



May 1, 2023

#### **New Mexico Oil Conservation Division**

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

Re: Closure Request

Redtail State Com 001H

**Incident Number NAPP2233239048** 

Lea County, New Mexico

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of COG Operating, LLC (COG), has prepared this *Closure Request* to document assessment, excavation, and soil sampling activities performed at the Redtail State Com 001H (Site). The purpose of the assessment, excavation, and soil sampling activities was to address impacts to soil resulting from a flowline release of produced water and crude oil onto the surrounding pasture. Based on the excavation activities and laboratory analytical results from the soil sampling events, COG is submitting this *Closure Request*, describing remediation that has occurred and requesting closure for Incident Number NAPP2233239048.

#### SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit A, Section 02, Township 23 South, Range 32 East, in Lea County, New Mexico (32.3398°, -103.6388°) and is associated with oil and gas exploration and production operations on New Mexico State Land.

On November 18, 2022, internal corrosion of a surface flowline resulted in the release of approximately 40.59 barrels (bbls) of produced water and 0.41 bbls of crude oil onto the surrounding pasture area. No free-standing fluids were recovered. COG reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification Form C-141 (Form C-141) on November 28, 2022. The release was assigned Incident Number NAPP2233239048.

#### 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.

Redtail State Com 001H

Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on a recent boring drilled for determination of regional goundwater depth. On April 12, 2023, a borehole (BH01) was advanced to a depth of 106 feet bgs via hollow stem auger drill rig. The borehole was located approximately 140 feet northeast of the Site and is depicted on Figure 1. A field geologist logged and described soils continuously. The borehole lithologic/soil sampling log is included in Appendix A. The borehole was left open for over 72 hours to allow for potential slow infill of groundwater. After the 72-hour waiting period without observing groundwater, it was confirmed that groundwater beneath the Site is greater than 100 feet bgs. The borehole was properly abandoned using drill cuttings and hydrated bentonite chips. All wells used for depth to groundwater determination are depicted on Figure 1 and the referenced well records are included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a stream, located approximately 3.7 miles north of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and less than 300 feet from an occupied residence, school, hospital, institution, or church. The site is greater than 300 feet from a wetland. The Site is greater than 1,000 feet from 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)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg
- TPH: 2,500 mg/kg
- Chloride: 20,000 mg/kg

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

#### SITE ASSESSMENT ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

On December 2, 2022 and January 23, 2023, Ensolum personnel completed Site visits to evaluate the release extent based on information provided on the Form C-141 and visual observations. Seven assessment soil samples (SS01 through SS07) were collected within and around the release extent at a depth of approximately 0.5 feet bgs. The soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride utilizing Hach® chloride QuanTab® test strips. The release extent and soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation was completed during the Site visit and a photographic log is included in Appendix B.

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



New Mexico, for analysis of the following chemicals of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

Laboratory analytical results for soil samples SS04 through SS07, collected around the release extent, indicated all COC concentrations were compliant with the Site Closure Criteria and reclamation requirement, and successfully defined the lateral extent of the release. Laboratory analytical results for soil samples SS01 and SS03, collected within the release extent, indicated all COC concentrations were compliant with the Site Closure Criteria and reclamation requirement. Laboratory analytical results for soil sample SS02, collected within the release extent, indicated all COC concentrations were compliant with the Site Closure Criteria; however, TPH concentrations exceeded the reclamation requirement. Based on laboratory analytical results for the soil samples, excavation of impacted soil was warranted.

#### **EXCAVATION ACTIVITIES AND LABORATORY ANALYTICAL RESULTS**

Between January 9, 2023 and January 23, 2023, Ensolum personnel were at the Site to oversee excavation activities based on laboratory analytical results exceeding the reclamation requirement. Impacted soil was excavated from the release area as indicated by field screening activities and laboratory analytical results. Excavation activities were performed via back-hoe and transport vehicles. To direct excavation activities, soil was field screened for VOCs and chloride as described above. The excavation was completed to a depth of 4 feet bgs. Photographic documentation is included in Appendix B.

Following removal of impacted soil, 5-point composite soil samples were collected every 200 square feet from the floor and sidewalls of the excavation. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples FS01 through FS16 were collected from the floor of the excavation at a depth of 4 feet bgs. Composite soil samples SW01 through SW07 were collected from the sidewalls of the excavation at depths ranging from the ground surface to 4 feet bgs. The soil samples were collected, handled, and analyzed following the same procedures as described above.

Laboratory analytical results for excavation sidewall samples SW01 through SW07 and excavation floor samples FS01 through FS16 indicated all COC concentrations were compliant with the Site Closure Criteria and reclamation requirement. The excavation extent and excavation soil sample locations are presented on Figure 3. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Appendix C.

