



March 31, 2024

New Mexico Energy Minerals and Natural Resources Department

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

**Re: Deferral Request
Blueberry Hill Fee CTB
Incident Number nAPP2403642782
Lea County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of Marathon Oil Permian LLC (Marathon), has prepared this *Deferral Request* to document assessment and soil sampling activities at the Blueberry Hill Fee CTB (Site) in Unit G, Section 19, Township 24 South, Range 35 East, in Lea County, New Mexico (Figure 1). The Site (32.20364735° N, 103.402411° W) is associated with oil and gas exploration and production operations on Private Land.

The purpose of the Site assessment and soil sampling activities was to assess for the presence or absence of impacts to soil following a release of produced water within a lined containment at the Site. Based on field observations, field screening activities, and soil sample laboratory analytical results, Marathon is submitting this *Deferral Request*, describing Site assessment and delineation activities that have occurred and requesting deferral of final remediation for Incident Number nAPP2403642782 until the Site is reconstructed and/or the well pad is abandoned.

BACKGROUND

On February 4, 2024, a recirculating pump packing malfunctioned, resulting in the release of approximately 20 barrels (bbls) of produced water into the lined tank battery containment. A vacuum truck was immediately dispatched to the Site to recover free-standing fluids; all 20 bbls of released produced water were recovered from within the lined containment. Marathon reported the release to the New Mexico Oil Conservation Division (NMOCD) via web portal on February 5, 2024, and the release was assigned Incident Number nAPP2403642782. A 48-hour advance notice of liner inspection was provided via web portal to the NMOCD on February 9, 2024, and a liner integrity inspection was conducted by Ensolum personnel following fluid recovery. Upon inspection, the liner was determined to be insufficient.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

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

Depth to groundwater at the Site is estimated to be 180 feet below ground surface (bgs) based on groundwater depth measurement of a nearby water well. On January 18, 2023, a soil boring (New Mexico Office of the State Engineer (NMOSE file number C-04682 POD1) was drilled nearly 1.21 miles southwest of the Site. Soil boring C-04682 was drilled to a depth of 290 feet bgs. Depth to groundwater was confirmed at 180 feet bgs as indicated on the NMOSE *Point of Diversion Summary* form. The Well Record and Log is included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is an intermittent dry wash, located approximately 962 feet southwest of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area). Site receptors are identified on Figure 1.

Based on the results of the Site Characterization, the following NMOCD Table 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): 100 mg/kg
- Chloride: 600 mg/kg

SITE ASSESSMENT ACTIVITIES

On February 14, 2024, Ensolum personnel visited the Site to conduct a liner integrity inspection and to complete lateral delineation sampling outside of the lined secondary containment. Four lateral delineation soil samples (SS01 through SS04) were collected at ground surface around each side of the separator containment. The soil samples were field screened for TPH utilizing a PetroFLAG® Hydrocarbon Test Kit and chloride using the MOHR method titration. The soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted in Figure 2. Photographic documentation was completed during the Site visit and a photographic log is included as Appendix B. Four holes were identified during the liner inspection, and it was determined that further delineation sampling beneath the containment liner would be necessary.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to Envirotech Analytical Laboratory (Envirotech) in Farmington, New Mexico, for analysis of the following chemicals of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following Standard Method SM4500.

DELINEATION ACTIVITIES

Ensolum returned to the Site on February 26, 2024, to conduct delineation activities to assess for the presence or absence of impacts to soil beneath the lined secondary containment. The liner was found to be insufficient during the February 14, 2024, inspection and as such, four boreholes, (BH01 through BH04), were advanced in the general vicinity of the holes in the liner. The boreholes were advanced via hand auger to a terminal depth of 2 feet bgs in boreholes BH01 through BH03 and to a maximum depth

of 1.5 feet bgs in borehole BH04. Sols from the boreholes was field screened for TPH and chloride and samples were handled and analyzed as previously described. Field screening results and observations from the boreholes were logged on lithologic/soil sampling logs, which are included in Appendix C. Discrete delineation soil samples were collected at each foot from BH01 through BH03 at 0.5 feet bgs to 2 feet bgs and from BH04 at 0.5 feet to 1.5 feet bgs for laboratory analysis.

Ensolum personnel returned to the Site on March 11, 2024, to recollect lateral delineation soil sample SS01, which exceeded the Site Closure Criteria due to localized surface contamination. Lateral delineation soil sample SS01A was collected at ground surface and submitted for laboratory analysis.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for assessment soil samples (SS01 through SS04), collected around the release extent, indicated all COC concentrations were compliant with Site Closure Criteria except for SS01, which was recollected. Laboratory analytical results for the vertical delineation soil samples collected from borehole BH01 and BH04, indicated TPH and chloride concentrations exceeded the Site Closure Criteria at 0.5 feet bgs, directly beneath the holes in the liner. Boreholes BH02 and BH03 indicated all COC concentrations were compliant with the Closure Criteria at depths ranging from 0.5 feet bgs to 2 feet bgs. Lateral delineation soil sample SS01A was compliant with the Site Closure Criteria at 0.5 feet bgs. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Appendix D.

DEFERRAL REQUEST

Marathon is requesting deferral of final remediation due to the presence of active production equipment and surface pipelines within the lined containment. Impacted soil is limited to the area immediately beneath the lined containment and active production equipment, where remediation would require a major facility deconstruction.

Impacted soil remaining in place beneath the liner, which is delineated vertically by boreholes BH01, collected to a depth of 2 feet bgs and BH04 collected to a depth of 1.5 feet bgs, and laterally by surface soil samples SS01A through SS04, collected at ground surface. A maximum of 294 cubic yards of TPH and chloride impacted soil remains in place beneath the liner assuming a maximum 1-foot depth based on the delineation soil samples listed above. Impacted soil volume estimate includes waste-containing soil volumes to be addressed through reconstruction of the containment or final pad reclamation.

Marathon does not believe deferment will result in imminent risk to human health, the environment, or groundwater. Depth to groundwater was determined to be greater than 180 feet bgs, the release was contained laterally by the lined containment, and the impacted soil remaining in place is limited to the area immediately beneath the liner. The liner has been repaired by Marathon and will restrict future vertical migration of residual impacts and any interactions with humans and/or wildlife.

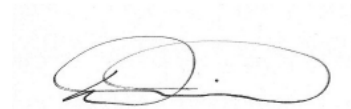
Based on the presence of active production equipment within the release area and the complete lateral and vertical delineation of impacted soil remaining in place, Marathon requests deferral of final remediation for Incident Number nAPP2403642782 until final reclamation of the well pad or major construction, whichever comes first. Remedial actions completed to date have been protective of human health, the environment, and groundwater and deferment of impacted soil beneath the lined containment appears to be equally protective and warranting deferment. Notifications submitted to the NMOCD are included in Appendix E.

If you have any questions or comments, please contact Ms. Ashley Giovengo at (575) 988-0055 or agiovengo@ensolum.com.

Sincerely,
Ensolum, LLC



Ashley Giovengo
Senior Scientist



Daniel R. Moir, PG
Senior Managing Geologist

cc: Isaac Castro, Marathon

Appendices:

Figure 1	Site Receptor Map
Figure 2	Delineation Soil Sample Locations
Figure 3	Area of Requested Deferral
Table 1	Soil Sample Analytical Results
Appendix A	Well Log and Record
Appendix B	Photographic Log
Appendix C	Lithographic Soil Sampling Logs
Appendix D	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix E	Email Correspondence



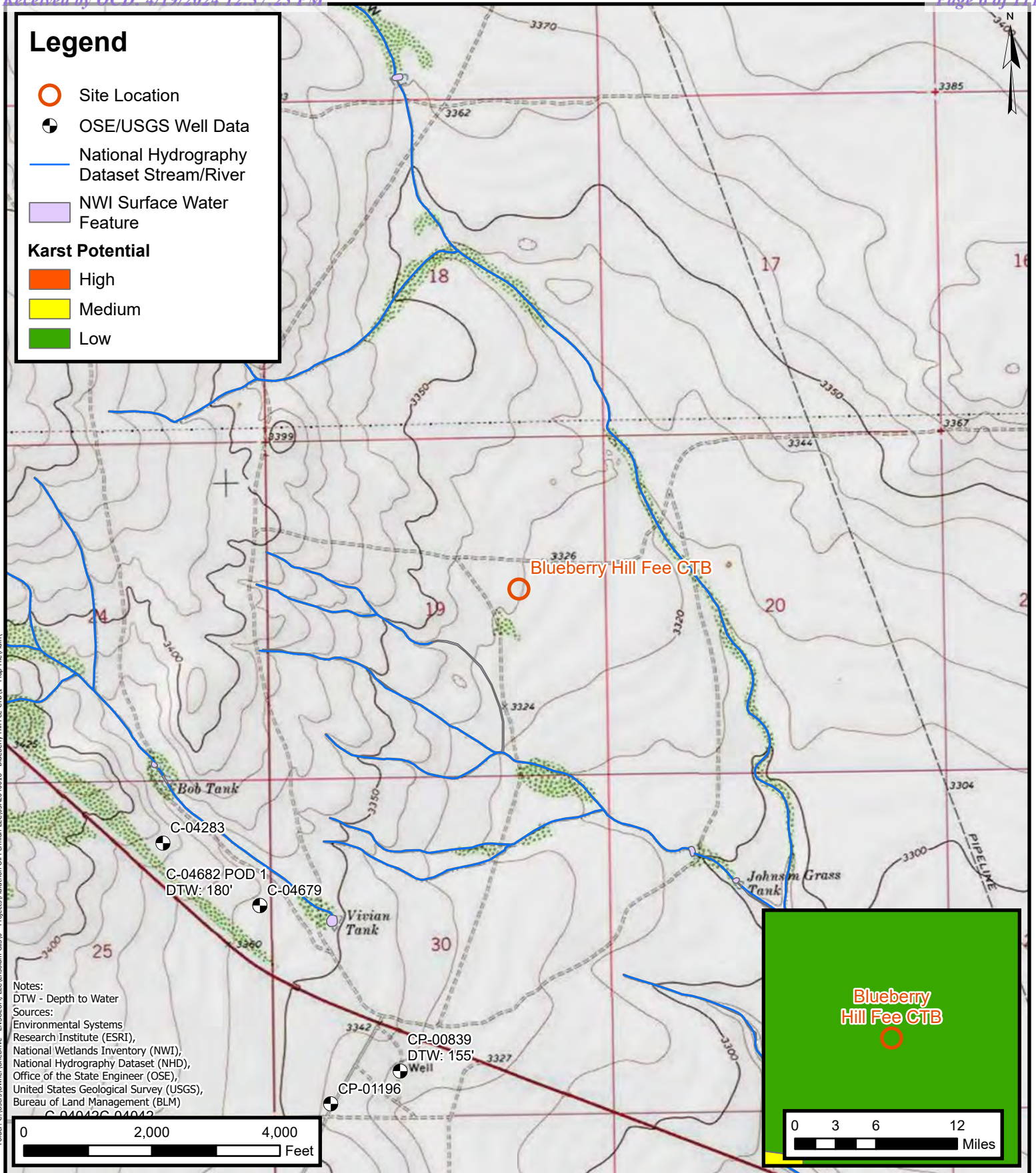
FIGURES

Legend

- Site Location
- OSE/USGS Well Data
- National Hydrography Dataset Stream/River
- NWI Surface Water Feature

Karst Potential

- High
- Medium
- Low



Site Receptor Map

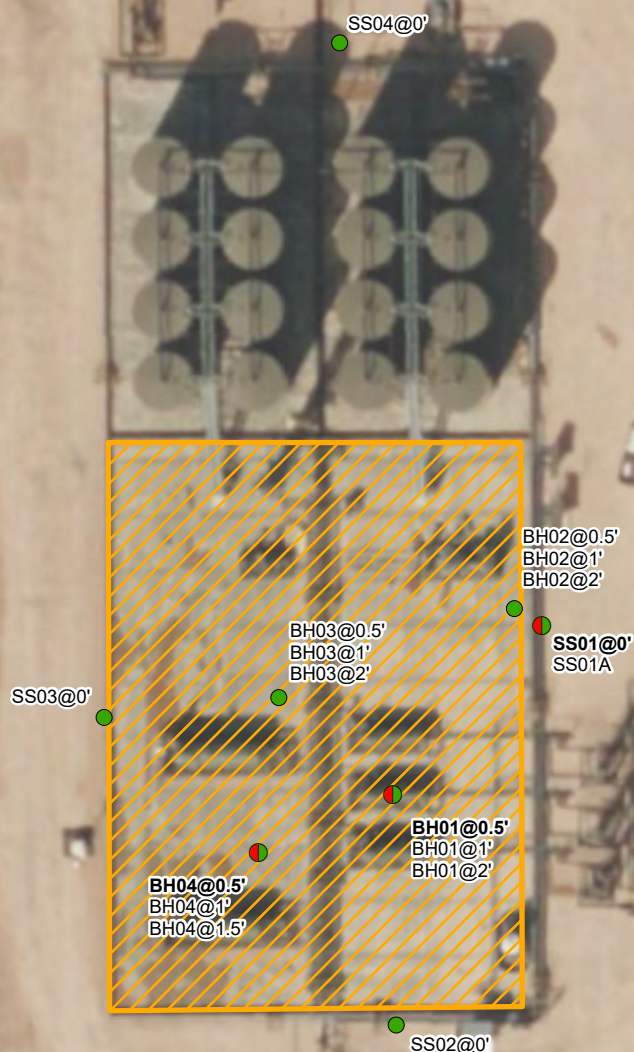
Marathon Oil Permian LLC
Blueberry Hill Fee CTB
Incident Number: nAPP2403642782
Unit G, Section 19, Township 24S, Range 35E
Lea Co., New Mexico

FIGURE

1

Legend

- Delineation Soil Sample in Compliance with Closure Criteria
- Delineation Soil Sample with Concentrations Previously Exceeding Closure Criteria
- ▨ Containment Liner



Notes:
 Sample ID @ Depth Below Ground Surface.
 Samples in bold indicate sample exceeded applicable closure criteria.

0 12.5 25 50 75 100
 Feet

Sources: Environmental Systems Research Institute (ESRI)



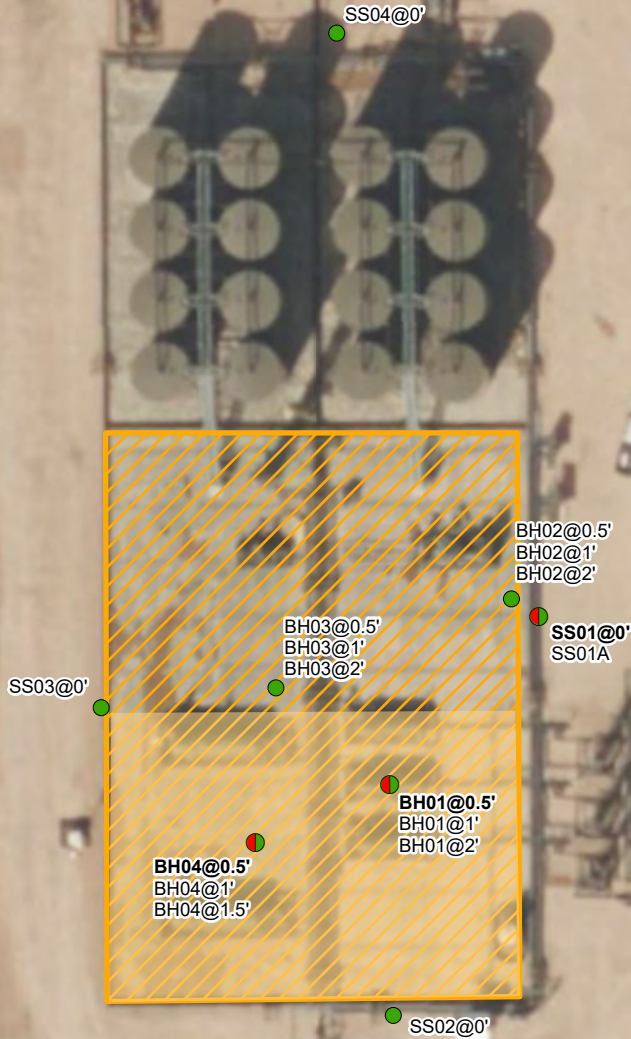
Delineation Soil Sample Locations

Marathon Oil Permian LLC
 Blueberry Hill Fee CTB
 Incident Number: nAPP2403642782
 Unit G, Section 19, Township 24S, Range 35E
 Lea County, New Mexico

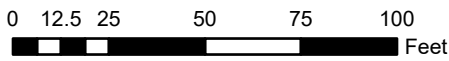
FIGURE
2

Legend

- Delineation Soil Sample in Compliance with Closure Criteria
- Delineation Soil Sample with Concentrations Previously Exceeding Closure Criteria
- Containment Liner
- Area of Requested Deferral



Notes:
Sample ID @ Depth Below Ground Surface.
Samples in bold indicate sample exceeded applicable closure criteria.



