.00202	U F2 F1	0.0990	0.03524	F2 F1	mg/Kg		36	70 - 130	54	35

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	112		70 - 130

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

Lab Sample ID: MB 880-44231/1-A

Matrix: Solid

Analysis Batch: 44896

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 44231

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		01/18/23 10:15	01/27/23 11:09	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		01/18/23 10:15	01/27/23 11:09	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		01/18/23 10:15	01/27/23 11:09	1

	MB	MB						
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
1-Chlorooctane	171	S1+	70 - 130	01/18/23 10:15	01/27/23 11:09	1		
o-Terphenyl	166	S1+	70 - 130	01/18/23 10:15	01/27/23 11:09	1		

Lab Sample ID: LCS 880-44231/2-A

Matrix: Solid

Analysis Batch: 44896

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 44231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	1000	771.5		mg/Kg		77	70 - 130		
Diesel Range Organics (Over C10-C28)	1000	1180		mg/Kg		118	70 - 130		

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	141	S1+	70 - 130
o-Terphenyl	154	S1+	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

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

Lab Sample ID: LCSD 880-44231/3-A

Matrix: Solid

Analysis Batch: 44896

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 44231

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	877.8		mg/Kg		88	70 - 130	13	20
Diesel Range Organics (Over C10-C28)	1000	1489	*+ *1	mg/Kg		149	70 - 130	23	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	136	S1+	70 - 130						
o-Terphenyl	135	S1+	70 - 130						

Lab Sample ID: 890-3848-A-1-C MS

Matrix: Solid

Analysis Batch: 44896

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 44231

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U F1 F2	998	1074		mg/Kg		104	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U *+ *1	998	831.0		mg/Kg		83	70 - 130		
Surrogate	MS %Recovery	MS Qualifier	Limits								
1-Chlorooctane	56	S1-	70 - 130								
o-Terphenyl	53	S1-	70 - 130								

Lab Sample ID: 890-3848-A-1-D MSD

Matrix: Solid

Analysis Batch: 44896

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 44231

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 F1 F2	997	512.0	F1 F2	mg/Kg		48	70 - 130	71	20
Diesel Range Organics (Over C10-C28)	<49.9	U *+ *1	997	792.2		mg/Kg		79	70 - 130	5	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	57	S1-	70 - 130								
o-Terphenyl	50	S1-	70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-44195/1-A

Matrix: Solid

Analysis Batch: 44277

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			01/19/23 04:09	1

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QC Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 880-44195/2-A

Matrix: Solid

Analysis Batch: 44277

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	263.7		mg/Kg		105	90 - 110

Lab Sample ID: LCSD 880-44195/3-A

Matrix: Solid

Analysis Batch: 44277

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	263.6		mg/Kg		105	90 - 110	0	20

Lab Sample ID: 890-3844-1 MS

Matrix: Solid

Analysis Batch: 44277

Client Sample ID: SS01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	8.36		252	268.2		mg/Kg		103	90 - 110

Lab Sample ID: 890-3844-1 MSD

Matrix: Solid

Analysis Batch: 44277

Client Sample ID: SS01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	8.36		252	267.2		mg/Kg		103	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

GC VOA

Prep Batch: 44290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3844-1	SS01	Total/NA	Solid	5035	
890-3844-2	SS02	Total/NA	Solid	5035	
MB 880-44290/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-44290/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-44290/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-23861-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
880-23861-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 44311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3844-1	SS01	Total/NA	Solid	8021B	44290
890-3844-2	SS02	Total/NA	Solid	8021B	44290
MB 880-44290/5-A	Method Blank	Total/NA	Solid	8021B	44290
LCS 880-44290/1-A	Lab Control Sample	Total/NA	Solid	8021B	44290
LCSD 880-44290/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	44290
880-23861-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	44290
880-23861-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	44290

Prep Batch: 44340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-44340/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 44342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3844-3	SS03	Total/NA	Solid	5035	
MB 880-44342/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-44342/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-44342/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-23720-A-61-G MS	Matrix Spike	Total/NA	Solid	5035	
880-23720-A-61-H MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 44418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3844-3	SS03	Total/NA	Solid	8021B	44342
MB 880-44340/5-A	Method Blank	Total/NA	Solid	8021B	44340
MB 880-44342/5-A	Method Blank	Total/NA	Solid	8021B	44342
LCS 880-44342/1-A	Lab Control Sample	Total/NA	Solid	8021B	44342
LCSD 880-44342/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	44342
880-23720-A-61-G MS	Matrix Spike	Total/NA	Solid	8021B	44342
880-23720-A-61-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	44342

Analysis Batch: 44470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3844-1	SS01	Total/NA	Solid	Total BTEX	
890-3844-2	SS02	Total/NA	Solid	Total BTEX	
890-3844-3	SS03	Total/NA	Solid	Total BTEX	

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QC Association Summary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

GC Semi VOA

Prep Batch: 44231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3844-1	SS01	Total/NA	Solid	8015NM Prep	
890-3844-2	SS02	Total/NA	Solid	8015NM Prep	
890-3844-3	SS03	Total/NA	Solid	8015NM Prep	
MB 880-44231/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-44231/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-44231/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3848-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3848-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 44896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3844-1	SS01	Total/NA	Solid	8015B NM	44231
890-3844-2	SS02	Total/NA	Solid	8015B NM	44231
890-3844-3	SS03	Total/NA	Solid	8015B NM	44231
MB 880-44231/1-A	Method Blank	Total/NA	Solid	8015B NM	44231
LCS 880-44231/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	44231
LCSD 880-44231/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	44231
890-3848-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	44231
890-3848-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	44231

Analysis Batch: 45008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3844-1	SS01	Total/NA	Solid	8015 NM	
890-3844-2	SS02	Total/NA	Solid	8015 NM	
890-3844-3	SS03	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 44195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3844-1	SS01	Soluble	Solid	DI Leach	
890-3844-2	SS02	Soluble	Solid	DI Leach	
890-3844-3	SS03	Soluble	Solid	DI Leach	
MB 880-44195/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-44195/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-44195/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3844-1 MS	SS01	Soluble	Solid	DI Leach	
890-3844-1 MSD	SS01	Soluble	Solid	DI Leach	