The excavation measured approximately 3,150 square feet in aerial extent. A total of approximately 467 cubic yards of impacted soil was removed during the excavation activities. The soil was transported and properly disposed of at the R360 Disposal Facility in Hobbs, New Mexico. The excavation was secured with fencing once the excavation was complete.

#### **CLOSURE REQUEST**

Site assessment and excavation activities were conducted at the Site to address the November 18, 2022, produced water and crude oil flowline release. Laboratory analytical results for the excavation soil samples indicated all COC concentrations were compliant with the Site Closure



Criteria and reclamation requirement. Based on the soil sample analytical results, no further remediation was required.

Excavation of impacted soil has mitigated impacts at this Site. Depth to groundwater has been determined to be greater than 100 feet bgs and no other sensitive receptors were identified near the release extent. COG believes these remedial actions are protective of human health, the environment, and groundwater and respectfully requests closure for Incident Number NAPP2233239048. The Final C-141 is included in Appendix E.

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

Aimee Cole

Senior Managing Scientist

Sincerely, **Ensolum, LLC** 

Hadlie Green Project Geologist

cc: Jacob Laird, COG Operating, LLC

New Mexico State Land

#### Appendices:

Figure 1 Site Receptor Map

Figure 2 Assessment Soil Sample Locations
Figure 3 Excavation Soil Sample Locations
Table 1 Soil Sample Analytical Results
Appendix A Referenced Well Records