Sources: Environmental Systems Research Institute (ESRI)



Area of Requested Deferral

Marathon Oil Permian LLC
Blueberry Hill Fee CTB
Incident Number: nAPP2403642782
Unit G, Section 19, Township 24S, Range 35E
Lea County, New Mexico

FIGURE

3



TABLES



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
 Blueberry Hill Fee CTB
 Marathon Oil 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 I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Delineation Soil Samples										
SS01	02/14/2024	0	<0.00201	<0.00402	<50.5	170	<50.5	170	170	17.7
SS01A	3/11/2024	0	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	79.9
SS02	02/14/2024	0	<0.00198	<0.00397	<49.8	<49.8	<49.8	<49.8	<49.8	8.97
SS03	02/14/2024	0	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	8.96
SS04	02/14/2024	0	<0.00198	<0.00396	<49.7	<49.7	<49.7	<49.7	<49.7	65.4
BH01	2/26/2024	0.5	<0.00199	<0.00398	<50.0	110	<50.0	110	110	127
BH01	2/26/2024	1	<0.00202	<0.00403	<49.9	60.4	<49.9	60.4	60.4	69.5
BH01	2/26/2024	2	<0.00198	<0.00396	<50.3	<50.0	<50.3	<50.3	<50.3	63.8
BH02	2/26/2024	0.5	<0.00201	<0.00402	<49.8	<49.8	<49.8	<49.8	<49.8	89.3
BH02	2/26/2024	1	<0.00200	<0.00401	<49.6	<49.6	<49.6	<49.6	<49.6	43.8
BH02	2/26/2024	2	<0.00202	<0.00403	<50.4	<49.9	<50.4	<50.4	<50.4	47.2
BH03	2/26/2024	0.5	<0.00200	<0.00399	<50.3	<50.3	<50.3	<50.3	<50.3	83.6
BH03	2/26/2024	1	<0.00198	<0.00397	<50.1	<50.1	<50.1	<50.1	<50.1	67.7
BH03	2/26/2024	2	<0.00201	<0.00402	<50.5	<49.9	<50.5	<50.5	<50.5	85.2
BH04	2/26/2024	0.5	<0.00200	<0.00400	<50.2	61.8	<50.2	61.8	61.8	839
BH04	2/26/2024	1	<0.00199	<0.00398	<50.4	<50.4	<50.4	<50.4	<50.4	367
BH04	2/26/2024	1.5	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	198

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

NMAC: New Mexico Administrative Code

Grey text represents samples that have been excavated

<": Laboratory Analytical result is less than reporting limit

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

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

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes



APPENDIX A

Well Log and Record



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) C04682 POD 1		WELL TAG ID NO. 211EC		OSE FILE NO(S). C-04682			
	WELL OWNER NAME(S) Daniel Baeza				PHONE (OPTIONAL) 575-390-2569			
	WELL OWNER MAILING ADDRESS 7225 Mockingbird Lane				CITY Hobbs	STATE NM	ZIP 88240	
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 11	SECONDS 24.83242 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND			
		LONGITUDE 103	24	56.35437 W	* DATUM REQUIRED: WGS 84			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE								
2. DRILLING & CASING INFORMATION	LICENSE NO. WD1058		NAME OF LICENSED DRILLER GARY KEY			NAME OF WELL DRILLING COMPANY KEY'S DRILLING & PUMP SERVICE, INC		
	DRILLING STARTED 12/20/2022		DRILLING ENDED 01/19/2023		DEPTH OF COMPLETED WELL (FT) 290		BORE HOLE DEPTH (FT) 920	DEPTH WATER FIRST ENCOUNTERED (FT) 180
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN *add <input type="checkbox"/> DRY HOLE <input checked="" type="checkbox"/> SHALLOW (UNCONFINED) Centralizer info below					STATIC WATER LEVEL IN COMPLETED WELL 165FT		DATE STATIC MEASURED 1-19-2023
	DRILLING FLUID: <input checked="" type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:						CHECK HERE IF PITLESS ADAPTER IS INSTALLED <input type="checkbox"/>	
	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	FROM	TO						
	0	20	16-3/4"	12" STEEL		12"	.250	
	-2	160	9-7/8"	PVC SCH40	SPLINE	4-1/2"	SCH40	
	160	290	9-7/8"	PVC SCH40	SPLINE	4-1/2"	SCH40	.032
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE- RANGE BY INTERVAL *(If using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT		
	FROM	TO						
	0	20	16-3/4"	CEMENT SLURRY	13.09	POUR		
	0	62	9-7/8"	HYDRATED BENTONITE CHIPS	22.35	TREMIE		
	62	114	9-7/8"	PEA GRAVEL	21.26	POUR		
	114	290	9-7/8"	8/16 SILICA SAND	71.98	TREMIE		

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 09/22/2022)


FILE NO. C-4682-POD 1	POD NO. 1	TRN NO. 738374
LOCATION Dem + STK 24.34.25.442	WELL TAG ID NO. 211EC	PAGE 1 OF 2


Released to Imaging: 5/14/2024 2:38:00 PM





APPENDIX B

Lithologic Soil Sampling Logs

								Sample Name: BH01		Date: 02/26/2024	
								Site Name: Blueberry Hill 3H 4H 6H CTB			
								Incident Number: nAPP2403642782			
								Job Number: 03A2040018			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: Chad Hamilton		Method: Hand Auger	
Coordinates: 32.203464, -103.403305								Hole Diameter: 3"		Total Depth: 2'	
Comments: Field screening conducted with HACH Chloride Test Strips and PetroFLAG for chloride and TPH, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. No correction factors included.											
Moisture Content	Chloride (ppm)	TPH (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
D			N	BH01	0	0	CCHE	Caliche Pad			
D	ND		N	BH01	0.5	0.5	CCHE				
D	ND	34	N	BH01	1	1	SW-SM	Sand with trace silt - Loose, medium to dark brown in color, medium to very fine grain size, dry, non-plastic, noncohesive, thickly bedded, uniform, alluvial			
D	ND		N	BH01	2	2	SW-SM				
Total Depth @ 2 ft bgs.											

								Sample Name: BH02		Date: 02/26/2024	
								Site Name: Blueberry Hill 3H 4H 6H CTB			
								Incident Number: nAPP2403642782			
								Job Number: 03A2040018			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: Chad Hamilton		Method: Hand Auger	
Coordinates: 32.203596, -103.403245								Hole Diameter: 3"		Total Depth: 2'	
Comments: Field screening conducted with HACH Chloride Test Strips and PetroFLAG for chloride and TPH, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. No correction factors included.											
Moisture Content	Chloride (ppm)	TPH (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
D			N	BH02	0	0	CCHE	Caliche Pad			
D	ND		N	BH02	0.5	0.5	CCHE				
D	ND	43	N	BH02	1	1	SW-SM	Sand with trace silt - Loose, medium to dark brown in color, medium to very fine grain size, dry, non-plastic, noncohesive, thickly bedded, uniform, alluvial			
D	ND		N	BH02	2	2	CCHE	Caliche - Medium density, yellow to white in color, fine to very fine grain size, dry, non-plastic, noncohesive, massive, uniform, alluvial, sharp			
Total Depth @ 2 ft bgs.											

								Sample Name: BH03		Date: 02/26/2024	
								Site Name: Blueberry Hill 3H 4H 6H CTB			
								Incident Number: nAPP2403642782			
								Job Number: 03A2040018			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: Chad Hamilton		Method: Hand Auger	
Coordinates: 32.203534, -103.403445								Hole Diameter: 3"		Total Depth: 2'	
Comments: Field screening conducted with HACH Chloride Test Strips and PetroFLAG for chloride and TPH, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. No correction factors included.											
Moisture Content	Chloride (ppm)	TPH (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
D	1,254		N	BH03	0	0	CCHE	Caliche Pad			
D	ND		N	BH03	0.5	0.5	CCHE				
D	ND	34	N	BH03	1	1	SW-SM	Sand with trace silt - Loose, medium to dark brown in color, medium to very fine grain size, dry, non-plastic, noncohesive, thickly bedded, uniform, alluvial			
D	ND		N	BH03	2	2	SW-SM				
Total Depth @ 2 ft bgs.											

								Sample Name: BH04		Date: 02/26/2024	
								Site Name: Blueberry Hill 3H 4H 6H CTB			
								Incident Number: nAPP2403642782			
								Job Number: 03A2040018			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: Chad Hamilton		Method: Hand Auger	
Coordinates: 32.203424, -103.403464								Hole Diameter: 3"		Total Depth: 1.5'	
Comments: Field screening conducted with HACH Chloride Test Strips and PetroFLAG for chloride and TPH, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. No correction factors included.											
Moisture Content	Chloride (ppm)	TPH (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
D	515			BH04	0	0	CCHE	Caliche Pad			
D	997			BH04	0.5	0.5	CCHE	Sand with trace silt - Loose, medium to dark brown in color, medium to very fine grain size, dry, non-plastic, noncohesive, thickly bedded, uniform, alluvial			
D	274	44		BH04	1	1	SW-SM				
D	ND			BH04	1.5	1.5	SW-SM				
Total Depth @ 1.5 ft bgs.											



APPENDIX C

Photographic Log



Photographic Log

Marathon Oil Permian LLC

Blueberry Hill Fee CTB

Incident Number: nAPP2403642782



Photograph 1

Date: 02/14/2024

Description: Liner Inspection

View: Northwest

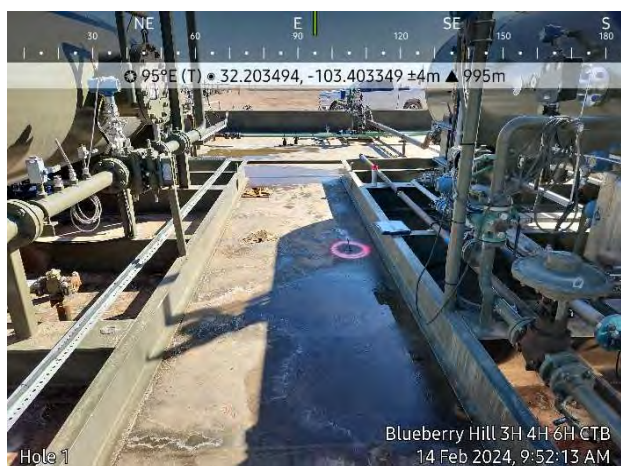


Photograph 2

Date: 02/14/2024

Description: Liner Inspection

View: West



Photograph 3

Date: 02/14/2024

Description: Liner Inspection

View: East



Photograph 4

Date: 02/14/2024

Description: Liner Inspection

View: North



Photographic Log

Marathon Oil Permian LLC

Blueberry Hill Fee CTB

Incident Number: nAPP2403642782



Photograph 5

Date: 02/14/2024

Description: Liner Inspection

View: East



Photograph 6

Date: 02/14/2024

Description: Liner Inspection

View: South



Photograph 7

Date: 02/14/2024

Description: Liner Inspection

View: West



Photograph 8

Date: 02/14/2024

Description: Liner Inspection

View: South



Photographic Log

Marathon Oil Permian LLC

Blueberry Hill Fee CTB

Incident Number: nAPP2403642782



Photograph 9 Date: 02/14/2024
Description: Lateral Delineation Sampling
View: West



Photograph 10 Date: 02/14/2024
Description: Lateral Delineation Sampling
View: Northwest



Photograph 11 Date: 02/14/2024
Description: Lateral Delineation Sampling
View: East



Photograph 12 Date: 02/14/2024
Description: Lateral Delineation Sampling
View: South



Photographic Log

Marathon Oil Permian LLC

Blueberry Hill Fee CTB

Incident Number: nAPP2403642782



Photograph 13 Date: 02/14/2024
Description: Vertical Delineation Sampling
View: West



Photograph 14 Date: 02/14/2024
Description: Vertical Delineation Sampling
View: Northwest



Photograph 15 Date: 02/14/2024
Description: Vertical Delineation Sampling
View: East



Photograph 16 Date: 02/14/2024
Description: Liner Repair
View: South



Photographic Log

Marathon Oil Permian LLC

Blueberry Hill Fee CTB

Incident Number: nAPP2403642782

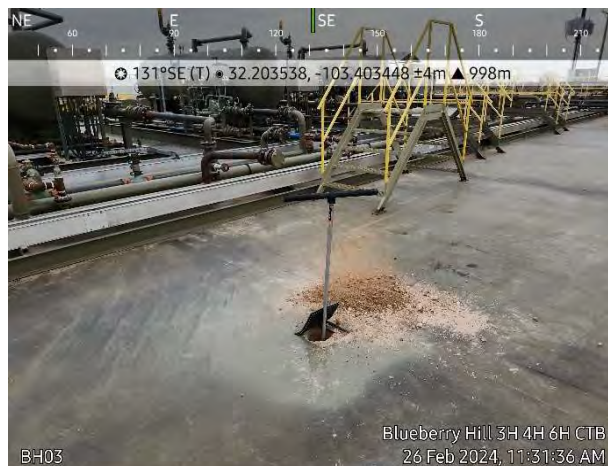


Photograph 17

Date: 02/26/2024

Description: Vertical Delineation Sampling

View: East

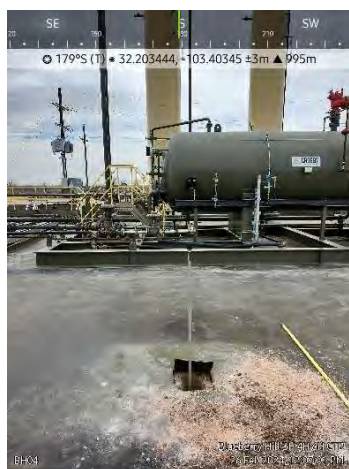


Photograph 18

Date: 02/26/2024

Description: Vertical Delineation Sampling

View: Southeast



Photograph 19

Date: 02/26/2024

Description: Vertical Delineation Sampling

View: South



Photograph 20

Date: 02/26/2024

Description: Vertical Delineation Sampling

View: Northeast



Photographic Log

Marathon Oil Permian LLC

Blueberry Hill Fee CTB

Incident Number: nAPP2403642782



Photograph 21
Description: Liner Repair
View: West

Date: 02/26/2024



Photograph 22
Description: Liner Repair
View: South

Date: 02/26/2024



Photograph 23
Description: Liner Repair
View: South

Date: 02/26/2024



Photograph 24
Description: Lateral Delineation Sampling (SS01A)
View: West

Date: 03/11/2024



APPENDIX D

Laboratory Analytical Reports & Chain-of-Custody Documentation



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Peter Van Patten
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 2/23/2024 4:24:25 PM

JOB DESCRIPTION

BLUEBERRY HILL 3H 4H 6H CTB
03A2040018

JOB NUMBER

890-6199-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

See page two for job notes and contact information.