Analysis Batch: 44277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3844-1	SS01	Soluble	Solid	300.0	44195
890-3844-2	SS02	Soluble	Solid	300.0	44195
890-3844-3	SS03	Soluble	Solid	300.0	44195
MB 880-44195/1-A	Method Blank	Soluble	Solid	300.0	44195
LCS 880-44195/2-A	Lab Control Sample	Soluble	Solid	300.0	44195
LCSD 880-44195/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	44195
890-3844-1 MS	SS01	Soluble	Solid	300.0	44195
890-3844-1 MSD	SS01	Soluble	Solid	300.0	44195

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Lab Chronicle

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Client Sample ID: SS01
Date Collected: 01/11/23 13:45
Date Received: 01/13/23 14:13

Lab Sample ID: 890-3844-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	44290	01/18/23 16:20	MNR	EET MID
Total/NA	Analysis	8021B		100	5 mL	5 mL	44311	01/19/23 18:39	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44470	01/20/23 13:52	SM	EET MID
Total/NA	Analysis	8015 NM		1			45008	01/30/23 10:22	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	44231	01/18/23 10:15	DM	EET MID
Total/NA	Analysis	8015B NM		5	1 uL	1 uL	44896	01/27/23 23:37	AJ	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	44195	01/17/23 16:41	KS	EET MID
Soluble	Analysis	300.0		1			44277	01/19/23 04:28	CH	EET MID

Client Sample ID: SS02
Date Collected: 01/11/23 13:50
Date Received: 01/13/23 14:13

Lab Sample ID: 890-3844-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	44290	01/18/23 16:20	MNR	EET MID
Total/NA	Analysis	8021B		100	5 mL	5 mL	44311	01/19/23 19:00	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44470	01/20/23 13:52	SM	EET MID
Total/NA	Analysis	8015 NM		1			45008	01/30/23 10:22	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	44231	01/18/23 10:15	DM	EET MID
Total/NA	Analysis	8015B NM		5	1 uL	1 uL	44896	01/27/23 23:59	AJ	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	44195	01/17/23 16:41	KS	EET MID
Soluble	Analysis	300.0		1			44277	01/19/23 04:46	CH	EET MID

Client Sample ID: SS03
Date Collected: 01/11/23 13:55
Date Received: 01/13/23 14:13

Lab Sample ID: 890-3844-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	44342	01/19/23 13:17	MNR	EET MID
Total/NA	Analysis	8021B		100	5 mL	5 mL	44418	01/21/23 19:47	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44470	01/23/23 12:52	SM	EET MID
Total/NA	Analysis	8015 NM		1			45008	01/30/23 10:22	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	44231	01/18/23 10:15	DM	EET MID
Total/NA	Analysis	8015B NM		5	1 uL	1 uL	44896	01/28/23 00:21	AJ	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	44195	01/17/23 16:41	KS	EET MID
Soluble	Analysis	300.0		1			44277	01/19/23 04:52	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 Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Laboratory: Eurofins Midland

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

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

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 Permian Battery

Job ID: 890-3844-1
SDG: 03D2057068

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3844-1	SS01	Solid	01/11/23 13:45	01/13/23 14:13	0.25'
890-3844-2	SS02	Solid	01/11/23 13:50	01/13/23 14:13	0.25'
890-3844-3	SS03	Solid	01/11/23 13:55	01/13/23 14:13	0.25'

- 1
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- 14

Eurofins Carlsbad

1089 N Canal St.

Carlsbad NM 88220

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

Chain of Custody Record



Environment Testing

1/30/2023

Client Information (Sub Contract Lab)		Sampler		Lab PM Kramer Jessica		Carrier Tracking No(s)		COC No 890-1102 1						
Client Contact: Shipping/Receiving		Phone:		E-Mail Jessica.Kramer@et.eurofinsus.com		State of Origin New Mexico		Page Page 1 of 1						
Company Eurofins Environment Testing South Centr				Accreditations Required (See note) NELAP - Texas				Job # 890-3844-1						
Address 1211 W Florida Ave,		Due Date Requested 1/19/2023		Analysis Requested						Preservation Codes. A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Z other (specify) Other:				
City Midland		TAT Requested (days):												
State Zip: TX, 79701		PO #:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 8015MOD_NM/8015NM_S_Prep (MOD) Full TPH 8015MOD_Calc 300_ORGFM_28D/DI_LEACH Chloride 8021B/5038FP_Calc (MOD) BTEX Total_BTEX_GCV						Total Number of containers				
Phone: 432-704-5440(Tel)														
Email:		WO #:												
Project Name SEMU Permian Battery		Project #: 89000094												
Site		SSOW#:												
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	MATRIX (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)							Special Instructions/Note		
				Preservation Code:										
SS01 (890-3844-1)		1/11/23	13 45 Mountain		Solid		X	X	X	X	X			
SS02 (890-3844-2)		1/11/23	13 50 Mountain		Solid		X	X	X	X	X			
SS03 (890-3844-3)		1/11/23	13 55 Mountain		Solid		X	X	X	X	X			
Note. Since laboratory accreditations are subject to change Eurofins Environment Testing South Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central LLC laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Environment Testing South Central LLC attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central LLC														
Possible Hazard Identification														
Unconfirmed														
Deliverable Requested I II III, IV Other (specify) Primary Deliverable Rank 2														
Special Instructions/QC Requirements														
Empty Kit Relinquished by: Date Time Method of Shipment														
Relinquished by:		Date/Time:		Company		Received by:		Date/Time:		Company				
Relinquished by:		Date/Time:		Company		Received by:		Date/Time:		Company				
Relinquished by:		Date/Time:		Company		Received by:		Date/Time:		Company				
Custody Seals Intact:		Custody Seal No		Cooler Temperature(s) °C and Other Remarks										
Δ Yes Δ No														

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Released to Imaging: 10/16/2023 8:41:20 AM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3844-1

SDG Number: 03D2057068

Login Number: 3844

List Number: 1

Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3844-1

SDG Number: 03D2057068

Login Number: 3844

List Number: 2

Creator: Teel, Brianna

List Source: Eurofins Midland

List Creation: 01/17/23 11:09 AM

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



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kalei Jennings
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 1/30/2023 9:48:01 AM

JOB DESCRIPTION

SEMU Permian Battery
SDG NUMBER 03D2057068


JOB NUMBER

890-3851-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad**Job Notes**

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

Authorization

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Client: Ensolum
Project/Site: SEMU Permian Battery

Laboratory Job ID: 890-3851-1
SDG: 03D2057068

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Definitions/Glossary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Qualifiers

GC VOA

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

GC Semi VOA

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

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 Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Job ID: 890-3851-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-3851-1****Receipt**

The samples were received on 1/13/2023 2:13 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 1.0°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: SS04 (890-3851-1), SS05 (890-3851-2), SS06 (890-3851-3) and SS07 (890-3851-4).