Appendix B Photographic Log

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

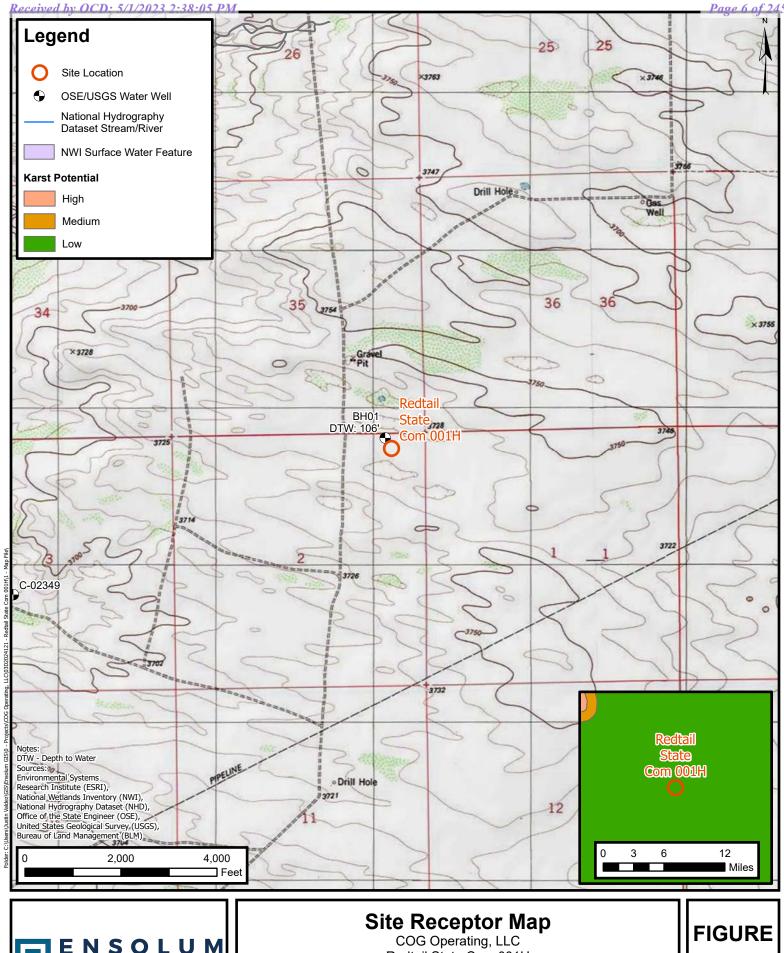
Appendix D NMOCD Notifications

Appendix E Final C-141





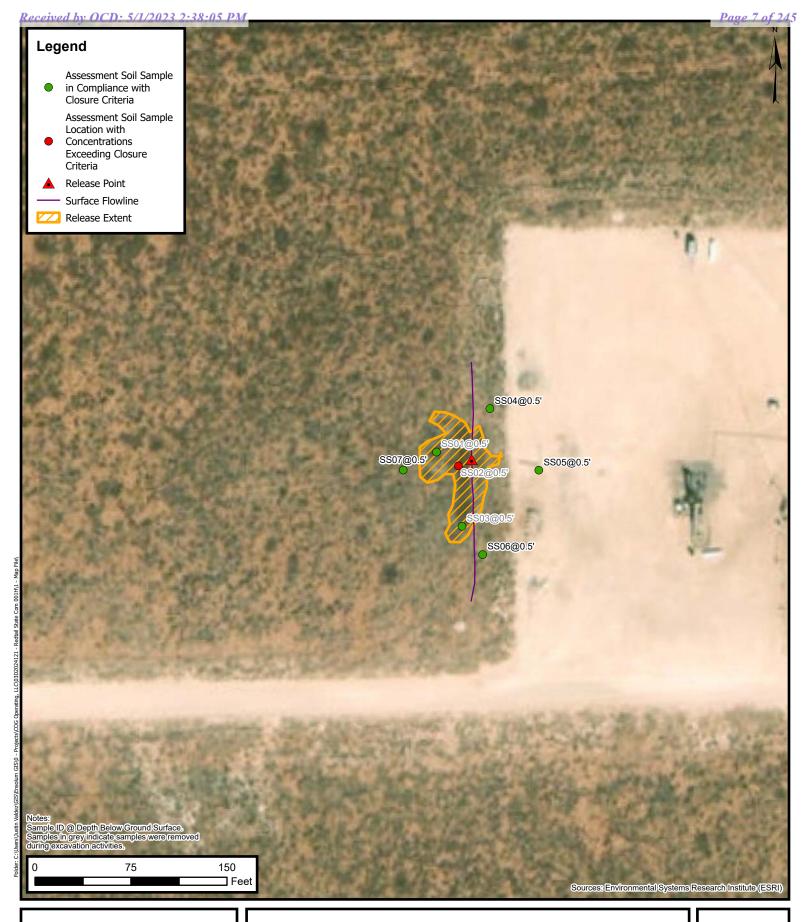
**FIGURES** 





Redtail State Com 001H Incident Number: NAPP2233239048 Unit A, Sec 02, T23S, R32E Lea County, New Mexico

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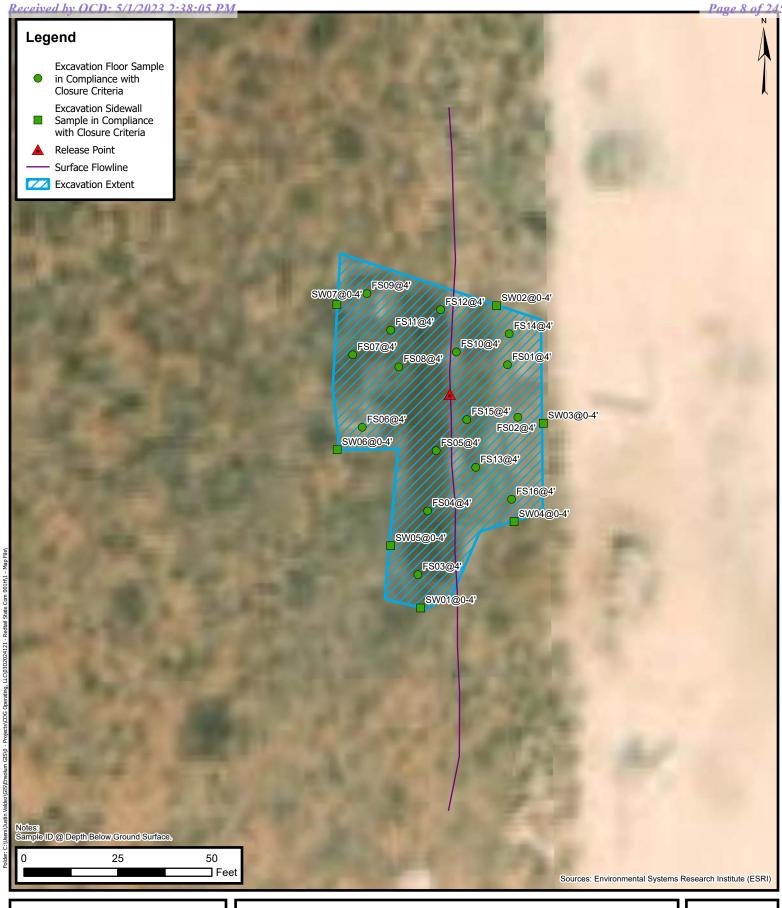




# **Assessment Soil Sample Locations**

COG Operating, LLC Redtail State Com 001H Incident Number: NAPP2233239048 Unit A, Sec 02, T23S, R32E Lea County, New Mexico FIGURE 2

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# **Excavation Soil Sample Locations**

COG Operating, LLC Redtail State Com 001H Incident Number NAPP2233239048 Unit A, Sec 02, T23S, R32E Lea County, New Mexico FIGURE 3

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**TABLES** 

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# TABLE 1 SOIL SAMPLE ANALYTICAL RESULTS Redtail State Com 001H COG Operating, LLC Lea County, New Mexico