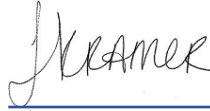
Eurofins Carlsbad

Job Notes

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

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

Authorization



Generated
2/23/2024 4:24:25 PM

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

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Laboratory Job ID: 890-6199-1
SDG: 03A2040018

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Definitions/Glossary

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

Qualifier	Qualifier Description
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
SQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1

Job ID: 890-6199-1

Eurofins Carlsbad

Job Narrative 890-6199-1

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

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

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

Receipt

The samples were received on 2/15/2024 2:32 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C.

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: SS01 (890-6199-1), SS02 (890-6199-2), SS03 (890-6199-3) and SS04 (890-6199-4).

GC VOA

Method 8021B: Surrogate recovery for the following samples were outside control limits: SS01 (890-6199-1), SS03 (890-6199-3), SS04 (890-6199-4) and (LCSD 880-73881/2-A). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

GC Semi VOA

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

HPLC/IC

Method 300_ORGFM_28D - Soluble: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-73329 and analytical batch 880-73631 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.

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Client Sample Results

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Client Sample ID: SS01

Lab Sample ID: 890-6199-1

Date Collected: 02/14/24 11:16

Matrix: Solid

Date Received: 02/15/24 14:32

Sample Depth: 0

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		02/22/24 15:27	02/23/24 09:23	1
Toluene	<0.00201	U	0.00201	mg/Kg		02/22/24 15:27	02/23/24 09:23	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		02/22/24 15:27	02/23/24 09:23	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		02/22/24 15:27	02/23/24 09:23	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		02/22/24 15:27	02/23/24 09:23	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		02/22/24 15:27	02/23/24 09:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	124		70 - 130	02/22/24 15:27	02/23/24 09:23	1
1,4-Difluorobenzene (Surr)	139	S1+	70 - 130	02/22/24 15:27	02/23/24 09:23	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			02/23/24 09:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	170		50.5	mg/Kg			02/20/24 11:57	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5	mg/Kg		02/19/24 15:17	02/20/24 11:57	1
Diesel Range Organics (Over C10-C28)	170		50.5	mg/Kg		02/19/24 15:17	02/20/24 11:57	1
Oil Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		02/19/24 15:17	02/20/24 11:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	124		70 - 130	02/19/24 15:17	02/20/24 11:57	1
o-Terphenyl	109		70 - 130	02/19/24 15:17	02/20/24 11:57	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.7		5.01	mg/Kg			02/20/24 15:07	1

Client Sample ID: SS02

Lab Sample ID: 890-6199-2

Date Collected: 02/14/24 11:20

Matrix: Solid

Date Received: 02/15/24 14:32

Sample Depth: 0

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		02/22/24 15:27	02/23/24 09:49	1
Toluene	<0.00198	U	0.00198	mg/Kg		02/22/24 15:27	02/23/24 09:49	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		02/22/24 15:27	02/23/24 09:49	1
m-Xylene & p-Xylene	<0.00397	U	0.00397	mg/Kg		02/22/24 15:27	02/23/24 09:49	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		02/22/24 15:27	02/23/24 09:49	1
Xylenes, Total	<0.00397	U	0.00397	mg/Kg		02/22/24 15:27	02/23/24 09:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130	02/22/24 15:27	02/23/24 09:49	1

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Client Sample Results

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Client Sample ID: SS02

Lab Sample ID: 890-6199-2

Date Collected: 02/14/24 11:20

Matrix: Solid

Date Received: 02/15/24 14:32

Sample Depth: 0

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	87		70 - 130	02/22/24 15:27	02/23/24 09:49	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00397	U	0.00397	mg/Kg			02/23/24 09:49	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			02/20/24 12:20	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		02/19/24 15:17	02/20/24 12:20	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		02/19/24 15:17	02/20/24 12:20	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		02/19/24 15:17	02/20/24 12:20	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130			02/19/24 15:17	02/20/24 12:20	1
o-Terphenyl	98		70 - 130			02/19/24 15:17	02/20/24 12:20	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.97		5.04	mg/Kg			02/20/24 15:14	1

Client Sample ID: SS03

Lab Sample ID: 890-6199-3

Date Collected: 02/14/24 11:23

Matrix: Solid

Date Received: 02/15/24 14:32

Sample Depth: 0

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		02/22/24 15:27	02/23/24 10:16	1
Toluene	<0.00199	U	0.00199	mg/Kg		02/22/24 15:27	02/23/24 10:16	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		02/22/24 15:27	02/23/24 10:16	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/22/24 15:27	02/23/24 10:16	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		02/22/24 15:27	02/23/24 10:16	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/22/24 15:27	02/23/24 10:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130	02/22/24 15:27	02/23/24 10:16	1
1,4-Difluorobenzene (Surr)	160	S1+	70 - 130	02/22/24 15:27	02/23/24 10:16	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			02/23/24 10:16	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			02/20/24 12:44	1

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Client Sample Results

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Client Sample ID: SS03

Lab Sample ID: 890-6199-3

Date Collected: 02/14/24 11:23

Matrix: Solid

Date Received: 02/15/24 14:32

Sample Depth: 0

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		02/19/24 15:17	02/20/24 12:44	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/19/24 15:17	02/20/24 12:44	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/19/24 15:17	02/20/24 12:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130			02/19/24 15:17	02/20/24 12:44	1
o-Terphenyl	109		70 - 130			02/19/24 15:17	02/20/24 12:44	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.96		5.03	mg/Kg			02/20/24 15:21	1

Client Sample ID: SS04

Lab Sample ID: 890-6199-4

Date Collected: 02/14/24 11:28

Matrix: Solid

Date Received: 02/15/24 14:32

Sample Depth: 0

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		02/22/24 15:27	02/23/24 10:42	1
Toluene	<0.00198	U	0.00198	mg/Kg		02/22/24 15:27	02/23/24 10:42	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		02/22/24 15:27	02/23/24 10:42	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		02/22/24 15:27	02/23/24 10:42	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		02/22/24 15:27	02/23/24 10:42	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		02/22/24 15:27	02/23/24 10:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	68	S1-	70 - 130			02/22/24 15:27	02/23/24 10:42	1
1,4-Difluorobenzene (Surr)	92		70 - 130			02/22/24 15:27	02/23/24 10:42	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			02/23/24 10:42	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.7	U	49.7	mg/Kg			02/20/24 13:08	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	<49.7	U	49.7	mg/Kg		02/19/24 15:17	02/20/24 13:08	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7	mg/Kg		02/19/24 15:17	02/20/24 13:08	1
Oil Range Organics (Over C28-C36)	<49.7	U	49.7	mg/Kg		02/19/24 15:17	02/20/24 13:08	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	109		70 - 130			02/19/24 15:17	02/20/24 13:08	1
o-Terphenyl	100		70 - 130			02/19/24 15:17	02/20/24 13:08	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Client Sample ID: SS04

Date Collected: 02/14/24 11:28

Date Received: 02/15/24 14:32

Sample Depth: 0

Lab Sample ID: 890-6199-4

Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	65.4	F1	4.98	mg/Kg			02/20/24 15:28	1	

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Surrogate Summary

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-39343-A-9-E MS	Matrix Spike	96	103
880-39343-A-9-F MSD	Matrix Spike Duplicate	117	128
890-6199-1	SS01	124	139 S1+
890-6199-2	SS02	105	87
890-6199-3	SS03	118	160 S1+
890-6199-4	SS04	68 S1-	92
LCS 880-73881/1-A	Lab Control Sample	108	117
LCSD 880-73881/2-A	Lab Control Sample Dup	136 S1+	123
MB 880-73289/5-A	Method Blank	62 S1-	132 S1+
MB 880-73881/5-A	Method Blank	70	113
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-6198-A-1-D MS	Matrix Spike	119	98
890-6198-A-1-E MSD	Matrix Spike Duplicate	117	91
890-6199-1	SS01	124	109
890-6199-2	SS02	114	98
890-6199-3	SS03	119	109
890-6199-4	SS04	109	100
LCS 880-73547/2-A	Lab Control Sample	122	129
LCSD 880-73547/3-A	Lab Control Sample Dup	110	108
MB 880-73547/1-A	Method Blank	130	117
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-73289/5-A					Client Sample ID: Method Blank				
Matrix: Solid					Prep Type: Total/NA				
Analysis Batch: 73858					Prep Batch: 73289				
Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		02/15/24 15:58	02/22/24 18:16	1	
Toluene	<0.00200	U	0.00200	mg/Kg		02/15/24 15:58	02/22/24 18:16	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/15/24 15:58	02/22/24 18:16	1	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		02/15/24 15:58	02/22/24 18:16	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/15/24 15:58	02/22/24 18:16	1	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		02/15/24 15:58	02/22/24 18:16	1	
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	62	S1-	70 - 130			02/15/24 15:58	02/22/24 18:16	1	
1,4-Difluorobenzene (Surr)	132	S1+	70 - 130			02/15/24 15:58	02/22/24 18:16	1	

Lab Sample ID: MB 880-73881/5-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 73858						Prep Batch: 73881			
	MB	MB							
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		02/22/24 15:27	02/23/24 08:04		1
Toluene	<0.00200	U	0.00200	mg/Kg		02/22/24 15:27	02/23/24 08:04		1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/22/24 15:27	02/23/24 08:04		1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		02/22/24 15:27	02/23/24 08:04		1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/22/24 15:27	02/23/24 08:04		1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		02/22/24 15:27	02/23/24 08:04		1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	70		70 - 130			02/22/24 15:27	02/23/24 08:04		1
1,4-Difluorobenzene (Surr)	113		70 - 130			02/22/24 15:27	02/23/24 08:04		1

Lab Sample ID: LCS 880-73881/1-A					Client Sample ID: Lab Control Sample				
Matrix: Solid					Prep Type: Total/NA				
Analysis Batch: 73858					Prep Batch: 73881				
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec		
							Limits		
Benzene	0.100	0.09462		mg/Kg		95	70 - 130		
Toluene	0.100	0.09802		mg/Kg		98	70 - 130		
Ethylbenzene	0.100	0.08353		mg/Kg		84	70 - 130		
m-Xylene & p-Xylene	0.200	0.1861		mg/Kg		93	70 - 130		
o-Xylene	0.100	0.08806		mg/Kg		88	70 - 130		
Surrogate	LCS	LCS	Limits						
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	108		70 - 130						
1,4-Difluorobenzene (Surr)	117		70 - 130						

Lab Sample ID: LCSD 880-73881/2-A						Client Sample ID: Lab Control Sample Dup			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 73858						Prep Batch: 73881			
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.09832		mg/Kg		98	70 - 130	4	35

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QC Sample Results

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

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

Lab Sample ID: LCSD 880-73881/2-A
Matrix: Solid
Analysis Batch: 73858

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 73881

Analyte	Spike		LCSD		Unit	D	%Rec	%Rec		RPD
	Added		Result	Qualifier				Limits		
Toluene	0.100		0.1095		mg/Kg		110	70 - 130	11	35
Ethylbenzene	0.100		0.1098		mg/Kg		110	70 - 130	27	35
m-Xylene & p-Xylene	0.200		0.2145		mg/Kg		107	70 - 130	14	35
o-Xylene	0.100		0.09264		mg/Kg		93	70 - 130	5	35
		LCSD	LCSD							
Surrogate		%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)		136	S1+	70 - 130						
1,4-Difluorobenzene (Surr)		123		70 - 130						

Lab Sample ID: 880-39343-A-9-E MS
Matrix: Solid
Analysis Batch: 73858

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 73881

Analyte	Sample		Spike	MS		Unit	D	%Rec	%Rec	
	Result	Qualifier		Result	Qualifier				Limits	
Benzene	<0.00200	U	0.0996	0.1129		mg/Kg		113	70 - 130	
Toluene	<0.00200	U	0.0996	0.09076		mg/Kg		91	70 - 130	
Ethylbenzene	<0.00200	U	0.0996	0.1035		mg/Kg		104	70 - 130	
m-Xylene & p-Xylene	<0.00399	U	0.199	0.2095		mg/Kg		105	70 - 130	
o-Xylene	<0.00200	U	0.0996	0.09231		mg/Kg		93	70 - 130	
		MS	MS							
Surrogate		%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)		96		70 - 130						
1,4-Difluorobenzene (Surr)		103		70 - 130						

Lab Sample ID: 880-39343-A-9-F MSD
Matrix: Solid
Analysis Batch: 73858

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 73881

Analyte	Sample		Spike	MSD		Unit	D	%Rec	%Rec		RPD
	Result	Qualifier		Result	Qualifier				Limits		
Benzene	<0.00200	U	0.101	0.1058		mg/Kg		105	70 - 130	7	35
Toluene	<0.00200	U	0.101	0.09862		mg/Kg		98	70 - 130	8	35
Ethylbenzene	<0.00200	U	0.101	0.09871		mg/Kg		98	70 - 130	5	35
m-Xylene & p-Xylene	<0.00399	U	0.202	0.2151		mg/Kg		107	70 - 130	3	35
o-Xylene	<0.00200	U	0.101	0.1037		mg/Kg		103	70 - 130	12	35
		MSD	MSD								
Surrogate		%Recovery	Qualifier	Limits							
4-Bromofluorobenzene (Surr)		117		70 - 130							
1,4-Difluorobenzene (Surr)		128		70 - 130							

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

Lab Sample ID: MB 880-73547/1-A
Matrix: Solid
Analysis Batch: 73598

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 73547

Analyte	MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		02/19/24 15:17	02/20/24 08:02	1

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QC Sample Results

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

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

Lab Sample ID: MB 880-73547/1-A

Matrix: Solid

Analysis Batch: 73598

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 73547

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		02/19/24 15:17	02/20/24 08:02	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		02/19/24 15:17	02/20/24 08:02	1
Surrogate	MB MB		Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
1-Chlorooctane	130		70 - 130			02/19/24 15:17	02/20/24 08:02	1
o-Terphenyl	117		70 - 130			02/19/24 15:17	02/20/24 08:02	1

Lab Sample ID: LCS 880-73547/2-A

Matrix: Solid

Analysis Batch: 73598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 73547

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1030		mg/Kg		103	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1035		mg/Kg		104	70 - 130
Surrogate	LCS LCS		Limits				
	%Recovery	Qualifier					
1-Chlorooctane	122		70 - 130				
o-Terphenyl	129		70 - 130				

Lab Sample ID: LCSD 880-73547/3-A

Matrix: Solid

Analysis Batch: 73598

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 73547

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	955.9		mg/Kg		96	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	1000	950.5		mg/Kg		95	70 - 130	9	20
Surrogate	LCSD LCSD		Limits						
	%Recovery	Qualifier							
1-Chlorooctane	110		70 - 130						
o-Terphenyl	108		70 - 130						

Lab Sample ID: 890-6198-A-1-D MS

Matrix: Solid

Analysis Batch: 73598

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 73547

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	1010	1085		mg/Kg		106	70 - 130
Diesel Range Organics (Over C10-C28)	60.4		1010	1058		mg/Kg		99	70 - 130
Surrogate	MS MS		Limits						
	%Recovery	Qualifier							
1-Chlorooctane	119		70 - 130						
o-Terphenyl	98		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

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

Lab Sample ID: 890-6198-A-1-E MSD

Matrix: Solid

Analysis Batch: 73598

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 73547

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	1010	1102		mg/Kg		107	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	60.4		1010	997.3		mg/Kg		93	70 - 130	6	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	117		70 - 130								
o-Terphenyl	91		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-73329/1-A