GC VOA

Method 8021B: The matrix spike duplicate (MSD) recoveries for preparation batch 880-44233 and analytical batch 880-44315 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

GC Semi VOA

Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-44232 and analytical batch 880-44899 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: SS05 (890-3851-2), SS06 (890-3851-3), SS07 (890-3851-4), (LCS 880-44232/2-A), (MB 880-44232/1-A), (890-3851-A-1-C MS) and (890-3851-A-1-D MSD). Evidence of matrix interferences is not obvious.

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

HPLC/IC

Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-44195 and analytical batch 880-44277 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 Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Client Sample ID: SS04

Lab Sample ID: 890-3851-1

Date Collected: 01/11/23 14:00

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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		01/18/23 10:19	01/19/23 18:10	1
Toluene	<0.00199	U	0.00199	mg/Kg		01/18/23 10:19	01/19/23 18:10	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		01/18/23 10:19	01/19/23 18:10	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		01/18/23 10:19	01/19/23 18:10	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		01/18/23 10:19	01/19/23 18:10	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		01/18/23 10:19	01/19/23 18:10	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130			01/18/23 10:19	01/19/23 18:10	1
1,4-Difluorobenzene (Surr)	79		70 - 130			01/18/23 10:19	01/19/23 18:10	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			01/20/23 14:02	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			01/30/23 09:56	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		01/18/23 10:17	01/27/23 14:56	1
Diesel Range Organics (Over C10-C28)	<49.9	U F1 F2	49.9	mg/Kg		01/18/23 10:17	01/27/23 14:56	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		01/18/23 10:17	01/27/23 14:56	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	82		70 - 130			01/18/23 10:17	01/27/23 14:56	1
o-Terphenyl	91		70 - 130			01/18/23 10:17	01/27/23 14:56	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<4.98	U	4.98	mg/Kg			01/19/23 06:37	1

Client Sample ID: SS05

Lab Sample ID: 890-3851-2

Date Collected: 01/11/23 14:05

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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		01/18/23 10:19	01/19/23 18:30	1
Toluene	<0.00199	U	0.00199	mg/Kg		01/18/23 10:19	01/19/23 18:30	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		01/18/23 10:19	01/19/23 18:30	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		01/18/23 10:19	01/19/23 18:30	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		01/18/23 10:19	01/19/23 18:30	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		01/18/23 10:19	01/19/23 18:30	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130			01/18/23 10:19	01/19/23 18:30	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Client Sample ID: SS05

Lab Sample ID: 890-3851-2

Date Collected: 01/11/23 14:05

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	70		70 - 130	01/18/23 10:19	01/19/23 18:30	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			01/20/23 14:02	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			01/30/23 09:56	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		01/18/23 10:17	01/27/23 17:55	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		01/18/23 10:17	01/27/23 17:55	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		01/18/23 10:17	01/27/23 17:55	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	64	S1-	70 - 130			01/18/23 10:17	01/27/23 17:55	1
o-Terphenyl	60	S1-	70 - 130			01/18/23 10:17	01/27/23 17:55	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	45.9		4.95	mg/Kg			01/19/23 06:43	1

Client Sample ID: SS06

Lab Sample ID: 890-3851-3

Date Collected: 01/11/23 14:10

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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		01/18/23 10:19	01/19/23 18:51	1
Toluene	<0.00200	U	0.00200	mg/Kg		01/18/23 10:19	01/19/23 18:51	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/18/23 10:19	01/19/23 18:51	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		01/18/23 10:19	01/19/23 18:51	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/18/23 10:19	01/19/23 18:51	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		01/18/23 10:19	01/19/23 18:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130	01/18/23 10:19	01/19/23 18:51	1
1,4-Difluorobenzene (Surr)	75		70 - 130	01/18/23 10:19	01/19/23 18:51	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			01/20/23 14:02	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			01/30/23 09:56	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Client Sample ID: SS06

Lab Sample ID: 890-3851-3

Date Collected: 01/11/23 14:10

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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		01/18/23 10:17	01/27/23 18:17	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		01/18/23 10:17	01/27/23 18:17	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		01/18/23 10:17	01/27/23 18:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	65	S1-	70 - 130			01/18/23 10:17	01/27/23 18:17	1
o-Terphenyl	60	S1-	70 - 130			01/18/23 10:17	01/27/23 18:17	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.9		5.00	mg/Kg			01/19/23 06:49	1

Client Sample ID: SS07

Lab Sample ID: 890-3851-4

Date Collected: 01/11/23 14:15

Matrix: Solid

Date Received: 01/13/23 14:13

Sample Depth: 0.25'

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		01/18/23 10:19	01/19/23 19:11	1
Toluene	<0.00201	U	0.00201	mg/Kg		01/18/23 10:19	01/19/23 19:11	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		01/18/23 10:19	01/19/23 19:11	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		01/18/23 10:19	01/19/23 19:11	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		01/18/23 10:19	01/19/23 19:11	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		01/18/23 10:19	01/19/23 19:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	84		70 - 130			01/18/23 10:19	01/19/23 19:11	1
1,4-Difluorobenzene (Surr)	92		70 - 130			01/18/23 10:19	01/19/23 19:11	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			01/20/23 14:02	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			01/30/23 09:56	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		01/18/23 10:17	01/27/23 18:40	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		01/18/23 10:17	01/27/23 18:40	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		01/18/23 10:17	01/27/23 18:40	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	40	S1-	70 - 130			01/18/23 10:17	01/27/23 18:40	1
o-Terphenyl	35	S1-	70 - 130			01/18/23 10:17	01/27/23 18:40	1

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Client Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Client Sample ID: SS07
Date Collected: 01/11/23 14:15
Date Received: 01/13/23 14:13
Sample Depth: 0.25'

Lab Sample ID: 890-3851-4
Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	53.7		4.99	mg/Kg			01/19/23 06:55	1	