Sample Designation	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)			
NMOCD Table I Clo	sure Criteria (NN	IAC 19.15.29)	10	50	NE	NE	NE	1,000	2,500	20,000			
	Assessment Soil Samples												
SS01*	12/02/2022	0.5	<0.00198	< 0.00396	<50.0	<50.0	<50.0	<50.0	<50.0	31.8			
SS02*	12/02/2022	0.5	<0.00200	< 0.00401	<49.9	71.4	143	214	214	31.3			
SS03*	12/02/2022	0.5	<0.00200	< 0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	39.4			
SS04*	01/23/2023	0.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	169			
SS05	01/23/2023	0.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	8.32			
SS06*	01/23/2023	0.5	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	223			
SS07*	01/23/2023	0.5	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	5.79			
Excavation Floor Soil Samples													
FS01	01/09/2023	4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	16,500			
FS03	01/18/2023	4	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	616			
FS04	01/18/2023	4	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	364			
FS05	01/18/2023	4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	523			
FS06	01/23/2023	4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	5,390			
FS07	01/23/2023	4	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	19,700			
FS08	01/23/2023	4	<0.00198	<0.00396	<49.9	<49.9	<49.9	<49.9	<49.9	3,430			
FS09	01/23/2023	4	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	10,900			
FS10	01/23/2023	4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	6,150			
FS11	01/23/2023	4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	5,380			
FS12	01/23/2023	4	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	9,630			
FS13	01/23/2023	4	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	7,660			
FS14	01/23/2023	4	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	9,700			
FS15	01/23/2023	4	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	14,300			
FS16	01/23/2023	4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	10,900			

Ensolum 1 of 2

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# TABLE 1 SOIL SAMPLE ANALYTICAL RESULTS Redtail State Com 001H COG Operating, LLC Lea County, New Mexico

Sample Designation	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Excavation Sidewall Soil Samples										
SW01*	01/23/2023	0 - 4	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	78.9
SW02*	01/10/2023	0 - 4	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	264
SW03*	01/10/2023	0 - 4	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	95.9
SW04*	01/10/2023	0 - 4	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	87.9
SW05*	01/23/2023	0 - 4	<0.00198	<0.00396	<49.9	<49.9	<49.9	<49.9	<49.9	78.7
SW06*	01/23/2023	0 - 4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	344
SW07*	01/23/2023	0 - 4	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	114

#### Notes:

bgs: below ground surface mg/kg: milligrams per kilogram

NE: not established

NMAC: New Mexico Adminstrative Code NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics DRO: Diesel Range Organics ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

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

Grey text represents samples that have been excavated

Ensolum 2 of 2

<sup>\* -</sup> indicates locations where the reclamation requirement was applied



**APPENDIX A** 

Referenced Well Records

	Sample Name: BH01	Date: 4/12/2023					
<b>ENSOLUM</b>	Site Name: Redtail State Com 001H						
E IA 3 O L O M	Incident Number: NAPP2233239048						
	Job Number: 03D2024121						
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: Peter Van Patten	Method: Hollow Stem					
Coordinates: 32.340567,-103.639398	Hole Diameter: Total Depth: 106'						
Comments: Soil boring was advanced to a total depth of 106' bgs. No water was observed within the soil boring after at least 72 hours.							

Comments: Soil boring was advanced to a total depth of 106' bgs. No water was observed within the soil boring after at least 72 hours On 4/17/2023 the boring was plugged and abandoned using hydrated bentonite chips.

Moisture	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
Dry	-	-	N	-	- 1	0	SP-SM	Sand (surface sample): dark tan, brown, fine grain, poorly graded, few gravel, no stain, no odor
Dry	-	-	N	-	· -	10	СННЕ	Caliche: off white, white, no stain, no odor
Dry	,   _	-	N	-	- - -	_ 20 	СННЕ	SAA (Same as above)
Dm	o -	-	N	-	- - -	30 	SP-SM	Sand: light tan, tan, fine-medium grain, poorly graded, some caliche gravel, slightly damp, no stain, no odor
Dry	-	-	N	-	- - -	40 -	SP-SM	Sand/Silt (Red Beds): red, pale gray/tan, very fine- fine grain, some clay, low plasticity, cohesive, little gravel, no stain, no odor
Dry	-	-	N	-	- - -	50 	SP-SM	SAA, no gravel
Dry	-	-	N	-	- - -	- _ 60 -	SP-SM	SAA, color change to yellowish tan, dark tan
Dry	-	-	N	-	- - -	70	SP-SM	SAA, color change to pinkish red, brownish red
Dry	-	-	N	-	- - -	- _ 80 -	SP-SM	SAA
Dry	-	-	N	-	- - - -	- _ 90 -	SP-SM	Sand: gray, light gray, some reddish gray, fine grain, poorly graded, few gravel, non cohesive no stain, no odor
Dry	-	-	N	-	- <u>-</u>	100	SP-SM	Sand: blueish gray, gray, fine grain, poorly graded, no stain, no odor
					- - - -	_ _ 110 _		TD at 106' below ground surface
						120		