Matrix: Solid

Analysis Batch: 73631

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			02/20/24 13:04	1

Lab Sample ID: LCS 880-73329/2-A

Matrix: Solid

Analysis Batch: 73631

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	259.4		mg/Kg		104	90 - 110

Lab Sample ID: LCSD 880-73329/3-A

Matrix: Solid

Analysis Batch: 73631

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	258.9		mg/Kg		104	90 - 110	0	20

Lab Sample ID: 890-6199-4 MS

Matrix: Solid

Analysis Batch: 73631

Client Sample ID: SS04

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	65.4	F1	249	307.4		mg/Kg		97	90 - 110

Lab Sample ID: 890-6199-4 MSD

Matrix: Solid

Analysis Batch: 73631

Client Sample ID: SS04

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	65.4	F1	249	357.8	F1	mg/Kg		117	90 - 110	15	20

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QC Association Summary

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

GC VOA

Prep Batch: 73289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-73289/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 73858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6199-1	SS01	Total/NA	Solid	8021B	73881
890-6199-2	SS02	Total/NA	Solid	8021B	73881
890-6199-3	SS03	Total/NA	Solid	8021B	73881
890-6199-4	SS04	Total/NA	Solid	8021B	73881
MB 880-73289/5-A	Method Blank	Total/NA	Solid	8021B	73289
MB 880-73881/5-A	Method Blank	Total/NA	Solid	8021B	73881
LCS 880-73881/1-A	Lab Control Sample	Total/NA	Solid	8021B	73881
LCSD 880-73881/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	73881
880-39343-A-9-E MS	Matrix Spike	Total/NA	Solid	8021B	73881
880-39343-A-9-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	73881

Prep Batch: 73881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6199-1	SS01	Total/NA	Solid	5035	
890-6199-2	SS02	Total/NA	Solid	5035	
890-6199-3	SS03	Total/NA	Solid	5035	
890-6199-4	SS04	Total/NA	Solid	5035	
MB 880-73881/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-73881/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-73881/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-39343-A-9-E MS	Matrix Spike	Total/NA	Solid	5035	
880-39343-A-9-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 73968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6199-1	SS01	Total/NA	Solid	Total BTEX	
890-6199-2	SS02	Total/NA	Solid	Total BTEX	
890-6199-3	SS03	Total/NA	Solid	Total BTEX	
890-6199-4	SS04	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 73547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6199-1	SS01	Total/NA	Solid	8015NM Prep	
890-6199-2	SS02	Total/NA	Solid	8015NM Prep	
890-6199-3	SS03	Total/NA	Solid	8015NM Prep	
890-6199-4	SS04	Total/NA	Solid	8015NM Prep	
MB 880-73547/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-73547/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-73547/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-6198-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-6198-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 73598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6199-1	SS01	Total/NA	Solid	8015B NM	73547

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QC Association Summary

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

GC Semi VOA (Continued)

Analysis Batch: 73598 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6199-2	SS02	Total/NA	Solid	8015B NM	73547
890-6199-3	SS03	Total/NA	Solid	8015B NM	73547
890-6199-4	SS04	Total/NA	Solid	8015B NM	73547
MB 880-73547/1-A	Method Blank	Total/NA	Solid	8015B NM	73547
LCS 880-73547/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	73547
LCSD 880-73547/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	73547
890-6198-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	73547
890-6198-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	73547

Analysis Batch: 73760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6199-1	SS01	Total/NA	Solid	8015 NM	
890-6199-2	SS02	Total/NA	Solid	8015 NM	
890-6199-3	SS03	Total/NA	Solid	8015 NM	
890-6199-4	SS04	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 73329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6199-1	SS01	Soluble	Solid	DI Leach	
890-6199-2	SS02	Soluble	Solid	DI Leach	
890-6199-3	SS03	Soluble	Solid	DI Leach	
890-6199-4	SS04	Soluble	Solid	DI Leach	
MB 880-73329/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-73329/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-73329/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-6199-4 MS	SS04	Soluble	Solid	DI Leach	
890-6199-4 MSD	SS04	Soluble	Solid	DI Leach	

Analysis Batch: 73631

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6199-1	SS01	Soluble	Solid	300.0	73329
890-6199-2	SS02	Soluble	Solid	300.0	73329
890-6199-3	SS03	Soluble	Solid	300.0	73329
890-6199-4	SS04	Soluble	Solid	300.0	73329
MB 880-73329/1-A	Method Blank	Soluble	Solid	300.0	73329
LCS 880-73329/2-A	Lab Control Sample	Soluble	Solid	300.0	73329
LCSD 880-73329/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	73329
890-6199-4 MS	SS04	Soluble	Solid	300.0	73329
890-6199-4 MSD	SS04	Soluble	Solid	300.0	73329

Lab Chronicle

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Client Sample ID: SS01

Date Collected: 02/14/24 11:16

Date Received: 02/15/24 14:32

Lab Sample ID: 890-6199-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	73881	02/22/24 15:27	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73858	02/23/24 09:23	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73968	02/23/24 09:23	AJ	EET MID
Total/NA	Analysis	8015 NM		1			73760	02/20/24 11:57	SM	EET MID
Total/NA	Prep	8015NM Prep			9.90 g	10 mL	73547	02/19/24 15:17	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73598	02/20/24 11:57	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	73329	02/16/24 09:30	SA	EET MID
Soluble	Analysis	300.0		1			73631	02/20/24 15:07	CH	EET MID

Client Sample ID: SS02

Date Collected: 02/14/24 11:20

Date Received: 02/15/24 14:32

Lab Sample ID: 890-6199-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	73881	02/22/24 15:27	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73858	02/23/24 09:49	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73968	02/23/24 09:49	AJ	EET MID
Total/NA	Analysis	8015 NM		1			73760	02/20/24 12:20	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	73547	02/19/24 15:17	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73598	02/20/24 12:20	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	73329	02/16/24 09:30	SA	EET MID
Soluble	Analysis	300.0		1			73631	02/20/24 15:14	CH	EET MID

Client Sample ID: SS03

Date Collected: 02/14/24 11:23

Date Received: 02/15/24 14:32

Lab Sample ID: 890-6199-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	73881	02/22/24 15:27	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73858	02/23/24 10:16	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73968	02/23/24 10:16	AJ	EET MID
Total/NA	Analysis	8015 NM		1			73760	02/20/24 12:44	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	73547	02/19/24 15:17	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73598	02/20/24 12:44	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	73329	02/16/24 09:30	SA	EET MID
Soluble	Analysis	300.0		1			73631	02/20/24 15:21	CH	EET MID

Client Sample ID: SS04

Date Collected: 02/14/24 11:28

Date Received: 02/15/24 14:32

Lab Sample ID: 890-6199-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	73881	02/22/24 15:27	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73858	02/23/24 10:42	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73968	02/23/24 10:42	AJ	EET MID

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Lab Chronicle

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Client Sample ID: SS04

Date Collected: 02/14/24 11:28

Date Received: 02/15/24 14:32

Lab Sample ID: 890-6199-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			73760	02/20/24 13:08	SM	EET MID
Total/NA	Prep	8015NM Prep			10.07 g	10 mL	73547	02/19/24 15:17	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73598	02/20/24 13:08	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	73329	02/16/24 09:30	SA	EET MID
Soluble	Analysis	300.0		1			73631	02/20/24 15:28	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: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

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

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: BLUEBERRY HILL 3H 4H 6H CTB

Job ID: 890-6199-1
SDG: 03A2040018

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-6199-1	SS01	Solid	02/14/24 11:16	02/15/24 14:32	0
890-6199-2	SS02	Solid	02/14/24 11:20	02/15/24 14:32	0
890-6199-3	SS03	Solid	02/14/24 11:23	02/15/24 14:32	0
890-6199-4	SS04	Solid	02/14/24 11:28	02/15/24 14:32	0

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Environment Testing
Xenco

Chain of Custody

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

Work Order No: _____

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Project Manager:	Ashley Giovengo	Bill to: (if different)	Isaac Castro
Company Name:	Ensolum LLC	Company Name:	Marathon Oil Company
Address:	3122 National Parks Hwy	Address:	4111 S. Tidwell Road
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	505-988-0055	Email:	agiovengo@ensolum.com, chamilton@ensolum.com

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

Project Name:		Turn Around		ANALYSIS REQUEST										Preservative Codes			
Project Number:	03A2040018	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush		Pres. Code											None: NO	DI Water: H ₂ O	
Project Location:	32.203647, -103.402411	Due Date:		Parameters	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)								Cool: Cool	MeOH: Me	
Sampler's Name:	Chad Hamilton	TAT starts the day received by the lab, if received by 4:30pm													HCL: HC	HNO ₃ : HN	
Cost Center #:	CL.24.00483														H ₂ SO ₄ : H ₂	NaOH: Na	
SAMPLE RECEIPT		Temp Blank: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No												H ₃ PO ₄ : HP		
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID: <i>THM01</i>													NaHSO ₄ : NABIS		
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(N/A)</i>	Correction Factor: <i>0.2</i>		Na ₂ S ₂ O ₃ : NaSO ₃													
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(N/A)</i>	Temperature Reading: <i>3.5</i>		Zn Acetate+NaOH: Zn													
Total Containers:		Corrected Temperature: <i>3.6</i>		NaOH+Ascorbic Acid: SAPC													
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)								Sample Comments
SS01	Soil	2/14/2024	11:16	0		1	X	X	X								
SS02	Soil	2/14/2024	11:20	0		1	X	X	X								
SS03	Soil	2/14/2024	11:23	0		1	X	X	X								
SS04	Soil	2/14/2024	11:28	0		1	X	X	X								
CU																	

Total 200.7 / 6010	200.8 / 6020:	8RCRA	13PPM	Texas	11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Ti	Sn	U	V	Zn
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010:		8RCRA		Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U	Hg: 1631 / 245.1 / 7470 / 7471											

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	14:31 2/15			

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-6199-1

SDG Number: 03A2040018

Login Number: 6199

List Source: Eurofins Carlsbad

List Number: 1

Creator: Lopez, Abraham

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: 890-6199-1

SDG Number: 03A2040018

Login Number: 6199

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 02/19/24 08:27 AM

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



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Ashley Ager
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701
Generated 3/5/2024 1:39:00 PM

JOB DESCRIPTION

Blueberry Hill 3H 4H 6H CTB
03A2040018

JOB NUMBER

890-6279-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220



Eurofins Carlsbad

Job Notes

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

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

Authorization



Generated
3/5/2024 1:39:00 PM

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

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Laboratory Job ID: 890-6279-1
SDG: 03A2040018

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Definitions/Glossary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1

Job ID: 890-6279-1

Eurofins Carlsbad

Job Narrative 890-6279-1

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

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

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

Receipt

The samples were received on 2/28/2024 4:02 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 4.8°C.

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH 01 - 0.5' (890-6279-1), BH 01 - 1' (890-6279-2), BH 02 - 0.5' (890-6279-3), BH 02 - 1' (890-6279-4), BH 03 - 0.5' (890-6279-5), BH 03 - 1' (890-6279-6), BH 04 - 0.5' (890-6279-7) and BH 04 - 1' (890-6279-8).

GC VOA

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-74523 and 880-74618 and analytical batch 880-74553 was outside the control limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: BH 03 - 1' (890-6279-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-74553 recovered above the upper control limit for Ethylbenzene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 880-74553/20).

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

GC Semi VOA

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: BH 02 - 0.5' (890-6279-3), BH 02 - 1' (890-6279-4), BH 04 - 0.5' (890-6279-7), BH 04 - 1' (890-6279-8), (LCS 880-74529/2-A), (LCSD 880-74529/3-A) and (890-6269-A-1-C). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-74529 and analytical batch 880-74542 was outside the upper control limits.

Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-74529 and analytical batch 880-74542 recovered outside control limits for the following analytes: Gasoline Range Organics (GRO)-C6-C10.

Method 8015MOD_NM: The continuing calibration verification (CCV) associated with batch 880-74542 recovered above the upper control limit for Diesel Range Organics (Over C10-C28). An acceptable CCV was ran within the 12 hour window, therefore the data has been qualified and reported. The associated sample is impacted: (CCV 880-74542/47).

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.

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Client Sample ID: BH 01 - 0.5'
Date Collected: 02/26/24 09:42
Date Received: 02/28/24 16:02
Sample Depth: 0.5'

Lab Sample ID: 890-6279-1
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00199	U	0.00199	mg/Kg		03/04/24 11:27	03/05/24 01:38	1	
Toluene	<0.00199	U	0.00199	mg/Kg		03/04/24 11:27	03/05/24 01:38	1	
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		03/04/24 11:27	03/05/24 01:38	1	
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		03/04/24 11:27	03/05/24 01:38	1	
o-Xylene	<0.00199	U	0.00199	mg/Kg		03/04/24 11:27	03/05/24 01:38	1	
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		03/04/24 11:27	03/05/24 01:38	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	95		70 - 130			03/04/24 11:27	03/05/24 01:38	1	
1,4-Difluorobenzene (Surr)	87		70 - 130			03/04/24 11:27	03/05/24 01:38	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			03/05/24 01:38	1	
Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	110		50.0	mg/Kg			03/03/24 23:27	1	
Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *1	50.0	mg/Kg		03/03/24 00:31	03/03/24 23:27	1	
Diesel Range Organics (Over C10-C28)	110		50.0	mg/Kg		03/03/24 00:31	03/03/24 23:27	1	
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		03/03/24 00:31	03/03/24 23:27	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	109		70 - 130			03/03/24 00:31	03/03/24 23:27	1	
o-Terphenyl	119		70 - 130			03/03/24 00:31	03/03/24 23:27	1	
Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	127		5.01	mg/Kg			03/05/24 00:46	1	

Client Sample ID: BH 01 - 1'
Date Collected: 02/26/24 09:46
Date Received: 02/28/24 16:02
Sample Depth: 1'

Lab Sample ID: 890-6279-2
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00202	U	0.00202	mg/Kg		03/04/24 11:27	03/05/24 02:04	1	
Toluene	<0.00202	U	0.00202	mg/Kg		03/04/24 11:27	03/05/24 02:04	1	
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		03/04/24 11:27	03/05/24 02:04	1	
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		03/04/24 11:27	03/05/24 02:04	1	
o-Xylene	<0.00202	U	0.00202	mg/Kg		03/04/24 11:27	03/05/24 02:04	1	
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		03/04/24 11:27	03/05/24 02:04	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	92		70 - 130			03/04/24 11:27	03/05/24 02:04	1	

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Client Sample ID: BH 01 - 1'

Lab Sample ID: 890-6279-2

Date Collected: 02/26/24 09:46

Matrix: Solid

Date Received: 02/28/24 16:02

Sample Depth: 1'

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	87		70 - 130	03/04/24 11:27	03/05/24 02:04	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			03/05/24 02:04	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	60.4		49.9	mg/Kg			03/03/24 23:48	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 *1	49.9	mg/Kg		03/03/24 00:31	03/03/24 23:48	1
Diesel Range Organics (Over C10-C28)	60.4		49.9	mg/Kg		03/03/24 00:31	03/03/24 23:48	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		03/03/24 00:31	03/03/24 23:48	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130			03/03/24 00:31	03/03/24 23:48	1
o-Terphenyl	120		70 - 130			03/03/24 00:31	03/03/24 23:48	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	69.5		4.99	mg/Kg			03/05/24 01:03	1

Client Sample ID: BH 02 - 0.5'

Lab Sample ID: 890-6279-3

Date Collected: 02/26/24 10:30

Matrix: Solid

Date Received: 02/28/24 16:02

Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		03/04/24 11:27	03/05/24 02:29	1
Toluene	<0.00201	U	0.00201	mg/Kg		03/04/24 11:27	03/05/24 02:29	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		03/04/24 11:27	03/05/24 02:29	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		03/04/24 11:27	03/05/24 02:29	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		03/04/24 11:27	03/05/24 02:29	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		03/04/24 11:27	03/05/24 02:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	03/04/24 11:27	03/05/24 02:29	1
1,4-Difluorobenzene (Surr)	103		70 - 130	03/04/24 11:27	03/05/24 02:29	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			03/05/24 02:29	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			03/04/24 00:08	1