Surrogate Summary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

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)
890-3837-A-1-F MS	Matrix Spike	118	93
890-3837-A-1-G MSD	Matrix Spike Duplicate	125	89
890-3851-1	SS04	100	79
890-3851-2	SS05	90	70
890-3851-3	SS06	95	75
890-3851-4	SS07	84	92
LCS 880-44233/1-A	Lab Control Sample	111	98
LCSD 880-44233/2-A	Lab Control Sample Dup	118	98
MB 880-44233/5-A	Method Blank	86	89
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)
890-3851-1	SS04	82	91
890-3851-1 MS	SS04	33 S1-	29 S1-
890-3851-1 MSD	SS04	63 S1-	60 S1-
890-3851-2	SS05	64 S1-	60 S1-
890-3851-3	SS06	65 S1-	60 S1-
890-3851-4	SS07	40 S1-	35 S1-
LCS 880-44232/2-A	Lab Control Sample	112	131 S1+
LCSD 880-44232/3-A	Lab Control Sample Dup	99	114
MB 880-44232/1-A	Method Blank	138 S1+	171 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-44233/5-A

Matrix: Solid

Analysis Batch: 44315

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 44233

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		01/18/23 10:19	01/19/23 11:18	1
Toluene	<0.00200	U	0.00200	mg/Kg		01/18/23 10:19	01/19/23 11:18	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/18/23 10:19	01/19/23 11:18	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		01/18/23 10:19	01/19/23 11:18	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/18/23 10:19	01/19/23 11:18	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		01/18/23 10:19	01/19/23 11:18	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		70 - 130	01/18/23 10:19	01/19/23 11:18	1
1,4-Difluorobenzene (Surr)	89		70 - 130	01/18/23 10:19	01/19/23 11:18	1

Lab Sample ID: LCS 880-44233/1-A

Matrix: Solid

Analysis Batch: 44315

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 44233

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09302		mg/Kg		93	70 - 130
Toluene	0.100	0.1051		mg/Kg		105	70 - 130
Ethylbenzene	0.100	0.1002		mg/Kg		100	70 - 130
m-Xylene & p-Xylene	0.200	0.2237		mg/Kg		112	70 - 130
o-Xylene	0.100	0.1240		mg/Kg		124	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: LCSD 880-44233/2-A

Matrix: Solid

Analysis Batch: 44315

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 44233

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08899		mg/Kg		89	70 - 130	4	35
Toluene	0.100	0.09908		mg/Kg		99	70 - 130	6	35
Ethylbenzene	0.100	0.09883		mg/Kg		99	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.2179		mg/Kg		109	70 - 130	3	35
o-Xylene	0.100	0.1201		mg/Kg		120	70 - 130	3	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	118		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: 890-3837-A-1-F MS

Matrix: Solid

Analysis Batch: 44315

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 44233

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F1	0.100	0.07169		mg/Kg		72	70 - 130
Toluene	<0.00201	U	0.100	0.08711		mg/Kg		86	70 - 130

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

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

Lab Sample ID: 890-3837-A-1-F MS

Matrix: Solid

Analysis Batch: 44315

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 44233

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.100	0.08720		mg/Kg		87	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1951		mg/Kg		97	70 - 130
o-Xylene	<0.00201	U	0.100	0.1066		mg/Kg		106	70 - 130

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

Lab Sample ID: 890-3837-A-1-G MSD

Matrix: Solid

Analysis Batch: 44315

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 44233

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U F1	0.0990	0.06851	F1	mg/Kg		69	70 - 130	5	35
Toluene	<0.00201	U	0.0990	0.08518		mg/Kg		86	70 - 130	2	35
Ethylbenzene	<0.00201	U	0.0990	0.08703		mg/Kg		88	70 - 130	0	35
m-Xylene & p-Xylene	<0.00402	U	0.198	0.1902		mg/Kg		96	70 - 130	3	35
o-Xylene	<0.00201	U	0.0990	0.1053		mg/Kg		106	70 - 130	1	35

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene (Surr)	125		70 - 130
1,4-Difluorobenzene (Surr)	89		70 - 130

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

Lab Sample ID: MB 880-44232/1-A

Matrix: Solid

Analysis Batch: 44899

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 44232

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		01/18/23 10:17	01/27/23 11:09	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		01/18/23 10:17	01/27/23 11:09	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		01/18/23 10:17	01/27/23 11:09	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	138	S1+	70 - 130	01/18/23 10:17	01/27/23 11:09	1
o-Terphenyl	171	S1+	70 - 130	01/18/23 10:17	01/27/23 11:09	1

Lab Sample ID: LCS 880-44232/2-A

Matrix: Solid

Analysis Batch: 44899

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 44232

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1100		mg/Kg		110	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1256		mg/Kg		126	70 - 130

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

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

Lab Sample ID: LCS 880-44232/2-A
Matrix: Solid
Analysis Batch: 44899

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 44232

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	112		70 - 130
o-Terphenyl	131	S1+	70 - 130

Lab Sample ID: LCSD 880-44232/3-A
Matrix: Solid
Analysis Batch: 44899

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 44232

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1108		mg/Kg		111	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	1000	1205		mg/Kg		121	70 - 130	4	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	99		70 - 130
o-Terphenyl	114		70 - 130

Lab Sample ID: 890-3851-1 MS
Matrix: Solid
Analysis Batch: 44899

Client Sample ID: SS04
Prep Type: Total/NA
Prep Batch: 44232

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	998	786.3		mg/Kg		75	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U F1 F2	998	436.4	F1	mg/Kg		40	70 - 130		

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	33	S1-	70 - 130
o-Terphenyl	29	S1-	70 - 130

Lab Sample ID: 890-3851-1 MSD
Matrix: Solid
Analysis Batch: 44899

Client Sample ID: SS04
Prep Type: Total/NA
Prep Batch: 44232

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	997	817.0		mg/Kg		79	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<49.9	U F1 F2	997	872.1	F2	mg/Kg		83	70 - 130	67	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	63	S1-	70 - 130
o-Terphenyl	60	S1-	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-44195/1-A