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**National Water Information System: Web Interface** 

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

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Groundwater levels for the Nation

■ Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs site\_no list =

• 321950103400601

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

#### USGS 321950103400601 23S.32E.03.31110

Lea County, New Mexico Latitude 32°19'50", Longitude 103°40'06" NAD27 Land-surface elevation 3,668 feet above NAVD88 This well is completed in the Other aquifers (N9999OTHER) national aquifer. This well is completed in the Chinle Formation (231CHNL) local aquifer.

Output formats	
able of data	
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<u>Graph of data</u>	
eselect period	

Reselect pe	Reselect period											
Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Water- level approval status	

Date	Time	? Water- level date- time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Water- level approval status
1972-09-13		D	62610		3462.10	NGVD29	1	Z			А
1972-09-13		D	62611		3463.82	NAVD88	1	Z			А
1972-09-13		D	72019	204.18			1	Z			А
1977-03-10		D	62610		3452.43	NGVD29	1	Z			А
1977-03-10		D	62611		3454.15	NAVD88	1	Z			А
1977-03-10		D	72019	213.85			1	Z			А
1981-03-26		D	62610		3468.94	NGVD29	1	Z			А
1981-03-26		D	62611		3470.66	NAVD88	1	Z			А
1981-03-26		D	72019	197.34			1	Z			А
1986-04-16		D	62610		3469.63	NGVD29	1	Z			А
1986-04-16		D	62611		3471.35	NAVD88	1	Z			А
1986-04-16		D	72019	196.65			1	Z			А

#### Explanation

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

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<u>U.S. Department of the Interior</u> | <u>U.S. Geological Survey</u> **Title: Groundwater for USA: Water Levels** 

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

Page Contact Information: <u>USGS Water Data Support Team</u> Page Last Modified: 2022-12-01 14:37:32 EST

0.27 0.24 nadww01



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# New Mexico Office of the State Engineer

# **Point of Diversion Summary**

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

**POD Number** Well Tag

Q64 Q16 Q4 Sec Tws Rng

X

C 02275

2 19 23S 33E

630843 3573557\*



**Driller License:** 

**Driller Company:** 

**Driller Name:** 

ABBOTT BROTHERS

**Drill Start Date:** 

**Drill Finish Date:** 

12/31/1980

**Plug Date:** 

Log File Date:

**PCW Rcv Date:** 

Source:

Shallow

**Pump Type:** 

Pipe Discharge Size:

Estimated Yield: 40 GPM

**Casing Size:** 

8.63

**Depth Well:** 

650 feet

**Depth Water:** 

400 feet

**Meter Number:** 

514

**Meter Make:** 

MASTER METER

**Meter Serial Number:** 1527874

**Meter Multiplier:** 

10.0000

**Number of Dials:** 

**Meter Type:** 

Diversion

**Unit of Measure:** 

Gallons

**Return Flow Percent:** 

**Usage Multiplier:** 

Reading Frequency: Quarterly

## **Meter Readings (in Acre-Feet)**

Year	Mtr Reading	Flag	Rdr Comment	Mtr Amount Online
1999	260142	A	ms	0
1999	294352	A	ms	1.050
1999	320962	A	ms	0.817
1999	367317	A	ms	1.423
2000	413837	A	mb	1.428
2000	474649	A	mb	1.866
2000	485983	A	RPT	0.348
2000	530107	A	RPT	1.354
2001	569967	A	RPT	1.223
2001	620178	A	ms	1.541
	1999 1999 1999 1999 2000 2000 2000 2000	1999       260142         1999       294352         1999       320962         1999       367317         2000       413837         2000       474649         2000       485983         2000       530107         2001       569967	1999 260142 A 1999 294352 A 1999 320962 A 1999 367317 A 2000 413837 A 2000 474649 A 2000 485983 A 2000 530107 A 2001 569967 A	1999 260142 A ms 1999 294352 A ms 1999 320962 A ms 1999 367317 A ms 2000 413837 A mb 2000 474649 A mb 2000 485983 A RPT 2000 530107 A RPT 2001 569967 A RPT