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Client Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Client Sample ID: BH 02 - 0.5'

Lab Sample ID: 890-6279-3

Date Collected: 02/26/24 10:30

Matrix: Solid

Date Received: 02/28/24 16:02

Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U *1	49.8	mg/Kg		03/03/24 00:31	03/04/24 00:08	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		03/03/24 00:31	03/04/24 00:08	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		03/03/24 00:31	03/04/24 00:08	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	140	S1+	70 - 130			03/03/24 00:31	03/04/24 00:08	1
o-Terphenyl	151	S1+	70 - 130			03/03/24 00:31	03/04/24 00:08	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	89.3		4.97	mg/Kg			03/05/24 01:08	1

Client Sample ID: BH 02 - 1'

Lab Sample ID: 890-6279-4

Date Collected: 02/26/24 10:32

Matrix: Solid

Date Received: 02/28/24 16:02

Sample Depth: 1'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 02:55	1
Toluene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 02:55	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 02:55	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		03/04/24 11:27	03/05/24 02:55	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 02:55	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		03/04/24 11:27	03/05/24 02:55	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130			03/04/24 11:27	03/05/24 02:55	1
1,4-Difluorobenzene (Surr)	98		70 - 130			03/04/24 11:27	03/05/24 02:55	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			03/05/24 02:55	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.6	U	49.6	mg/Kg			03/04/24 00:29	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	<49.6	U *1	49.6	mg/Kg		03/03/24 00:31	03/04/24 00:29	1
Diesel Range Organics (Over C10-C28)	<49.6	U	49.6	mg/Kg		03/03/24 00:31	03/04/24 00:29	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		03/03/24 00:31	03/04/24 00:29	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	135	S1+	70 - 130			03/03/24 00:31	03/04/24 00:29	1
o-Terphenyl	148	S1+	70 - 130			03/03/24 00:31	03/04/24 00:29	1

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Client Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Client Sample ID: BH 02 - 1'

Lab Sample ID: 890-6279-4

Date Collected: 02/26/24 10:32

Matrix: Solid

Date Received: 02/28/24 16:02

Sample Depth: 1'

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	43.8		4.97	mg/Kg			03/05/24 01:14	1

Client Sample ID: BH 03 - 0.5'

Lab Sample ID: 890-6279-5

Date Collected: 02/26/24 11:22

Matrix: Solid

Date Received: 02/28/24 16:02

Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 03:20	1
Toluene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 03:20	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 03:20	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		03/04/24 11:27	03/05/24 03:20	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 03:20	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		03/04/24 11:27	03/05/24 03:20	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		70 - 130			03/04/24 11:27	03/05/24 03:20	1
1,4-Difluorobenzene (Surr)	98		70 - 130			03/04/24 11:27	03/05/24 03:20	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			03/05/24 03:20	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.3	U	50.3	mg/Kg			03/04/24 00:50	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.3	U *1	50.3	mg/Kg		03/03/24 00:31	03/04/24 00:50	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3	mg/Kg		03/03/24 00:31	03/04/24 00:50	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		03/03/24 00:31	03/04/24 00:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130			03/03/24 00:31	03/04/24 00:50	1
o-Terphenyl	126		70 - 130			03/03/24 00:31	03/04/24 00:50	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	83.6		5.03	mg/Kg			03/05/24 01:19	1

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Client Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Client Sample ID: BH 03 - 1'
Date Collected: 02/26/24 11:24
Date Received: 02/28/24 16:02
Sample Depth: 1'

Lab Sample ID: 890-6279-6
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00198	U	0.00198	mg/Kg		03/04/24 11:27	03/05/24 03:46	1	
Toluene	<0.00198	U	0.00198	mg/Kg		03/04/24 11:27	03/05/24 03:46	1	
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		03/04/24 11:27	03/05/24 03:46	1	
m-Xylene & p-Xylene	<0.00397	U	0.00397	mg/Kg		03/04/24 11:27	03/05/24 03:46	1	
o-Xylene	<0.00198	U	0.00198	mg/Kg		03/04/24 11:27	03/05/24 03:46	1	
Xylenes, Total	<0.00397	U	0.00397	mg/Kg		03/04/24 11:27	03/05/24 03:46	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	62	S1-	70 - 130			03/04/24 11:27	03/05/24 03:46	1	
1,4-Difluorobenzene (Surr)	88		70 - 130			03/04/24 11:27	03/05/24 03:46	1	

Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00397	U	0.00397	mg/Kg			03/05/24 03:46	1	

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<50.1	U	50.1	mg/Kg			03/04/24 01:11	1	

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.1	U *1	50.1	mg/Kg		03/03/24 00:31	03/04/24 01:11	1	
Diesel Range Organics (Over C10-C28)	<50.1	U	50.1	mg/Kg		03/03/24 00:31	03/04/24 01:11	1	
Oil Range Organics (Over C28-C36)	<50.1	U	50.1	mg/Kg		03/03/24 00:31	03/04/24 01:11	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	117		70 - 130			03/03/24 00:31	03/04/24 01:11	1	
o-Terphenyl	124		70 - 130			03/03/24 00:31	03/04/24 01:11	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	67.7		5.02	mg/Kg			03/05/24 01:36	1	

Client Sample ID: BH 04 - 0.5'
Date Collected: 02/26/24 11:30
Date Received: 02/28/24 16:02
Sample Depth: 0.5'

Lab Sample ID: 890-6279-7
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 04:11	1	
Toluene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 04:11	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 04:11	1	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		03/04/24 11:27	03/05/24 04:11	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 04:11	1	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		03/04/24 11:27	03/05/24 04:11	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	93		70 - 130			03/04/24 11:27	03/05/24 04:11	1	

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Client Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Client Sample ID: BH 04 - 0.5'

Lab Sample ID: 890-6279-7

Date Collected: 02/26/24 11:30

Matrix: Solid

Date Received: 02/28/24 16:02

Sample Depth: 0.5'

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	89		70 - 130	03/04/24 11:27	03/05/24 04:11	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			03/05/24 04:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	61.8		50.2	mg/Kg			03/04/24 01:32	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.2	U *1	50.2	mg/Kg		03/03/24 00:31	03/04/24 01:32	1
Diesel Range Organics (Over C10-C28)	61.8		50.2	mg/Kg		03/03/24 00:31	03/04/24 01:32	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2	mg/Kg		03/03/24 00:31	03/04/24 01:32	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	141	S1+	70 - 130			03/03/24 00:31	03/04/24 01:32	1
o-Terphenyl	151	S1+	70 - 130			03/03/24 00:31	03/04/24 01:32	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	839		5.05	mg/Kg			03/05/24 01:41	1

Client Sample ID: BH 04 - 1'

Lab Sample ID: 890-6279-8

Date Collected: 02/26/24 11:38

Matrix: Solid

Date Received: 02/28/24 16:02

Sample Depth: 1'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		03/04/24 11:27	03/05/24 04:37	1
Toluene	<0.00199	U	0.00199	mg/Kg		03/04/24 11:27	03/05/24 04:37	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		03/04/24 11:27	03/05/24 04:37	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		03/04/24 11:27	03/05/24 04:37	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		03/04/24 11:27	03/05/24 04:37	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		03/04/24 11:27	03/05/24 04:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	03/04/24 11:27	03/05/24 04:37	1
1,4-Difluorobenzene (Surr)	94		70 - 130	03/04/24 11:27	03/05/24 04:37	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			03/05/24 04:37	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.4	U	50.4	mg/Kg			03/04/24 01:53	1

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Client Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Client Sample ID: BH 04 - 1'

Lab Sample ID: 890-6279-8

Date Collected: 02/26/24 11:38

Matrix: Solid

Date Received: 02/28/24 16:02

Sample Depth: 1'

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<50.4	U *1	50.4	mg/Kg		03/03/24 00:31	03/04/24 01:53	1	
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4	mg/Kg		03/03/24 00:31	03/04/24 01:53	1	
OII Range Organics (Over C28-C36)	<50.4	U	50.4	mg/Kg		03/03/24 00:31	03/04/24 01:53	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	126		70 - 130			03/03/24 00:31	03/04/24 01:53	1	
o-Terphenyl	150	S1+	70 - 130			03/03/24 00:31	03/04/24 01:53	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	367		5.02	mg/Kg			03/05/24 01:47	1	

Surrogate Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

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)				
890-6279-1	BH 01 - 0.5'	95	87				
890-6279-1 MS	BH 01 - 0.5'	108	89				
890-6279-1 MSD	BH 01 - 0.5'	115	84				
890-6279-2	BH 01 - 1'	92	87				
890-6279-3	BH 02 - 0.5'	114	103				
890-6279-4	BH 02 - 1'	104	98				
890-6279-5	BH 03 - 0.5'	107	98				
890-6279-6	BH 03 - 1'	62 S1-	88				
890-6279-7	BH 04 - 0.5'	93	89				
890-6279-8	BH 04 - 1'	102	94				
LCS 880-74618/1-A	Lab Control Sample	114	112				
LCSD 880-74618/2-A	Lab Control Sample Dup	114	112				
MB 880-74523/5-A	Method Blank	62 S1-	87				
MB 880-74618/5-A	Method Blank	62 S1-	88				
Surrogate Legend							
BFB = 4-Bromofluorobenzene (Surr)							
DFBZ = 1,4-Difluorobenzene (Surr)							

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	1CO1	OTPH1				
		(70-130)	(70-130)				
890-6269-A-1-D MS	Matrix Spike	113	112				
890-6269-A-1-E MSD	Matrix Spike Duplicate	101	100				
890-6279-1	BH 01 - 0.5'	109	119				
890-6279-2	BH 01 - 1'	113	120				
890-6279-3	BH 02 - 0.5'	140 S1+	151 S1+				
890-6279-4	BH 02 - 1'	135 S1+	148 S1+				
890-6279-5	BH 03 - 0.5'	119	126				
890-6279-6	BH 03 - 1'	117	124				
890-6279-7	BH 04 - 0.5'	141 S1+	151 S1+				
890-6279-8	BH 04 - 1'	126	150 S1+				
LCS 880-74529/2-A	Lab Control Sample	107	138 S1+				
LCSD 880-74529/3-A	Lab Control Sample Dup	112	138 S1+				
MB 880-74529/1-A	Method Blank	145 S1+	156 S1+				
Surrogate Legend							
1CO = 1-Chlorooctane							
OTPH = o-Terphenyl							

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QC Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-74523/5-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 74553						Prep Batch: 74523			
Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		03/02/24 11:17	03/04/24 11:55	1	
Toluene	<0.00200	U	0.00200	mg/Kg		03/02/24 11:17	03/04/24 11:55	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/02/24 11:17	03/04/24 11:55	1	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		03/02/24 11:17	03/04/24 11:55	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/02/24 11:17	03/04/24 11:55	1	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		03/02/24 11:17	03/04/24 11:55	1	
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	62	S1-	70 - 130			03/02/24 11:17	03/04/24 11:55	1	
1,4-Difluorobenzene (Surr)	87		70 - 130			03/02/24 11:17	03/04/24 11:55	1	

Lab Sample ID: MB 880-74618/5-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 74553						Prep Batch: 74618			
Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 01:13	1	
Toluene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 01:13	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 01:13	1	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		03/04/24 11:27	03/05/24 01:13	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 01:13	1	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		03/04/24 11:27	03/05/24 01:13	1	
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	62	S1-	70 - 130			03/04/24 11:27	03/05/24 01:13	1	
1,4-Difluorobenzene (Surr)	88		70 - 130			03/04/24 11:27	03/05/24 01:13	1	

Lab Sample ID: LCS 880-74618/1-A						Client Sample ID: Lab Control Sample			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 74553						Prep Batch: 74618			
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	0.100	0.09004		mg/Kg		90	70 - 130		
Toluene	0.100	0.08524		mg/Kg		85	70 - 130		
Ethylbenzene	0.100	0.1028		mg/Kg		103	70 - 130		
m-Xylene & p-Xylene	0.200	0.2045		mg/Kg		102	70 - 130		
o-Xylene	0.100	0.1079		mg/Kg		108	70 - 130		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	114		70 - 130						
1,4-Difluorobenzene (Surr)	112		70 - 130						

Lab Sample ID: LCSD 880-74618/2-A						Client Sample ID: Lab Control Sample Dup			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 74553						Prep Batch: 74618			
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit
Benzene	0.100	0.09711		mg/Kg		97	70 - 130		8 35

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QC Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

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

Lab Sample ID: LCSD 880-74618/2-A					Client Sample ID: Lab Control Sample Dup						
Matrix: Solid					Prep Type: Total/NA						
Analysis Batch: 74553					Prep Batch: 74618						
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit	
							Limits				
Toluene	0.100	0.09538		mg/Kg		95	70 - 130		11	35	
Ethylbenzene	0.100	0.1092		mg/Kg		109	70 - 130		6	35	
m-Xylene & p-Xylene	0.200	0.2171		mg/Kg		109	70 - 130		6	35	
o-Xylene	0.100	0.1147		mg/Kg		115	70 - 130		6	35	
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	114		70 - 130								
1,4-Difluorobenzene (Surr)	112		70 - 130								

Lab Sample ID: 890-6279-1 MS				Client Sample ID: BH 01 - 0.5'							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 74553				Prep Batch: 74618							
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.101	0.07748		mg/Kg		77	70 - 130		
Toluene	<0.00199	U	0.101	0.07923		mg/Kg		79	70 - 130		
Ethylbenzene	<0.00199	U	0.101	0.08771		mg/Kg		87	70 - 130		
m-Xylene & p-Xylene	<0.00398	U	0.202	0.1743		mg/Kg		86	70 - 130		
o-Xylene	<0.00199	U	0.101	0.09036		mg/Kg		90	70 - 130		
Surrogate	MS %Recovery	MS Qualifier	Limits								
4-Bromofluorobenzene (Surr)	108		70 - 130								
1,4-Difluorobenzene (Surr)	89		70 - 130								

Lab Sample ID: 890-6279-1 MSD				Client Sample ID: BH 01 - 0.5'							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 74553				Prep Batch: 74618							
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.100	0.08960		mg/Kg		89	70 - 130	15	35
Toluene	<0.00199	U	0.100	0.09376		mg/Kg		93	70 - 130	17	35
Ethylbenzene	<0.00199	U	0.100	0.1021		mg/Kg		102	70 - 130	15	35
m-Xylene & p-Xylene	<0.00398	U	0.201	0.2047		mg/Kg		102	70 - 130	16	35
o-Xylene	<0.00199	U	0.100	0.1045		mg/Kg		104	70 - 130	15	35
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	115		70 - 130								
1,4-Difluorobenzene (Surr)	84		70 - 130								

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

Lab Sample ID: MB 880-74529/1-A				Client Sample ID: Method Blank							
Matrix: Solid				Prep Type: Total/NA							
Analysis Batch: 74542				Prep Batch: 74529							
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		03/03/24 00:31	03/03/24 20:56	1			

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QC Sample Results

Client: Ensolum

Job ID: 890-6279-1

Project/Site: Blueberry Hill 3H 4H 6H CTB

SDG: 03A2040018

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

Lab Sample ID: MB 880-74529/1-A

Matrix: Solid

Analysis Batch: 74542

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 74529

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		03/03/24 00:31	03/03/24 20:56	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		03/03/24 00:31	03/03/24 20:56	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
1-Chlorooctane	145	S1+	70 - 130			03/03/24 00:31	03/03/24 20:56	1
o-Terphenyl	156	S1+	70 - 130			03/03/24 00:31	03/03/24 20:56	1