Matrix: Solid

Analysis Batch: 44277

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			01/19/23 04:09	1

Lab Sample ID: LCS 880-44195/2-A

Matrix: Solid

Analysis Batch: 44277

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	263.7		mg/Kg		105	90 - 110

Lab Sample ID: LCSD 880-44195/3-A

Matrix: Solid

Analysis Batch: 44277

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	263.6		mg/Kg		105	90 - 110	0	20

Lab Sample ID: 890-3850-A-3-B MS

Matrix: Solid

Analysis Batch: 44277

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	52.4	F1	250	268.9	F1	mg/Kg		87	90 - 110

Lab Sample ID: 890-3850-A-3-C MSD

Matrix: Solid

Analysis Batch: 44277

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	52.4	F1	250	266.6	F1	mg/Kg		86	90 - 110	1	20

QC Association Summary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

GC VOA

Prep Batch: 44233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3851-1	SS04	Total/NA	Solid	5035	
890-3851-2	SS05	Total/NA	Solid	5035	
890-3851-3	SS06	Total/NA	Solid	5035	
890-3851-4	SS07	Total/NA	Solid	5035	
MB 880-44233/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-44233/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-44233/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3837-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	
890-3837-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 44315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3851-1	SS04	Total/NA	Solid	8021B	44233
890-3851-2	SS05	Total/NA	Solid	8021B	44233
890-3851-3	SS06	Total/NA	Solid	8021B	44233
890-3851-4	SS07	Total/NA	Solid	8021B	44233
MB 880-44233/5-A	Method Blank	Total/NA	Solid	8021B	44233
LCS 880-44233/1-A	Lab Control Sample	Total/NA	Solid	8021B	44233
LCSD 880-44233/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	44233
890-3837-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	44233
890-3837-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	44233

Analysis Batch: 44471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3851-1	SS04	Total/NA	Solid	Total BTEX	
890-3851-2	SS05	Total/NA	Solid	Total BTEX	
890-3851-3	SS06	Total/NA	Solid	Total BTEX	
890-3851-4	SS07	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 44232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3851-1	SS04	Total/NA	Solid	8015NM Prep	
890-3851-2	SS05	Total/NA	Solid	8015NM Prep	
890-3851-3	SS06	Total/NA	Solid	8015NM Prep	
890-3851-4	SS07	Total/NA	Solid	8015NM Prep	
MB 880-44232/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-44232/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-44232/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3851-1 MS	SS04	Total/NA	Solid	8015NM Prep	
890-3851-1 MSD	SS04	Total/NA	Solid	8015NM Prep	

Analysis Batch: 44899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3851-1	SS04	Total/NA	Solid	8015B NM	44232
890-3851-2	SS05	Total/NA	Solid	8015B NM	44232
890-3851-3	SS06	Total/NA	Solid	8015B NM	44232
890-3851-4	SS07	Total/NA	Solid	8015B NM	44232
MB 880-44232/1-A	Method Blank	Total/NA	Solid	8015B NM	44232
LCS 880-44232/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	44232

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QC Association Summary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

GC Semi VOA (Continued)

Analysis Batch: 44899 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-44232/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	44232
890-3851-1 MS	SS04	Total/NA	Solid	8015B NM	44232
890-3851-1 MSD	SS04	Total/NA	Solid	8015B NM	44232

Analysis Batch: 44994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3851-1	SS04	Total/NA	Solid	8015 NM	
890-3851-2	SS05	Total/NA	Solid	8015 NM	
890-3851-3	SS06	Total/NA	Solid	8015 NM	
890-3851-4	SS07	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 44195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3851-1	SS04	Soluble	Solid	DI Leach	
890-3851-2	SS05	Soluble	Solid	DI Leach	
890-3851-3	SS06	Soluble	Solid	DI Leach	
890-3851-4	SS07	Soluble	Solid	DI Leach	
MB 880-44195/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-44195/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-44195/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3850-A-3-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3850-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 44277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3851-1	SS04	Soluble	Solid	300.0	44195
890-3851-2	SS05	Soluble	Solid	300.0	44195
890-3851-3	SS06	Soluble	Solid	300.0	44195
890-3851-4	SS07	Soluble	Solid	300.0	44195
MB 880-44195/1-A	Method Blank	Soluble	Solid	300.0	44195
LCS 880-44195/2-A	Lab Control Sample	Soluble	Solid	300.0	44195
LCSD 880-44195/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	44195
890-3850-A-3-B MS	Matrix Spike	Soluble	Solid	300.0	44195
890-3850-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	44195

Lab Chronicle

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Client Sample ID: SS04

Lab Sample ID: 890-3851-1

Date Collected: 01/11/23 14:00

Matrix: Solid

Date Received: 01/13/23 14:13

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	44233	01/18/23 10:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	44315	01/19/23 18:10	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44471	01/20/23 14:02	SM	EET MID
Total/NA	Analysis	8015 NM		1			44994	01/30/23 09:56	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	44232	01/18/23 10:17	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	44899	01/27/23 14:56	AJ	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	44195	01/17/23 16:41	KS	EET MID
Soluble	Analysis	300.0		1			44277	01/19/23 06:37	CH	EET MID

Client Sample ID: SS05

Lab Sample ID: 890-3851-2

Date Collected: 01/11/23 14:05

Matrix: Solid

Date Received: 01/13/23 14:13

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	44233	01/18/23 10:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	44315	01/19/23 18:30	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44471	01/20/23 14:02	SM	EET MID
Total/NA	Analysis	8015 NM		1			44994	01/30/23 09:56	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	44232	01/18/23 10:17	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	44899	01/27/23 17:55	AJ	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	44195	01/17/23 16:41	KS	EET MID
Soluble	Analysis	300.0		1			44277	01/19/23 06:43	CH	EET MID

Client Sample ID: SS06

Lab Sample ID: 890-3851-3

Date Collected: 01/11/23 14:10

Matrix: Solid

Date Received: 01/13/23 14:13

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	44233	01/18/23 10:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	44315	01/19/23 18:51	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44471	01/20/23 14:02	SM	EET MID
Total/NA	Analysis	8015 NM		1			44994	01/30/23 09:56	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	44232	01/18/23 10:17	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	44899	01/27/23 18:17	AJ	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	44195	01/17/23 16:41	KS	EET MID
Soluble	Analysis	300.0		1			44277	01/19/23 06:49	CH	EET MID