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01/12/2002	2002	652573	A	tg	0.994
04/13/2002	2002	662745	A	RPT	0.312
07/12/2002	2002	674878	A	rm	0.372
01/01/2003	2002	714899	A	ms	1.228
07/11/2003	2003	751760	A	ms	1.131
10/01/2003	2003	778772	A	ab	0.829
01/08/2004	2003	802123	A	ab	0.717
04/07/2004	2004	821801	A	RPT	0.604
07/15/2004	2004	836507	A	RPT	0.451
10/12/2004	2004	844068	A	RPT	0.232
01/26/2005	2004	877058	A	RPT	1.012
04/15/2005	2005	889933	A	RPT	0.395
08/03/2005	2005	891339	A	RPT	0.043
10/31/2005	2005	927761	A	RPT	1.118
01/31/2006	2005	941723	A	RPT	0.428
04/20/2006	2006	966263	A	RPT	0.753
07/19/2006	2006	9421	R	tw Meter Rollover	1.324
11/27/2006	2006	90114	A	RPT	2.476
04/16/2007	2007	124935	A	tw	1.069
07/13/2007	2007	148838	A	tw	0.734
11/03/2007	2007	189325	A	RPT	1.243
04/15/2008	2008	230341	A	RPT	1.259
07/11/2008	2008	273176	A	RPT	1.315
01/08/2009	2008	375616	A	RPT	3.144
05/07/2009	2009	432782	A	RPT	1.754
07/06/2009	2009	465558	A	RPT	1.006
11/02/2009	2009	537994	A	tw	2.223
05/13/2010	2010	592265	A	RPT	1.666
08/23/2010	2010	598613	A	RPT	0.195
11/09/2010	2010	598791	A	RPT	0.005
02/13/2011	2011	599215	A	RPT	0.013
07/12/2011	2011	607344	A	RPT	0.249
01/10/2012	2012	608458	A	RPT	0.034
04/15/2012	2012	608566	A	RPT	0.003
03/20/2013	2012	608566	A	RPT	0

07/18/2013 07/22/2019	2013 2019	608566 896990	A A	RPT RPT		0 8.851
04/01/2020	2020	120850	R		Meter Rollover	6.870
**YTD Mete	er Amounts:	Year		Amount		
		1999		3.290		
		2000		4.996		
		2001		2.764		
		2002		2.906		
		2003		2.677		
		2004		2.299		
		2005		1.984		
		2006		4.553		
		2007		3.046		
		2008		5.718		
		2009		4.983		
		2010		1.866		
		2011		0.262		
		2012		0.037		
		2013		0		
		2019		8.851		
		2020		6.870		

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

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

12/1/22 12:32 PM

POINT OF DIVERSION SUMMARY



**APPENDIX B** 

Photographic Log



#### **Photographic Log**

COG Operating, LLC Redtail State Com 001H Incident Number NAPP2233239048



Photograph: 1

Description: Initial release

View: West



Photograph: 2

Date: 11/18/2022

Date: 9/19/2022

Description: Soil staining in release footprint

View: North



Photograph: 3

Description: Excavation activities

View: Southeast



Photograph: 4

Description: Excavation activities

View: Southeast



APPENDIX C

Laboratory Analytical Reports & Chain of Custody Documentation

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Josh Adams Ensolum 601 N. Marienfeld St. Suite 400 Midland, Texas 79701

Generated 1/16/2023 6:25:33 PM

# **JOB DESCRIPTION**

Redtail State Com 1H SDG NUMBER 03D2024104

# **JOB NUMBER**

890-3818-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

# **Eurofins Carlsbad**

## **Job Notes**

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

# **Authorization**

Generated 1/16/2023 6:25:33 PM

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

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

Client: Ensolum

Laboratory Job ID: 890-3818-1

Project/Site: Redtail State Com 1H

SDG: 03D2024104

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#### **Definitions/Glossary**

Job ID: 890-3818-1 Client: Ensolum Project/Site: Redtail State Com 1H

SDG: 03D2024104

#### **Qualifiers**

#### **GC VOA**

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

#### **GC Semi VOA**

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

#### **HPLC/IC**

Qualifier **Qualifier Description** 4 MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable. Е Result exceeded calibration range. 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 Contains No Free Liquid CNF 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) Limit of Quantitation (DoD/DOE) 100

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

MDL Method Detection Limit Minimum Level (Dioxin) ML 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 Positive / Present POS POL Practical Quantitation Limit

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

**RER** Relative Error Ratio (Radiochemistry)

RI Reporting Limit or Requested Limit (Radiochemistry)

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

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

**TNTC** Too Numerous To Count

**Eurofins Carlsbad** 

#### Case Narrative

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 890-3818-1

SDG: 03D2024104

Job ID: 890-3818-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3818-1

#### Receipt

The sample was received on 1/10/2023 4:03 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

#### Receipt Exceptions

The following sample was received and analyzed from an unpreserved bulk soil jar: FS01 (890-3818-1).