Lab Sample ID: LCS 880-74529/2-A

Matrix: Solid

Analysis Batch: 74542

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 74529

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C6-C10	1000	877.9		mg/Kg		88	70 - 130	
Diesel Range Organics (Over C10-C28)	1000	910.2		mg/Kg		91	70 - 130	
Surrogate		LCS	LCS					
		%Recovery	Qualifier					
1-Chlorooctane		107					70 - 130	
o-Terphenyl		138	S1+				70 - 130	

Lab Sample ID: LCSD 880-74529/3-A

Matrix: Solid

Analysis Batch: 74542

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 74529

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1192	*1	mg/Kg		119	70 - 130	30	20
Diesel Range Organics (Over C10-C28)	1000	939.0		mg/Kg		94	70 - 130	3	20
Surrogate		LCSD	LCSD						
		%Recovery	Qualifier						
1-Chlorooctane		112					70 - 130		
o-Terphenyl		138	S1+				70 - 130		

Lab Sample ID: 890-6269-A-1-D MS

Matrix: Solid

Analysis Batch: 74542

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 74529

Analyte	Sample	Sample	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
	Result	Qualifier								
Gasoline Range Organics (GRO)-C6-C10	<49.7	U *1	1000	1081		mg/Kg		108	70 - 130	
Diesel Range Organics (Over C10-C28)	<49.7	U	1000	1020		mg/Kg		97	70 - 130	
Surrogate		MS	MS							
		%Recovery	Qualifier							
1-Chlorooctane		113							70 - 130	
o-Terphenyl		112							70 - 130	

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QC Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

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

Lab Sample ID: 890-6269-A-1-E MSD

Matrix: Solid

Analysis Batch: 74542

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 74529

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<49.7	U *1	1000	920.6		mg/Kg		92	70 - 130	16	20
Diesel Range Organics (Over C10-C28)	<49.7	U	1000	916.8		mg/Kg		87	70 - 130	11	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	101		70 - 130								
o-Terphenyl	100		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-74410/1-A

Matrix: Solid

Analysis Batch: 74634

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<5.00	U	5.00	mg/Kg			03/05/24 00:29	1

Lab Sample ID: LCS 880-74410/2-A

Matrix: Solid

Analysis Batch: 74634

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	247.3		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-74410/3-A

Matrix: Solid

Analysis Batch: 74634

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

			Spike	LCS	LCS				%Rec		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Chloride			250	247.8		mg/Kg		99	90 - 110	0	20

Lab Sample ID: 890-6279-1 MS

Matrix: Solid

Analysis Batch: 74634

Client Sample ID: BH 01 - 0.5'

Prep Type: Soluble

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec		
	Result	Qualifier	Added	Result	Qualifier			Limits			
Chloride	127		251	358.9		mg/Ka		93	90 - 110		

Lab Sample ID: 890-6279-1 MSD

Matrix: Solid

Analysis Batch: 74634

Client Sample ID: BH 01 - 0.5'

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	127		251	358.9		mg/Kg		93	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

GC VOA

Prep Batch: 74523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-74523/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 74553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6279-1	BH 01 - 0.5'	Total/NA	Solid	8021B	74618
890-6279-2	BH 01 - 1'	Total/NA	Solid	8021B	74618
890-6279-3	BH 02 - 0.5'	Total/NA	Solid	8021B	74618
890-6279-4	BH 02 - 1'	Total/NA	Solid	8021B	74618
890-6279-5	BH 03 - 0.5'	Total/NA	Solid	8021B	74618
890-6279-6	BH 03 - 1'	Total/NA	Solid	8021B	74618
890-6279-7	BH 04 - 0.5'	Total/NA	Solid	8021B	74618
890-6279-8	BH 04 - 1'	Total/NA	Solid	8021B	74618
MB 880-74523/5-A	Method Blank	Total/NA	Solid	8021B	74523
MB 880-74618/5-A	Method Blank	Total/NA	Solid	8021B	74618
LCS 880-74618/1-A	Lab Control Sample	Total/NA	Solid	8021B	74618
LCSD 880-74618/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	74618
890-6279-1 MS	BH 01 - 0.5'	Total/NA	Solid	8021B	74618
890-6279-1 MSD	BH 01 - 0.5'	Total/NA	Solid	8021B	74618

Prep Batch: 74618

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6279-1	BH 01 - 0.5'	Total/NA	Solid	5035	
890-6279-2	BH 01 - 1'	Total/NA	Solid	5035	
890-6279-3	BH 02 - 0.5'	Total/NA	Solid	5035	
890-6279-4	BH 02 - 1'	Total/NA	Solid	5035	
890-6279-5	BH 03 - 0.5'	Total/NA	Solid	5035	
890-6279-6	BH 03 - 1'	Total/NA	Solid	5035	
890-6279-7	BH 04 - 0.5'	Total/NA	Solid	5035	
890-6279-8	BH 04 - 1'	Total/NA	Solid	5035	
MB 880-74618/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-74618/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-74618/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-6279-1 MS	BH 01 - 0.5'	Total/NA	Solid	5035	
890-6279-1 MSD	BH 01 - 0.5'	Total/NA	Solid	5035	

Analysis Batch: 74824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6279-1	BH 01 - 0.5'	Total/NA	Solid	Total BTEX	
890-6279-2	BH 01 - 1'	Total/NA	Solid	Total BTEX	
890-6279-3	BH 02 - 0.5'	Total/NA	Solid	Total BTEX	
890-6279-4	BH 02 - 1'	Total/NA	Solid	Total BTEX	
890-6279-5	BH 03 - 0.5'	Total/NA	Solid	Total BTEX	
890-6279-6	BH 03 - 1'	Total/NA	Solid	Total BTEX	
890-6279-7	BH 04 - 0.5'	Total/NA	Solid	Total BTEX	
890-6279-8	BH 04 - 1'	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 74529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6279-1	BH 01 - 0.5'	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

GC Semi VOA (Continued)

Prep Batch: 74529 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6279-2	BH 01 - 1'	Total/NA	Solid	8015NM Prep	
890-6279-3	BH 02 - 0.5'	Total/NA	Solid	8015NM Prep	
890-6279-4	BH 02 - 1'	Total/NA	Solid	8015NM Prep	
890-6279-5	BH 03 - 0.5'	Total/NA	Solid	8015NM Prep	
890-6279-6	BH 03 - 1'	Total/NA	Solid	8015NM Prep	
890-6279-7	BH 04 - 0.5'	Total/NA	Solid	8015NM Prep	
890-6279-8	BH 04 - 1'	Total/NA	Solid	8015NM Prep	
MB 880-74529/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-74529/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-74529/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-6269-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-6269-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 74542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6279-1	BH 01 - 0.5'	Total/NA	Solid	8015B NM	74529
890-6279-2	BH 01 - 1'	Total/NA	Solid	8015B NM	74529
890-6279-3	BH 02 - 0.5'	Total/NA	Solid	8015B NM	74529
890-6279-4	BH 02 - 1'	Total/NA	Solid	8015B NM	74529
890-6279-5	BH 03 - 0.5'	Total/NA	Solid	8015B NM	74529
890-6279-6	BH 03 - 1'	Total/NA	Solid	8015B NM	74529
890-6279-7	BH 04 - 0.5'	Total/NA	Solid	8015B NM	74529
890-6279-8	BH 04 - 1'	Total/NA	Solid	8015B NM	74529
MB 880-74529/1-A	Method Blank	Total/NA	Solid	8015B NM	74529
LCS 880-74529/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	74529
LCSD 880-74529/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	74529
890-6269-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	74529
890-6269-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	74529

Analysis Batch: 74706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6279-1	BH 01 - 0.5'	Total/NA	Solid	8015 NM	
890-6279-2	BH 01 - 1'	Total/NA	Solid	8015 NM	
890-6279-3	BH 02 - 0.5'	Total/NA	Solid	8015 NM	
890-6279-4	BH 02 - 1'	Total/NA	Solid	8015 NM	
890-6279-5	BH 03 - 0.5'	Total/NA	Solid	8015 NM	
890-6279-6	BH 03 - 1'	Total/NA	Solid	8015 NM	
890-6279-7	BH 04 - 0.5'	Total/NA	Solid	8015 NM	
890-6279-8	BH 04 - 1'	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 74410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6279-1	BH 01 - 0.5'	Soluble	Solid	DI Leach	
890-6279-2	BH 01 - 1'	Soluble	Solid	DI Leach	
890-6279-3	BH 02 - 0.5'	Soluble	Solid	DI Leach	
890-6279-4	BH 02 - 1'	Soluble	Solid	DI Leach	
890-6279-5	BH 03 - 0.5'	Soluble	Solid	DI Leach	
890-6279-6	BH 03 - 1'	Soluble	Solid	DI Leach	
890-6279-7	BH 04 - 0.5'	Soluble	Solid	DI Leach	

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QC Association Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

HPLC/IC (Continued)

Leach Batch: 74410 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6279-8	BH 04 - 1'	Soluble	Solid	DI Leach	
MB 880-74410/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-74410/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-74410/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-6279-1 MS	BH 01 - 0.5'	Soluble	Solid	DI Leach	
890-6279-1 MSD	BH 01 - 0.5'	Soluble	Solid	DI Leach	

Analysis Batch: 74634

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6279-1	BH 01 - 0.5'	Soluble	Solid	300.0	74410
890-6279-2	BH 01 - 1'	Soluble	Solid	300.0	74410
890-6279-3	BH 02 - 0.5'	Soluble	Solid	300.0	74410
890-6279-4	BH 02 - 1'	Soluble	Solid	300.0	74410
890-6279-5	BH 03 - 0.5'	Soluble	Solid	300.0	74410
890-6279-6	BH 03 - 1'	Soluble	Solid	300.0	74410
890-6279-7	BH 04 - 0.5'	Soluble	Solid	300.0	74410
890-6279-8	BH 04 - 1'	Soluble	Solid	300.0	74410
MB 880-74410/1-A	Method Blank	Soluble	Solid	300.0	74410
LCS 880-74410/2-A	Lab Control Sample	Soluble	Solid	300.0	74410
LCSD 880-74410/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	74410
890-6279-1 MS	BH 01 - 0.5'	Soluble	Solid	300.0	74410
890-6279-1 MSD	BH 01 - 0.5'	Soluble	Solid	300.0	74410

Lab Chronicle

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Client Sample ID: BH 01 - 0.5'

Lab Sample ID: 890-6279-1

Date Collected: 02/26/24 09:42

Matrix: Solid

Date Received: 02/28/24 16:02

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	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 01:38	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74824	03/05/24 01:38	SM	EET MID
Total/NA	Analysis	8015 NM		1			74706	03/03/24 23:27	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	74529	03/03/24 00:31	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74542	03/03/24 23:27	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 00:46	CH	EET MID

Client Sample ID: BH 01 - 1'

Lab Sample ID: 890-6279-2

Date Collected: 02/26/24 09:46

Matrix: Solid

Date Received: 02/28/24 16:02

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 02:04	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74824	03/05/24 02:04	SM	EET MID
Total/NA	Analysis	8015 NM		1			74706	03/03/24 23:48	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	74529	03/03/24 00:31	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74542	03/03/24 23:48	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 01:03	CH	EET MID

Client Sample ID: BH 02 - 0.5'

Lab Sample ID: 890-6279-3

Date Collected: 02/26/24 10:30

Matrix: Solid

Date Received: 02/28/24 16:02

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	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 02:29	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74824	03/05/24 02:29	SM	EET MID
Total/NA	Analysis	8015 NM		1			74706	03/04/24 00:08	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	74529	03/03/24 00:31	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74542	03/04/24 00:08	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 01:08	CH	EET MID

Client Sample ID: BH 02 - 1'

Lab Sample ID: 890-6279-4

Date Collected: 02/26/24 10:32

Matrix: Solid

Date Received: 02/28/24 16:02

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 02:55	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74824	03/05/24 02:55	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Client Sample ID: BH 02 - 1'
Date Collected: 02/26/24 10:32
Date Received: 02/28/24 16:02

Lab Sample ID: 890-6279-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			74706	03/04/24 00:29	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	74529	03/03/24 00:31	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74542	03/04/24 00:29	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 01:14	CH	EET MID

Client Sample ID: BH 03 - 0.5'
Date Collected: 02/26/24 11:22
Date Received: 02/28/24 16:02

Lab Sample ID: 890-6279-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 03:20	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74824	03/05/24 03:20	SM	EET MID
Total/NA	Analysis	8015 NM		1			74706	03/04/24 00:50	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	74529	03/03/24 00:31	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74542	03/04/24 00:50	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 01:19	CH	EET MID

Client Sample ID: BH 03 - 1'
Date Collected: 02/26/24 11:24
Date Received: 02/28/24 16:02

Lab Sample ID: 890-6279-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 03:46	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74824	03/05/24 03:46	SM	EET MID
Total/NA	Analysis	8015 NM		1			74706	03/04/24 01:11	SM	EET MID
Total/NA	Prep	8015NM Prep			9.98 g	10 mL	74529	03/03/24 00:31	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74542	03/04/24 01:11	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 01:36	CH	EET MID

Client Sample ID: BH 04 - 0.5'
Date Collected: 02/26/24 11:30
Date Received: 02/28/24 16:02

Lab Sample ID: 890-6279-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 04:11	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74824	03/05/24 04:11	SM	EET MID
Total/NA	Analysis	8015 NM		1			74706	03/04/24 01:32	SM	EET MID
Total/NA	Prep	8015NM Prep			9.97 g	10 mL	74529	03/03/24 00:31	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74542	03/04/24 01:32	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Client Sample ID: BH 04 - 0.5'

Lab Sample ID: 890-6279-7

Date Collected: 02/26/24 11:30

Matrix: Solid

Date Received: 02/28/24 16:02

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 01:41	CH	EET MID

Client Sample ID: BH 04 - 1'

Lab Sample ID: 890-6279-8

Date Collected: 02/26/24 11:38

Matrix: Solid

Date Received: 02/28/24 16:02

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	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 04:37	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74824	03/05/24 04:37	SM	EET MID
Total/NA	Analysis	8015 NM		1			74706	03/04/24 01:53	SM	EET MID
Total/NA	Prep	8015NM Prep			9.92 g	10 mL	74529	03/03/24 00:31	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74542	03/04/24 01:53	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 01:47	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: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

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

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6279-1
SDG: 03A2040018

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-6279-1	BH 01 - 0.5'	Solid	02/26/24 09:42	02/28/24 16:02	0.5'
890-6279-2	BH 01 - 1'	Solid	02/26/24 09:46	02/28/24 16:02	1'
890-6279-3	BH 02 - 0.5'	Solid	02/26/24 10:30	02/28/24 16:02	0.5'
890-6279-4	BH 02 - 1'	Solid	02/26/24 10:32	02/28/24 16:02	1'
890-6279-5	BH 03 - 0.5'	Solid	02/26/24 11:22	02/28/24 16:02	0.5'
890-6279-6	BH 03 - 1'	Solid	02/26/24 11:24	02/28/24 16:02	1'
890-6279-7	BH 04 - 0.5'	Solid	02/26/24 11:30	02/28/24 16:02	0.5'
890-6279-8	BH 04 - 1'	Solid	02/26/24 11:38	02/28/24 16:02	1'

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Environment Testing
Xenco

Chain of Custody



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

Work Order No: _____

www.xenco.com Page 1 of 1

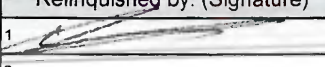
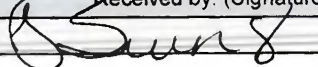
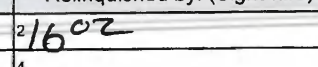
Project Manager:	Ashley Giovengo	Bill to: (if different)	Isaac Castro
Company Name:	Ensolum LLC	Company Name:	Marathon Oil Company
Address:	3122 National Parks Hwy	Address:	4111 S. Tidwell Road
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	505-988-0055	Email:	agiovengo@ensolum.com, chamilton@ensolum.com