Client Sample ID: SS07

Lab Sample ID: 890-3851-4

Date Collected: 01/11/23 14:15

Matrix: Solid

Date Received: 01/13/23 14:13

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	44233	01/18/23 10:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	44315	01/19/23 19:11	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44471	01/20/23 14:02	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Client Sample ID: SS07

Lab Sample ID: 890-3851-4

Date Collected: 01/11/23 14:15

Matrix: Solid

Date Received: 01/13/23 14:13

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			44994	01/30/23 09:56	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	44232	01/18/23 10:17	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	44899	01/27/23 18:40	AJ	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	44195	01/17/23 16:41	KS	EET MID
Soluble	Analysis	300.0		1			44277	01/19/23 06:55	CH	EET MID

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

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Accreditation/Certification Summary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: SEMU Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

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 Permian Battery

Job ID: 890-3851-1
SDG: 03D2057068

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3851-1	SS04	Solid	01/11/23 14:00	01/13/23 14:13	0.25'
890-3851-2	SS05	Solid	01/11/23 14:05	01/13/23 14:13	0.25'
890-3851-3	SS06	Solid	01/11/23 14:10	01/13/23 14:13	0.25'
890-3851-4	SS07	Solid	01/11/23 14:15	01/13/23 14:13	0.25'

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- 11
- 12
- 13
- 14

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

Chain of Custody Record



Environment Testing

1/30/2023

[illegible]

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3851-1

SDG Number: 03D2057068

Login Number: 3851

List Number: 1

Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3851-1

SDG Number: 03D2057068

Login Number: 3851

List Number: 2

Creator: Teel, Brianna

List Source: Eurofins Midland

List Creation: 01/17/23 12:39 PM

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



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

June 27, 2023

KALEI JENNINGS

ENSOLUM, LLC

705 W WADLEY AVE.

MIDLAND, TX 79705

RE: SEMU PERMIAN

Enclosed are the results of analyses for samples received by the laboratory on 06/23/23 9:29.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike Snyder", is written in a cursive style.

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

ENSOLUM, LLC
KALEI JENNINGS
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received: 06/23/2023
Reported: 06/27/2023
Project Name: SEMU PERMIAN
Project Number: 03D2057068
Project Location: 32.5584,-103.1906

Sampling Date: 06/20/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: FS 01 4' (H233250-01)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/23/2023	ND	2.28	114	2.00	2.09	
Toluene*	<0.050	0.050	06/23/2023	ND	2.23	112	2.00	2.59	
Ethylbenzene*	<0.050	0.050	06/23/2023	ND	2.11	105	2.00	1.07	
Total Xylenes*	<0.150	0.150	06/23/2023	ND	6.48	108	6.00	0.241	
Total BTEX	<0.300	0.300	06/23/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/23/2023	ND	400	100	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	171	85.5	200	2.59	
DRO >C10-C28*	50.1	10.0	06/23/2023	ND	173	86.6	200	3.77	
EXT DRO >C28-C36	34.6	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane 110 % 48.2-134

Surrogate: 1-Chlorooctadecane 126 % 49.1-148

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*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

ENSOLUM, LLC
KALEI JENNINGS
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received: 06/23/2023
Reported: 06/27/2023
Project Name: SEMU PERMIAN
Project Number: 03D2057068
Project Location: 32.5584,-103.1906

Sampling Date: 06/20/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: FS 02 4' (H233250-02)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/23/2023	ND	2.28	114	2.00	2.09	
Toluene*	<0.050	0.050	06/23/2023	ND	2.23	112	2.00	2.59	
Ethylbenzene*	<0.050	0.050	06/23/2023	ND	2.11	105	2.00	1.07	
Total Xylenes*	<0.150	0.150	06/23/2023	ND	6.48	108	6.00	0.241	
Total BTEX	<0.300	0.300	06/23/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/23/2023	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	171	85.5	200	2.59	
DRO >C10-C28*	48.0	10.0	06/23/2023	ND	173	86.6	200	3.77	
EXT DRO >C28-C36	43.1	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane 105 % 48.2-134

Surrogate: 1-Chlorooctadecane 122 % 49.1-148

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM, LLC
KALEI JENNINGS
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received: 06/23/2023
Reported: 06/27/2023
Project Name: SEMU PERMIAN
Project Number: 03D2057068
Project Location: 32.5584,-103.1906

Sampling Date: 06/20/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: FS 03 4' (H233250-03)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/23/2023	ND	2.28	114	2.00	2.09	
Toluene*	<0.050	0.050	06/23/2023	ND	2.23	112	2.00	2.59	
Ethylbenzene*	<0.050	0.050	06/23/2023	ND	2.11	105	2.00	1.07	
Total Xylenes*	<0.150	0.150	06/23/2023	ND	6.48	108	6.00	0.241	
Total BTEx	<0.300	0.300	06/23/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	06/23/2023	ND	400	100	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	171	85.5	200	2.59	
DRO >C10-C28*	20.0	10.0	06/23/2023	ND	173	86.6	200	3.77	
EXT DRO >C28-C36	12.3	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane 105 % 48.2-134

Surrogate: 1-Chlorooctadecane 136 % 49.1-148

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM, LLC
KALEI JENNINGS
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received: 06/23/2023
Reported: 06/27/2023
Project Name: SEMU PERMIAN
Project Number: 03D2057068
Project Location: 32.5584,-103.1906

Sampling Date: 06/20/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: FS 04 4' (H233250-04)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/23/2023	ND	2.28	114	2.00	2.09	
Toluene*	<0.050	0.050	06/23/2023	ND	2.23	112	2.00	2.59	
Ethylbenzene*	<0.050	0.050	06/23/2023	ND	2.11	105	2.00	1.07	
Total Xylenes*	<0.150	0.150	06/23/2023	ND	6.48	108	6.00	0.241	
Total BTEX	<0.300	0.300	06/23/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	06/23/2023	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/24/2023	ND	171	85.5	200	2.59	
DRO >C10-C28*	17.4	10.0	06/24/2023	ND	173	86.6	200	3.77	
EXT DRO >C28-C36	11.7	10.0	06/24/2023	ND					

Surrogate: 1-Chlorooctane 105 % 48.2-134

Surrogate: 1-Chlorooctadecane 118 % 49.1-148

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM, LLC
KALEI JENNINGS
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received: 06/23/2023
Reported: 06/27/2023
Project Name: SEMU PERMIAN
Project Number: 03D2057068
Project Location: 32.5584,-103.1906