#### **GC VOA**

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-43832 and analytical batch 880-43866 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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

#### GC Semi VOA

Method 8015MOD NM: Surrogate recovery for the following samples were outside control limits: (LCSD 880-43908/3-A), (MB 880-43908/1-A) and (890-3793-A-1-C). Evidence of matrix interferences is not obvious.

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

#### HPLC/IC

Method 300 ORGFM 28D: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with preparation batch 880-43824 and analytical batch 880-43928 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Chloride in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Method 300 ORGFM 28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-43824 and analytical batch 880-43928 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.

Matrix: Solid

Lab Sample ID: 890-3818-1

## **Client Sample Results**

Client: Ensolum Job ID: 890-3818-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: FS01** 

Date Collected: 01/09/23 13:20 Date Received: 01/10/23 16:03

Sample Depth: 4

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		01/12/23 14:48	01/14/23 07:22	1
Toluene	< 0.00199	U	0.00199	mg/Kg		01/12/23 14:48	01/14/23 07:22	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		01/12/23 14:48	01/14/23 07:22	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		01/12/23 14:48	01/14/23 07:22	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		01/12/23 14:48	01/14/23 07:22	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		01/12/23 14:48	01/14/23 07:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130			01/12/23 14:48	01/14/23 07:22	1
1,4-Difluorobenzene (Surr)	105		70 - 130			01/12/23 14:48	01/14/23 07:22	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	ulation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			01/16/23 17:00	1
: Method: SW846 8015 NM - Diese	•	ics (DRO) (0	GC)		_			
Method: SW846 8015 NM - Diese Analyte	Result	ics (DRO) (C	GC)	Unit	<u>D</u>	Prepared	Analyzed	
: Method: SW846 8015 NM - Diese	•	ics (DRO) (C	GC)		<u>D</u>	Prepared		
Method: SW846 8015 NM - Diese Analyte Total TPH	<b>Result</b> <49.9	ics (DRO) (0 Qualifier	RL 49.9	Unit	<u>D</u>	Prepared	Analyzed	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH	Result <49.9 sel Range Orga	ics (DRO) (0 Qualifier	RL 49.9	Unit	<u>D</u>	Prepared Prepared	Analyzed	1
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics	Result <49.9 sel Range Orga	ics (DRO) ( Qualifier U nics (DRO) Qualifier	RL 49.9 (GC)	Unit mg/Kg		· ·	Analyzed 01/16/23 16:51	1 Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <49.9  sel Range Orga Result	Qualifier U nics (DRO) Qualifier U nics (DRO) Qualifier U	RL 49.9 (GC)	Unit mg/Kg		Prepared	Analyzed 01/16/23 16:51 Analyzed	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH Method: SW846 8015B NM - Dies	Result <49.9  sel Range Orga Result <49.9	cics (DRO) (On Qualifier Unics (DRO) Qualifier Unics (DRO) Qualifier Unics Uni	(GC)  RL  49.9  (GC)  RL  49.9	Unit mg/Kg  Unit mg/Kg		Prepared 01/13/23 13:08	Analyzed 01/16/23 16:51  Analyzed 01/15/23 12:34	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result   <49.9	cos (DRO) (Control of the control of	GC)  RL  49.9  (GC)  RL  49.9  49.9	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 01/13/23 13:08 01/13/23 13:08	Analyzed 01/16/23 16:51  Analyzed 01/15/23 12:34 01/15/23 12:34	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result	cos (DRO) (Control of the control of	GC) RL 49.9  (GC) RL 49.9  49.9  49.9	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 01/13/23 13:08 01/13/23 13:08 01/13/23 13:08	Analyzed 01/16/23 16:51  Analyzed 01/15/23 12:34 01/15/23 12:34	Dil Face
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result   <49.9	cos (DRO) (Control of the control of	GC) RL 49.9  (GC) RL 49.9  49.9  49.9  Limits	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 01/13/23 13:08 01/13/23 13:08 01/13/23 13:08 Prepared	Analyzed 01/16/23 16:51  Analyzed 01/15/23 12:34 01/15/23 12:34 Analyzed	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <49.9	cos (DRO) (Control of the control of	GC)  RL 49.9  (GC)  RL 49.9  49.9  49.9  Limits 70 - 130 70 - 130	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 01/13/23 13:08 01/13/23 13:08 01/13/23 13:08 Prepared 01/13/23 13:08	Analyzed 01/16/23 16:51  Analyzed 01/15/23 12:34 01/15/23 12:34  Analyzed 01/15/23 12:34	
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result   <49.9	cos (DRO) (Control of the control of	GC)  RL 49.9  (GC)  RL 49.9  49.9  49.9  Limits 70 - 130 70 - 130	Unit mg/Kg  Unit mg/Kg  mg/Kg		Prepared 01/13/23 13:08 01/13/23 13:08 01/13/23 13:08 Prepared 01/13/23 13:08	Analyzed 01/16/23 16:51  Analyzed 01/15/23 12:34 01/15/23 12:34  Analyzed 01/15/23 12:34	Dil Fac