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

Project Name:		Blueberry Hill 3H 4H 6H CTB		Turn Around		ANALYSIS REQUEST										Preservative Codes				
Project Number:		03A2040018		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush		Pres. Code										None: NO DI Water: H ₂ O				
Project Location:		32.203647, -103.402411		Due Date:		 890-6279 Chain of Custody										Cool: Cool MeOH: Me				
Sampler's Name:		Chad Hamilton, Omar Hamdy		TAT starts the day received by the lab, if received by 4:30pm												HCL: HC HNO ₃ : HN				
Cost Center #:		CL.24.00483														H ₂ SO ₄ : H ₂ NaOH: Na				
SAMPLE RECEIPT		Temp Blank: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Wet Ice: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>												H ₃ PO ₄ : HP				
Samples Received Intact:		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Thermometer ID:		T/MCOO		 890-6279 Chain of Custody										NaHSO ₄ : NABIS		
Cooler Custody Seals:		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/>		Correction Factor:		-0.2												Na ₂ S ₂ O ₃ : NaSO ₃		
Sample Custody Seals:		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/>		Temperature Reading:		5.0												Zn Acetate+NaOH: Zn		
Total Containers:				Corrected Temperature:		4.8												NaOH+Ascorbic Acid: SAPC		
Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)	Sample Comments									
BH01 - 0.5'		S	2/26/2024	9:42	0.5'		1	X	X	X										
BH01 - 1'		S	2/26/2024	9:46	1'		1	X	X	X										
BH02 - 0.5'		S	2/26/2024	10:30	0.5'		1	X	X	X										
BH02 - 1'		S	2/26/2024	10:32	1'		1	X	X	X										
BH03 - 0.5'		S	2/26/2024	11:22	0.5'		1	X	X	X										
BH03 - 1'		S	2/26/2024	11:24	1'		1	X	X	X										
BH04 - 0.5'		S	2/26/2024	11:30	0.5'		1	X	X	X										
BH04 - 1'		S	2/26/2024	11:38	1'		1	X	X	X										

Total 200.7 / 6010	200.8 / 6020:	8RCRA	13PPM	Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Ti	Sn	U	V	Zn
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010:		8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U	Hg: 1631 / 245.1 / 7470 / 7471											

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		2/28/24			
1			2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-6279-1

SDG Number: 03A2040018

Login Number: 6279

List Source: Eurofins Carlsbad

List Number: 1

Creator: Bruns, Shannon

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: 890-6279-1

SDG Number: 03A2040018

Login Number: 6279

List Source: Eurofins Midland

List Number: 2

List Creation: 03/01/24 12:29 PM

Creator: Rodriguez, Leticia

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



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Ashley Ager
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701
Generated 3/5/2024 1:39:00 PM

JOB DESCRIPTION

Blueberry Hill 3H 4H 6H CTB
03A2040018

JOB NUMBER

890-6280-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad

Job Notes

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

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

Authorization



Generated
3/5/2024 1:39:00 PM

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

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Laboratory Job ID: 890-6280-1
SDG: 03A2040018

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Definitions/Glossary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1

Job ID: 890-6280-1

Eurofins Carlsbad

Job Narrative 890-6280-1

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

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

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

Receipt

The samples were received on 2/28/2024 4:35 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 4.8°C.

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH01-2 (890-6280-1), BH02-2 (890-6280-2), BH03-2 (890-6280-3) and BH04-1.5 (890-6280-4).

GC VOA

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-74523 and 880-74618 and analytical batch 880-74553 was outside the control limits.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-74553 recovered above the upper control limit for Ethylbenzene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 880-74553/20).

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

GC Semi VOA

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

HPLC/IC

Method 300_ORGFM_28D - Soluble: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-74410 and analytical batch 880-74634 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.

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Client Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

Client Sample ID: BH01-2

Lab Sample ID: 890-6280-1

Date Collected: 02/26/24 09:53

Matrix: Solid

Date Received: 02/28/24 16:35

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		03/04/24 11:27	03/05/24 05:02	1
Toluene	<0.00198	U	0.00198	mg/Kg		03/04/24 11:27	03/05/24 05:02	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		03/04/24 11:27	03/05/24 05:02	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		03/04/24 11:27	03/05/24 05:02	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		03/04/24 11:27	03/05/24 05:02	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		03/04/24 11:27	03/05/24 05:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	03/04/24 11:27	03/05/24 05:02	1
1,4-Difluorobenzene (Surr)	97		70 - 130	03/04/24 11:27	03/05/24 05:02	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			03/05/24 05:02	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.3	U	50.3	mg/Kg			03/04/24 04:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3	mg/Kg		03/03/24 00:24	03/04/24 04:40	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3	mg/Kg		03/03/24 00:24	03/04/24 04:40	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		03/03/24 00:24	03/04/24 04:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130	03/03/24 00:24	03/04/24 04:40	1
o-Terphenyl	100		70 - 130	03/03/24 00:24	03/04/24 04:40	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	63.8		4.99	mg/Kg			03/05/24 01:52	1

Client Sample ID: BH02-2

Lab Sample ID: 890-6280-2

Date Collected: 02/26/24 10:38

Matrix: Solid

Date Received: 02/28/24 16:35

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		03/04/24 11:27	03/05/24 05:27	1
Toluene	<0.00202	U	0.00202	mg/Kg		03/04/24 11:27	03/05/24 05:27	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		03/04/24 11:27	03/05/24 05:27	1
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		03/04/24 11:27	03/05/24 05:27	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		03/04/24 11:27	03/05/24 05:27	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		03/04/24 11:27	03/05/24 05:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130	03/04/24 11:27	03/05/24 05:27	1
1,4-Difluorobenzene (Surr)	98		70 - 130	03/04/24 11:27	03/05/24 05:27	1

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Client Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

Client Sample ID: BH02-2

Lab Sample ID: 890-6280-2

Date Collected: 02/26/24 10:38

Matrix: Solid

Date Received: 02/28/24 16:35

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			03/05/24 05:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.4	U	50.4	mg/Kg			03/04/24 05:01	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.4	U	50.4	mg/Kg		03/03/24 00:24	03/04/24 05:01	1
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4	mg/Kg		03/03/24 00:24	03/04/24 05:01	1
Oil Range Organics (Over C28-C36)	<50.4	U	50.4	mg/Kg		03/03/24 00:24	03/04/24 05:01	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130			03/03/24 00:24	03/04/24 05:01	1
o-Terphenyl	94		70 - 130			03/03/24 00:24	03/04/24 05:01	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	47.2		4.96	mg/Kg			03/05/24 01:58	1

Client Sample ID: BH03-2

Lab Sample ID: 890-6280-3

Date Collected: 02/26/24 11:27

Matrix: Solid

Date Received: 02/28/24 16:35

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		03/04/24 11:27	03/05/24 07:14	1
Toluene	<0.00201	U	0.00201	mg/Kg		03/04/24 11:27	03/05/24 07:14	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		03/04/24 11:27	03/05/24 07:14	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		03/04/24 11:27	03/05/24 07:14	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		03/04/24 11:27	03/05/24 07:14	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		03/04/24 11:27	03/05/24 07:14	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130			03/04/24 11:27	03/05/24 07:14	1
1,4-Difluorobenzene (Surr)	81		70 - 130			03/04/24 11:27	03/05/24 07:14	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			03/05/24 07:14	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.5	U	50.5	mg/Kg			03/04/24 05:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5	mg/Kg		03/03/24 00:24	03/04/24 05:23	1
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5	mg/Kg		03/03/24 00:24	03/04/24 05:23	1

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Client Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

Client Sample ID: BH03-2

Lab Sample ID: 890-6280-3

Date Collected: 02/26/24 11:27

Matrix: Solid

Date Received: 02/28/24 16:35

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oil Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		03/03/24 00:24	03/04/24 05:23	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	120		70 - 130			03/03/24 00:24	03/04/24 05:23	1
o-Terphenyl	105		70 - 130			03/03/24 00:24	03/04/24 05:23	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	85.2	F1	5.04	mg/Kg			03/05/24 02:03	1

Client Sample ID: BH04-1.5

Lab Sample ID: 890-6280-4

Date Collected: 02/26/24 11:40

Matrix: Solid

Date Received: 02/28/24 16:35

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		03/04/24 11:27	03/05/24 07:41	1
Toluene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 07:41	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 07:41	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		03/04/24 11:27	03/05/24 07:41	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 07:41	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		03/04/24 11:27	03/05/24 07:41	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130			03/04/24 11:27	03/05/24 07:41	1
1,4-Difluorobenzene (Surr)	84		70 - 130			03/04/24 11:27	03/05/24 07:41	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			03/05/24 07:41	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			03/04/24 05:44	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		03/03/24 00:24	03/04/24 05:44	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		03/03/24 00:24	03/04/24 05:44	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		03/03/24 00:24	03/04/24 05:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130			03/03/24 00:24	03/04/24 05:44	1
o-Terphenyl	95		70 - 130			03/03/24 00:24	03/04/24 05:44	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	198		4.98	mg/Kg			03/05/24 02:20	1

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Surrogate Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

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)
890-6279-A-1-E MS	Matrix Spike	108	89
890-6279-A-1-F MSD	Matrix Spike Duplicate	115	84
890-6280-1	BH01-2	109	97
890-6280-2	BH02-2	113	98
890-6280-3	BH03-2	98	81
890-6280-4	BH04-1.5	100	84
LCS 880-74618/1-A	Lab Control Sample	114	112
LCSD 880-74618/2-A	Lab Control Sample Dup	114	112
MB 880-74523/5-A	Method Blank	62 S1-	87
MB 880-74618/5-A	Method Blank	62 S1-	88
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

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

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-6280-1	BH01-2	113	100
890-6280-2	BH02-2	107	94
890-6280-3	BH03-2	120	105
890-6280-4	BH04-1.5	107	95
890-6285-A-39-D MS	Matrix Spike	119	96
890-6285-A-39-E MSD	Matrix Spike Duplicate	118	97
LCS 880-74527/2-A	Lab Control Sample	83	71
LCSD 880-74527/3-A	Lab Control Sample Dup	97	84
MB 880-74527/1-A	Method Blank	107	97
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-74523/5-A
Matrix: Solid
Analysis Batch: 74553

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 74523

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		03/02/24 11:17	03/04/24 11:55	1
Toluene	<0.00200	U	0.00200	mg/Kg		03/02/24 11:17	03/04/24 11:55	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/02/24 11:17	03/04/24 11:55	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		03/02/24 11:17	03/04/24 11:55	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/02/24 11:17	03/04/24 11:55	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		03/02/24 11:17	03/04/24 11:55	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	62	S1-	70 - 130			03/02/24 11:17	03/04/24 11:55	1
1,4-Difluorobenzene (Surr)	87		70 - 130			03/02/24 11:17	03/04/24 11:55	1

Lab Sample ID: MB 880-74618/5-A
Matrix: Solid
Analysis Batch: 74553

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 74618

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 01:13	1
Toluene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 01:13	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 01:13	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		03/04/24 11:27	03/05/24 01:13	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/04/24 11:27	03/05/24 01:13	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		03/04/24 11:27	03/05/24 01:13	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	62	S1-	70 - 130			03/04/24 11:27	03/05/24 01:13	1
1,4-Difluorobenzene (Surr)	88		70 - 130			03/04/24 11:27	03/05/24 01:13	1

Lab Sample ID: LCS 880-74618/1-A
Matrix: Solid
Analysis Batch: 74553

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 74618

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09004		mg/Kg		90	70 - 130
Toluene	0.100	0.08524		mg/Kg		85	70 - 130
Ethylbenzene	0.100	0.1028		mg/Kg		103	70 - 130
m-Xylene & p-Xylene	0.200	0.2045		mg/Kg		102	70 - 130
o-Xylene	0.100	0.1079		mg/Kg		108	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	114		70 - 130				
1,4-Difluorobenzene (Surr)	112		70 - 130				

Lab Sample ID: LCSD 880-74618/2-A
Matrix: Solid
Analysis Batch: 74553

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 74618

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09711		mg/Kg		97	70 - 130	8	35

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QC Sample Results

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

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

Lab Sample ID: LCSD 880-74618/2-A
Matrix: Solid
Analysis Batch: 74553

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 74618

Analyte	Spike		LCSD	LCSD	Unit	D	%Rec	%Rec		RPD	
	Added	Result	Qualifier	Result			Limits	RPD	Limit		
Toluene	0.100	0.09538			mg/Kg		95	70 - 130	11	35	
Ethylbenzene	0.100	0.1092			mg/Kg		109	70 - 130	6	35	
m-Xylene & p-Xylene	0.200	0.2171			mg/Kg		109	70 - 130	6	35	
o-Xylene	0.100	0.1147			mg/Kg		115	70 - 130	6	35	
Surrogate		LCSD	LCSD	Limits							
	%Recovery	Qualifier									
4-Bromofluorobenzene (Surr)	114		70 - 130								
1,4-Difluorobenzene (Surr)	112		70 - 130								

Lab Sample ID: 890-6279-A-1-E MS
Matrix: Solid
Analysis Batch: 74553

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 74618

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec		
	Result	Qualifier	Added	Result	Qualifier				Limits		
Benzene	<0.00199	U	0.101	0.07748		mg/Kg		77	70 - 130		
Toluene	<0.00199	U	0.101	0.07923		mg/Kg		79	70 - 130		
Ethylbenzene	<0.00199	U	0.101	0.08771		mg/Kg		87	70 - 130		
m-Xylene & p-Xylene	<0.00398	U	0.202	0.1743		mg/Kg		86	70 - 130		
o-Xylene	<0.00199	U	0.101	0.09036		mg/Kg		90	70 - 130		
Surrogate	MS	MS									
	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	108		70 - 130								
1,4-Difluorobenzene (Surr)	89		70 - 130								

Lab Sample ID: 890-6279-A-1-F MSD

Matrix: Solid

Analysis Batch: 74553

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 74618

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00199	U	0.100	0.08960		mg/Kg		89	70 - 130	15	35
Toluene	<0.00199	U	0.100	0.09376		mg/Kg		93	70 - 130	17	35
Ethylbenzene	<0.00199	U	0.100	0.1021		mg/Kg		102	70 - 130	15	35
m-Xylene & p-Xylene	<0.00398	U	0.201	0.2047		mg/Kg		102	70 - 130	16	35
o-Xylene	<0.00199	U	0.100	0.1045		mg/Kg		104	70 - 130	15	35
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	115		70 - 130								
1,4-Difluorobenzene (Surr)	84		70 - 130								

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

Lab Sample ID: MB 880-74527/1-A
Matrix: Solid
Analysis Batch: 74540

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 74527

Analyte	MB	MB	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		03/03/24 00:24	03/03/24 20:56	1

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QC Sample Results

Client: Ensolum

Job ID: 890-6280-1

Project/Site: Blueberry Hill 3H 4H 6H CTB

SDG: 03A2040018

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

Lab Sample ID: MB 880-74527/1-A

Matrix: Solid

Analysis Batch: 74540

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 74527

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		03/03/24 00:24	03/03/24 20:56	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		03/03/24 00:24	03/03/24 20:56	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
1-Chlorooctane	107		70 - 130			03/03/24 00:24	03/03/24 20:56	1
o-Terphenyl	97		70 - 130			03/03/24 00:24	03/03/24 20:56	1

Lab Sample ID: LCS 880-74527/2-A

Matrix: Solid

Analysis Batch: 74540

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 74527

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec	Limits		
		Result	Qualifier				Limits			
Gasoline Range Organics (GRO)-C6-C10	1000	761.7		mg/Kg		76	70 - 130			
Diesel Range Organics (Over C10-C28)	1000	1023		mg/Kg		102	70 - 130			
Surrogate		LCS	LCS				Limits			
		%Recovery	Qualifier							
1-Chlorooctane		83					70 - 130			
o-Terphenyl		71					70 - 130			