Sampling Date: 06/20/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: FS 05 4' (H233250-05)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/23/2023	ND	2.28	114	2.00	2.09	
Toluene*	<0.050	0.050	06/23/2023	ND	2.23	112	2.00	2.59	
Ethylbenzene*	<0.050	0.050	06/23/2023	ND	2.11	105	2.00	1.07	
Total Xylenes*	<0.150	0.150	06/23/2023	ND	6.48	108	6.00	0.241	
Total BTEx	<0.300	0.300	06/23/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/23/2023	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/24/2023	ND	171	85.5	200	2.59	
DRO >C10-C28*	37.2	10.0	06/24/2023	ND	173	86.6	200	3.77	
EXT DRO >C28-C36	25.6	10.0	06/24/2023	ND					

Surrogate: 1-Chlorooctane 116 % 48.2-134

Surrogate: 1-Chlorooctadecane 137 % 49.1-148

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

ENSOLUM, LLC
KALEI JENNINGS
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received: 06/23/2023
Reported: 06/27/2023
Project Name: SEMU PERMIAN
Project Number: 03D2057068
Project Location: 32.5584,-103.1906

Sampling Date: 06/20/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: FS 06 4' (H233250-06)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/23/2023	ND	2.28	114	2.00	2.09	
Toluene*	<0.050	0.050	06/23/2023	ND	2.23	112	2.00	2.59	
Ethylbenzene*	<0.050	0.050	06/23/2023	ND	2.11	105	2.00	1.07	
Total Xylenes*	<0.150	0.150	06/23/2023	ND	6.48	108	6.00	0.241	
Total BTX	<0.300	0.300	06/23/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	06/23/2023	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/24/2023	ND	171	85.5	200	2.59	
DRO >C10-C28*	45.6	10.0	06/24/2023	ND	173	86.6	200	3.77	
EXT DRO >C28-C36	35.5	10.0	06/24/2023	ND					

Surrogate: 1-Chlorooctane 104 % 48.2-134

Surrogate: 1-Chlorooctadecane 118 % 49.1-148

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM, LLC
KALEI JENNINGS
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received: 06/23/2023
Reported: 06/27/2023
Project Name: SEMU PERMIAN
Project Number: 03D2057068
Project Location: 32.5584,-103.1906

Sampling Date: 06/20/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SW 01 0-4' (H233250-07)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/23/2023	ND	2.28	114	2.00	2.09	
Toluene*	<0.050	0.050	06/23/2023	ND	2.23	112	2.00	2.59	
Ethylbenzene*	<0.050	0.050	06/23/2023	ND	2.11	105	2.00	1.07	
Total Xylenes*	<0.150	0.150	06/23/2023	ND	6.48	108	6.00	0.241	
Total BTEx	<0.300	0.300	06/23/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/23/2023	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/24/2023	ND	171	85.5	200	2.59	
DRO >C10-C28*	22.9	10.0	06/24/2023	ND	173	86.6	200	3.77	
EXT DRO >C28-C36	15.1	10.0	06/24/2023	ND					

Surrogate: 1-Chlorooctane 106 % 48.2-134

Surrogate: 1-Chlorooctadecane 125 % 49.1-148

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

ENSOLUM, LLC
KALEI JENNINGS
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received: 06/23/2023
Reported: 06/27/2023
Project Name: SEMU PERMIAN
Project Number: 03D2057068
Project Location: 32.5584,-103.1906

Sampling Date: 06/20/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Shalyn Rodriguez

Sample ID: SW 02 0-4' (H233250-08)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/23/2023	ND	2.28	114	2.00	2.09	
Toluene*	<0.050	0.050	06/23/2023	ND	2.23	112	2.00	2.59	
Ethylbenzene*	<0.050	0.050	06/23/2023	ND	2.11	105	2.00	1.07	
Total Xylenes*	<0.150	0.150	06/23/2023	ND	6.48	108	6.00	0.241	
Total BTX	<0.300	0.300	06/23/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/23/2023	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/23/2023	ND	173	86.4	200	0.328	
DRO >C10-C28*	<10.0	10.0	06/23/2023	ND	163	81.6	200	0.0809	
EXT DRO >C28-C36	<10.0	10.0	06/23/2023	ND					

Surrogate: 1-Chlorooctane 107 % 48.2-134

Surrogate: 1-Chlorooctadecane 105 % 49.1-148

Cardinal Laboratories

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

A handwritten signature in black ink, appearing to read "Mike Snyder".

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: <i>Case Dittie</i>		Date: <i>6/22/23</i>	Received By: <i>Mealey</i>		Verbal Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #:	
		Time: <i>1607</i>			All Results are emailed. Please provide Email address: <i>kjenning@encolum.com</i>	
Relinquished By: <i>Mealey</i>		Date: <i>6/23/23</i>	Received By: <i>Brookmeyer</i>		REMARKS: <i>* Customer changed to 4500</i>	
		Time: <i>0729</i>			<i>6/23/23</i>	
Delivered By: (Circle One)	Observed Temp. °C <i>0.4</i>	Sample Condition	CHECKED BY:	Turnaround Time:	Standard	Bacteria (only)
Sampler - UPS - Bus - Other:	Corrected Temp. °C <i>-0.2</i>	Cool <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	(Initials) <i>SR</i>		<input checked="" type="checkbox"/> Rush	Cool <input type="checkbox"/> Yes <input type="checkbox"/> No Intact <input type="checkbox"/> Yes <input type="checkbox"/> No
				Thermometer ID #113	Sample Condition	
				Correction Factor -0.5°C	Observed Temp. °C Corrected Temp. °C	

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com



APPENDIX D

NMOCD Notifications

From: [Nobui, Jennifer, EMNRD](#)
To: [Kalei Jennings](#)
Cc: [Bratcher, Michael, EMNRD](#); [Harimon, Jocelyn, EMNRD](#); [Hamlet, Robert, EMNRD](#)
Subject: FW: [EXTERNAL] Maverick Permian- Extension Request- SEMU Permian Battery (Incident Number NAPP2303271574)
Date: Wednesday, April 19, 2023 1:17:32 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

[**EXTERNAL EMAIL**]

Hello Kalei

OCD approves your 90-day extension request to July 31, 2023 to submit a remediation plan or closure report. 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: Kalei Jennings <kjennings@ensolum.com>
Sent: Monday, April 10, 2023 8:54 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Subject: [EXTERNAL] Maverick Permian- Extension Request- SEMU Permian Battery (Incident Number NAPP2303271574)

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

To Whom It May Concern,

SEMU Permian Battery (Incident Number NAPP2303271574)

Maverick Permian, LLC (Maverick) is requesting an extension for the current deadline of April 10, 2023, for submitting a report required in 19.15.29.12.B.(1) NMAC detailing remedial actions at the SEMU Permian Battery (Incident Number NAPP2303271574). On January 10, 2023, corrosion on a flowline caused a produced water and crude oil release onto the pasture at the Site. Initial site assessment activities have been completed. Based on the most recent field screening results, it has been determined that additional excavation activities are warranted. Pending field findings and analytical results, further excavation or other remedial mitigation(s) may be warranted. To complete additional sampling activities, excavate additional impacts if identified, and submit a remediation work plan or closure report, Maverick requests a 90-day extension of this deadline until July 9, 2023.

Thank you,



Kalei Jennings

Senior Scientist

817-683-2503

Ensolum, LLC





APPENDIX E

Final C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural
Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAPP2303271574
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Maverick Permian, LLC	OGRID: 331199
Contact Name: Bryce Wagoner	Contact Telephone: 928-241-1862
Contact email: Bryce.Wagoner@mavresources.com	Incident # (assigned by OCD) NAPP2303271574
Contact mailing address: 1410 NW County Road Hobbs, NM 88240	

Location of Release Source

Latitude 32.5584 Longitude -103.1906
(NAD 83 in decimal degrees to 5 decimal places)

Site Name SEMU Permian Battery	Site Type
Date Release Discovered January 10, 2023	API# (if applicable) 30-205-26334

Unit Letter	Section	Township	Range	County
K	19	20 S	38 E	Lea

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

Nature and Volume of Release

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

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 3.68 bbls	Volume Recovered (bbls) 0
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 0.92 bbls	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input checked="" 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)

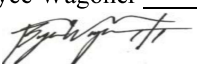
Cause of Release
The release was caused by internal corrosion on a flow line. The release occurred off pad. The source of the release has been stopped and the impacted area has been secured.

Incident ID	NAPP2303271574
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 checked="" 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 checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.
Printed Name: <u>Bryce Wagoner</u> Title: <u>Permian HSE Specialist II</u> Signature: <u></u> Date: <u>1/19/2023</u> email: <u>Bryce.Wagoner@mavresources.com</u> Telephone: <u>928-241-1862</u>
<u>OCD Only</u> Received by: <u>Jocelyn Harimon</u> Date: <u>02/02/2023</u>

Pooled Fluids on the Surface										
	Length (ft.)	Width (ft.)	Depth (in)	# of Boundaries *edges of pool where depth is 0. don't count shared boundaries	Oil-Water Ratio (%)	Pooled Area (ft ²)	Estimated Average Depth (ft.)	Pooled Volume (bbl.)	Volume of Oil in Subsurface (bbl.)	Volume of Water in Subsurface (bbl.)
Rectangle A						0.0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Rectangle B						0.0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Rectangle C						0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Rectangle D						0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Rectangle E						0.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Total Volume (bbls):								0.00	0.00	0.00

Subsurface Fluids										
	Length (ft.)	Width (ft.)	Depth (in.)	Saturation (%) *10% in consolidated sediments after rain to 50% in sand with no precipitation	Oil-Water Ratio (%)	Area (ft ²)	Volume (bbl.)	Estimated Volume in Subsurface (bbl.)	Volume of Oil in Subsurface (bbl.)	Volume of Water in Subsurface (bbl.)
Rectangle A	38.0	25.0	2.0	0.1	0.80	950.0	28.2	2.8	2.25	0.6
Rectangle B	43.0	28.0	1.0	0.1	0.80	1204.0	17.9	1.8	1.43	0.4
Rectangle C						0.0	0.0	0.0	0.00	0.0
Rectangle D						0.0	0.0	0.0	0.00	0.0
Rectangle E						0.0	0.0	0.0	0.00	0.0
Rectangle F						0.0	0.0	0.0	0.00	0.0
Rectangle G						0.0	0.0	0.0	0.00	0.0
Rectangle H						0.0	0.0	0.0	0.00	0.0
Rectangle I						0.0	0.0	0.0	0.00	0.0
Rectangle J						0.0	0.0	0.0	0.00	0.0
Total Volume (bbls):								4.60	3.68	0.92

TOTAL RELEASE VOLUME (bbls):	4.6
------------------------------	-----

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 181859

CONDITIONS

Operator: Maverick Permian LLC 1111 Bagby Street Suite 1600 Houston, TX 77002	OGRID: 331199
	Action Number: 181859
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	2/2/2023

Incident ID	NAPP2303271574
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>51-100</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input 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.

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2303271574
District RP	
Facility ID	
Application ID	

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

Printed Name: Bryce Wagoner Title: Permian HSE Specialist IISignature:  Date: 07/20/2023email: Bryce.Wagoner@mavresources.com Telephone: 928-241-1862**OCD Only**Received by: Shelly Wells Date: 7/20/2023

Incident ID	NAPP2303271574
District RP	
Facility ID	
Application ID	

Closure

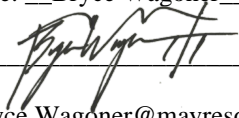
The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled 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: 07/20/2023

email: Bryce.Wagoner@mavresources.com Telephone: 928-241-1862

OCD Only

Received by: Shelly Wells Date: 7/20/2023

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

Closure Approved by: Nelson Velez Date: 10/16/2023

Printed Name: Nelson Velez Title: Environmental Specialist – Adv

Operator did not meet 19.15.29.12D (1a) NMAC. Forbearance given on 09/27/2023 (App ID #: 236326). Release resolved.

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 242773

CONDITIONS

Operator: Maverick Permian LLC 1000 Main Street, Suite 2900 Houston, TX 77002	OGRID: 331199
	Action Number: 242773
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Operator did not meet 19.15.29.12D (1a) NMAC. Forbearance given on 09/27/2023 (App ID #: 236326). Release resolved.	10/16/2023