Lab Sample ID: LCSD 880-74527/3-A

Matrix: Solid

Analysis Batch: 74540

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 74527

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
		Result	Qualifier				Limits			
Gasoline Range Organics (GRO)-C6-C10	1000	805.8		mg/Kg		81	70 - 130	6		20
Diesel Range Organics (Over C10-C28)	1000	1218		mg/Kg		122	70 - 130	17		20
Surrogate		LCSD	LCSD				Limits			
		%Recovery	Qualifier							
1-Chlorooctane		97					70 - 130			
o-Terphenyl		84					70 - 130			

Lab Sample ID: 890-6285-A-39-D MS

Matrix: Solid

Analysis Batch: 74540

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 74527

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec	Limits		
	Result	Qualifier		Result	Qualifier				Limits			
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	1000	906.2		mg/Kg		86	70 - 130			
Diesel Range Organics (Over C10-C28)	<49.6	U	1000	1062		mg/Kg		102	70 - 130			
Surrogate	MS	MS							Limits			
	%Recovery	Qualifier										
1-Chlorooctane	119								70 - 130			
o-Terphenyl	96								70 - 130			

Eurofins Carlsbad

QC Sample Results

Client: Ensolum

Job ID: 890-6280-1

Project/Site: Blueberry Hill 3H 4H 6H CTB

SDG: 03A2040018

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

Lab Sample ID: 890-6285-A-39-E MSD

Matrix: Solid

Analysis Batch: 74540

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 74527

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	<49.6	U	1000	923.7		mg/Kg		88	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.6	U	1000	1070		mg/Kg		103	70 - 130	1	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	118		70 - 130								
o-Terphenyl	97		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-74410/1-A

Matrix: Solid

Analysis Batch: 74634

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			03/05/24 00:29	1

Lab Sample ID: LCS 880-74410/2-A

Matrix: Solid

Analysis Batch: 74634

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	247.3		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-74410/3-A

Matrix: Solid

Analysis Batch: 74634

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	247.8		mg/Kg		99	90 - 110	0	20

Lab Sample ID: 890-6280-3 MS

Matrix: Solid

Analysis Batch: 74634

Client Sample ID: BH03-2

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	85.2	F1	252	365.4	F1	mg/Kg		111	90 - 110

Lab Sample ID: 890-6280-3 MSD

Matrix: Solid

Analysis Batch: 74634

Client Sample ID: BH03-2

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	85.2	F1	252	370.3	F1	mg/Kg		113	90 - 110	1	20

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

GC VOA

Prep Batch: 74523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-74523/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 74553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6280-1	BH01-2	Total/NA	Solid	8021B	74618
890-6280-2	BH02-2	Total/NA	Solid	8021B	74618
890-6280-3	BH03-2	Total/NA	Solid	8021B	74618
890-6280-4	BH04-1.5	Total/NA	Solid	8021B	74618
MB 880-74523/5-A	Method Blank	Total/NA	Solid	8021B	74523
MB 880-74618/5-A	Method Blank	Total/NA	Solid	8021B	74618
LCS 880-74618/1-A	Lab Control Sample	Total/NA	Solid	8021B	74618
LCSD 880-74618/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	74618
890-6279-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	74618
890-6279-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	74618

Prep Batch: 74618

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6280-1	BH01-2	Total/NA	Solid	5035	
890-6280-2	BH02-2	Total/NA	Solid	5035	
890-6280-3	BH03-2	Total/NA	Solid	5035	
890-6280-4	BH04-1.5	Total/NA	Solid	5035	
MB 880-74618/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-74618/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-74618/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-6279-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
890-6279-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 74825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6280-1	BH01-2	Total/NA	Solid	Total BTEX	
890-6280-2	BH02-2	Total/NA	Solid	Total BTEX	
890-6280-3	BH03-2	Total/NA	Solid	Total BTEX	
890-6280-4	BH04-1.5	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 74527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6280-1	BH01-2	Total/NA	Solid	8015NM Prep	
890-6280-2	BH02-2	Total/NA	Solid	8015NM Prep	
890-6280-3	BH03-2	Total/NA	Solid	8015NM Prep	
890-6280-4	BH04-1.5	Total/NA	Solid	8015NM Prep	
MB 880-74527/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-74527/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-74527/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-6285-A-39-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-6285-A-39-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 74540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6280-1	BH01-2	Total/NA	Solid	8015B NM	74527

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QC Association Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

GC Semi VOA (Continued)

Analysis Batch: 74540 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6280-2	BH02-2	Total/NA	Solid	8015B NM	74527
890-6280-3	BH03-2	Total/NA	Solid	8015B NM	74527
890-6280-4	BH04-1.5	Total/NA	Solid	8015B NM	74527
MB 880-74527/1-A	Method Blank	Total/NA	Solid	8015B NM	74527
LCS 880-74527/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	74527
LCSD 880-74527/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	74527
890-6285-A-39-D MS	Matrix Spike	Total/NA	Solid	8015B NM	74527
890-6285-A-39-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	74527

Analysis Batch: 74684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6280-1	BH01-2	Total/NA	Solid	8015 NM	
890-6280-2	BH02-2	Total/NA	Solid	8015 NM	
890-6280-3	BH03-2	Total/NA	Solid	8015 NM	
890-6280-4	BH04-1.5	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 74410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6280-1	BH01-2	Soluble	Solid	DI Leach	
890-6280-2	BH02-2	Soluble	Solid	DI Leach	
890-6280-3	BH03-2	Soluble	Solid	DI Leach	
890-6280-4	BH04-1.5	Soluble	Solid	DI Leach	
MB 880-74410/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-74410/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-74410/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-6280-3 MS	BH03-2	Soluble	Solid	DI Leach	
890-6280-3 MSD	BH03-2	Soluble	Solid	DI Leach	

Analysis Batch: 74634

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6280-1	BH01-2	Soluble	Solid	300.0	74410
890-6280-2	BH02-2	Soluble	Solid	300.0	74410
890-6280-3	BH03-2	Soluble	Solid	300.0	74410
890-6280-4	BH04-1.5	Soluble	Solid	300.0	74410
MB 880-74410/1-A	Method Blank	Soluble	Solid	300.0	74410
LCS 880-74410/2-A	Lab Control Sample	Soluble	Solid	300.0	74410
LCSD 880-74410/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	74410
890-6280-3 MS	BH03-2	Soluble	Solid	300.0	74410
890-6280-3 MSD	BH03-2	Soluble	Solid	300.0	74410

Lab Chronicle

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

Client Sample ID: BH01-2
Date Collected: 02/26/24 09:53
Date Received: 02/28/24 16:35

Lab Sample ID: 890-6280-1
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	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 05:02	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74825	03/05/24 05:02	SM	EET MID
Total/NA	Analysis	8015 NM		1			74684	03/04/24 04:40	SM	EET MID
Total/NA	Prep	8015NM Prep			9.95 g	10 mL	74527	03/03/24 00:24	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74540	03/04/24 04:40	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 01:52	CH	EET MID

Client Sample ID: BH02-2
Date Collected: 02/26/24 10:38
Date Received: 02/28/24 16:35

Lab Sample ID: 890-6280-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 05:27	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74825	03/05/24 05:27	SM	EET MID
Total/NA	Analysis	8015 NM		1			74684	03/04/24 05:01	SM	EET MID
Total/NA	Prep	8015NM Prep			9.92 g	10 mL	74527	03/03/24 00:24	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74540	03/04/24 05:01	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 01:58	CH	EET MID

Client Sample ID: BH03-2
Date Collected: 02/26/24 11:27
Date Received: 02/28/24 16:35

Lab Sample ID: 890-6280-3
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	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 07:14	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74825	03/05/24 07:14	SM	EET MID
Total/NA	Analysis	8015 NM		1			74684	03/04/24 05:23	SM	EET MID
Total/NA	Prep	8015NM Prep			9.90 g	10 mL	74527	03/03/24 00:24	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74540	03/04/24 05:23	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 02:03	CH	EET MID

Client Sample ID: BH04-1.5
Date Collected: 02/26/24 11:40
Date Received: 02/28/24 16:35

Lab Sample ID: 890-6280-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	74618	03/04/24 11:27	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	74553	03/05/24 07:41	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			74825	03/05/24 07:41	SM	EET MID

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Lab Chronicle

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

Client Sample ID: BH04-1.5

Lab Sample ID: 890-6280-4

Date Collected: 02/26/24 11:40

Matrix: Solid

Date Received: 02/28/24 16:35

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			74684	03/04/24 05:44	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	74527	03/03/24 00:24	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	74540	03/04/24 05:44	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	74410	03/01/24 11:27	SMC	EET MID
Soluble	Analysis	300.0		1			74634	03/05/24 02:20	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: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

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

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: Blueberry Hill 3H 4H 6H CTB

Job ID: 890-6280-1
SDG: 03A2040018

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
890-6280-1	BH01-2	Solid	02/26/24 09:53	02/28/24 16:35
890-6280-2	BH02-2	Solid	02/26/24 10:38	02/28/24 16:35
890-6280-3	BH03-2	Solid	02/26/24 11:27	02/28/24 16:35
890-6280-4	BH04-1.5	Solid	02/26/24 11:40	02/28/24 16:35

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-6280-1

SDG Number: 03A2040018

Login Number: 6280
List Number: 1
Creator: Lopez, Abraham

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: 890-6280-1

SDG Number: 03A2040018

Login Number: 6280
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 03/01/24 12:23 PM

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



APPENDIX E

Email Correspondence

From: OCDOnline@state.nm.us
To: [Castro, Isaac \(MRO\)](#)
Subject: [External] The Oil Conservation Division (OCD) has accepted the application, Application ID: 313213
Date: Friday, February 9, 2024 4:41:02 PM

To whom it may concern (c/o Isaac Castro for MARATHON OIL PERMIAN LLC),

The OCD has received the submitted *Notification for Liner Inspection for a Release* (C-141L), for incident ID (n#) nAPP2403642782.

The liner inspection is expected to take place:

When: 02/14/2024 @ 09:00

Where: G-19-24S-35E 0 FNL 0 FEL (32.20364735,-103.402411)

Additional Information: separator containment. Contact Ashley Giovengo 575-988-0055.

Additional Instructions: G-19-24S-35E (32.20364735, - 103.402411)

An OCD representative may be available onsite at the date and time reported. In the absence or presence of an OCD representative, liner inspection pursuant to 19.15.29.11.A(5)(a) NMAC is required. Should there be a change in the scheduled date and time of the sampling event, then another notification should be resubmitted through OCD permitting as soon as possible.

- **Failure to notify the OCD of liner inspections including any changes in date/time per the requirements of 19.15.29.11.A(5)(a)(ii) NMAC, may result in the inspection not being accepted.**

If you have any questions regarding this application, or don't know why you have received this email, please contact us.

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

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

QUESTIONS

Action 335341

QUESTIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 335341
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2403642782
Incident Name	NAPP2403642782 BLUEBERRY HILL FEE CTB @ 0
Incident Type	Produced Water Release
Incident Status	Deferral Request Received
Incident Facility	[fAPP2126036762] BLUEBERRY HILL FEE 346 TB

Location of Release Source	
<i>Please answer all the questions in this group.</i>	
Site Name	BLUEBERRY HILL FEE CTB
Date Release Discovered	02/04/2024
Surface Owner	Private

Incident Details	
<i>Please answer all the questions in this group.</i>	
Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
<i>Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.</i>	
Crude Oil Released (bbls) Details	Not answered.
Produced Water Released (bbls) Details	Cause: Equipment Failure Gasket Produced Water Released: 20 BBL Recovered: 20 BBL Lost: 0 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Release occurred inside lined secondary containment. All liquids were recovered, and liner will be pressure washed.

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Action 335341

QUESTIONS (continued)

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 335341
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	No
Reasons why this would be considered a submission for a notification of a major release	Unavailable.
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response

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

The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	Not answered.

Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.

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

I hereby agree and sign off to the above statement	Name: Isaac Castro Email: icastro@marathonoil.com Date: 02/09/2024
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QUESTIONS, Page 3

Action 335341

QUESTIONS (continued)

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID:
	372098
	Action Number: 335341
Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)	

QUESTIONS**Site Characterization**

Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 500 and 1000 (ft.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Greater than 5 (mi.)
Any other fresh water well or spring	Greater than 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between ½ and 1 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan

Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No

Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)

Chloride	(EPA 300.0 or SM4500 Cl B)	839
TPH (GRO+DRO+MRO)	(EPA SW-846 Method 8015M)	170
GRO+DRO	(EPA SW-846 Method 8015M)	170
BTEX	(EPA SW-846 Method 8021B or 8260B)	0
Benzene	(EPA SW-846 Method 8021B or 8260B)	0

Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.

On what estimated date will the remediation commence	02/01/2070
On what date will (or did) the final sampling or liner inspection occur	02/14/2024
On what date will (or was) the remediation complete(d)	02/01/2070
What is the estimated surface area (in square feet) that will be reclaimed	7945.1
What is the estimated volume (in cubic yards) that will be reclaimed	294
What is the estimated surface area (in square feet) that will be remediated	7945.1
What is the estimated volume (in cubic yards) that will be remediated	294

These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.

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QUESTIONS, Page 4

Action 335341

QUESTIONS (continued)

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID:	372098
	Action Number:	335341
	Action Type:	[C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS**Remediation Plan (continued)**

Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:

(Select all answers below that apply.)

(Ex Situ) Excavation and off-site disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for off-site disposal	OWL LANDFILL JAL [fJEG1635837366]
OR which OCD approved well (API) will be used for off-site disposal	Not answered.
OR is the off-site disposal site, to be used, out-of-state	Not answered.
OR is the off-site disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and on-site remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.

Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.

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

I hereby agree and sign off to the above statement	Name: Isaac Castro Email: icaastro@marathonoil.com Date: 04/19/2024
--	---

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.

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QUESTIONS, Page 5

Action 335341

QUESTIONS (continued)

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID:	372098
	Action Number:	335341
	Action Type:	[C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS**Deferral Requests Only**

Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.

Requesting a deferral of the remediation closure due date with the approval of this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	Yes
Is the remaining contamination in areas immediately under or around production equipment where remediation could cause a major facility deconstruction	Yes
Please list or describe the production equipment and how (re)moving the equipment would cause major facility deconstruction	Secondary containment, separators, heater treater, VRT, production lines, air compressor, VRU, supply scrubber, sales scrubber, etc.
What is the remaining surface area (in square feet) that will still need to be remediated if a deferral is granted	Not answered.
What is the remaining volume (in cubic yards) that will still need to be remediated if a deferral is granted	294
Per Paragraph (2) of Subsection C of 19.15.29.12 NMAC if contamination is located in areas immediately under or around production equipment such as production tanks, wellheads and pipelines where remediation could cause a major facility deconstruction, the remediation, restoration and reclamation may be deferred with division written approval until the equipment is removed during other operations, or when the well or facility is plugged or abandoned, whichever comes first.	
Enter the facility ID (F#) on which this deferral should be granted	BLUEBERRY HILL FEE 346 TB [fAPP2126036762]
Enter the well API (30-) on which this deferral should be granted	Not answered.
Contamination does not cause an imminent risk to human health, the environment, or groundwater	True
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Isaac Castro Email: icastro@marathonoil.com Date: 04/19/2024

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Action 335341

QUESTIONS (continued)

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 335341
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	{Unavailable.}

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	No

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CONDITIONS

Action 335341

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 335341
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Deferral approved. Remediation Due date will be left open until the site has a major facility deconstruction takes place.	5/14/2024