# **Surrogate Summary**

Job ID: 890-3818-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

_				Percent Surrogate Rec
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3817-A-4-D MS	Matrix Spike	121	100	
890-3817-A-4-E MSD	Matrix Spike Duplicate	129	98	
890-3818-1	FS01	108	105	
LCS 880-43832/1-A	Lab Control Sample	108	102	
LCSD 880-43832/2-A	Lab Control Sample Dup	106	104	
MB 880-43654/5-A	Method Blank	106	103	
MB 880-43832/5-B	Method Blank	109	99	
Surrogate Legend				
BFB = 4-Bromofluorober	nzene (Surr)			

DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC) Prep Type: Total/NA **Matrix: Solid** 

				Percent Surrogate Re
		1CO1	OTPH1	_
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3793-A-1-D MS	Matrix Spike	92	100	
890-3793-A-1-E MSD	Matrix Spike Duplicate	96	107	
890-3818-1	FS01	122	129	
LCS 880-43908/2-A	Lab Control Sample	111	127	
LCSD 880-43908/3-A	Lab Control Sample Dup	110	132 S1+	
MB 880-43908/1-A	Method Blank	167 S1+	203 S1+	
Surrogate Legend				
1CO = 1-Chlorooctane				

OTPH = o-Terphenyl

## **QC Sample Results**

Client: Ensolum Job ID: 890-3818-1 SDG: 03D2024104 Project/Site: Redtail State Com 1H

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-43654/5-A

**Matrix: Solid** Analysis Batch: 43866 Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 43654

	мв								
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		01/10/23 13:07	01/13/23 12:31	1	
Toluene	<0.00200	U	0.00200	mg/Kg		01/10/23 13:07	01/13/23 12:31	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/10/23 13:07	01/13/23 12:31	1	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		01/10/23 13:07	01/13/23 12:31	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/10/23 13:07	01/13/23 12:31	1	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		01/10/23 13:07	01/13/23 12:31	1	

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	d Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	01/10/23 13	3:07 01/13/23 12:31	1
1,4-Difluorobenzene (Surr)	103		70 - 130	01/10/23 13	3:07 01/13/23 12:31	1

Lab Sample ID: MB 880-43832/5-B

Matrix: Solid

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

Prep Batch: 43832

Analysis Batch: 43866

мв мв

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		01/12/23 14:48	01/14/23 00:17	1
Toluene	<0.00200	U	0.00200	mg/Kg		01/12/23 14:48	01/14/23 00:17	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/12/23 14:48	01/14/23 00:17	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		01/12/23 14:48	01/14/23 00:17	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/12/23 14:48	01/14/23 00:17	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		01/12/23 14:48	01/14/23 00:17	1

мв мв

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	01/12/23 14:4	8 01/14/23 00:17	1
1,4-Difluorobenzene (Surr)	99		70 - 130	01/12/23 14:4	8 01/14/23 00:17	1

Lab Sample ID: LCS 880-43832/1-A

**Matrix: Solid** 

Analysis Batch: 43866

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Prep Batch: 43832

١		Spike	LCS	LCS		%Rec	
	Analyte	Added	Result	Qualifier Unit	D %Rec	Limits	
	Benzene	0.100	0.1081	mg/Kg	108	70 - 130	
	Toluene	0.100	0.1031	mg/Kg	103	70 - 130	
	Ethylbenzene	0.100	0.09995	mg/Kg	100	70 - 130	
İ	m-Xylene & p-Xylene	0.200	0.2033	mg/Kg	102	70 - 130	
	o-Xylene	0.100	0.09880	mg/Kg	99	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	108	70 _ 130
1.4-Difluorobenzene (Surr)	102	70 - 130

Lab Sample ID: LCSD 880-43832/2-A

Matrix: Solid

Analysis Batch: 43866

Client S	ample l	D:	Lab	Contr	ol	Sam	ple	Dup
				D	Ŧ.,		- 4 -	L/NIA

Prep Type: Total/NA

Prep Batch: 43832

	Spike	LCSD LCSD				70KeC		KPD	
Analyte	Added	Result Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.08851	mg/Kg		89	70 - 130	20	35	

LCCD LCCD

Cnika

**Eurofins Carlsbad** 

## QC Sample Results

Client: Ensolum Job ID: 890-3818-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Lab Sample ID: LCSD 880-43832/2-A

**Matrix: Solid** 

Analysis Batch: 43866

Client Sample I	D: I	Lab	Control	Sample	Du
-----------------	------	-----	---------	--------	----

Prep Type: Total/NA

Prep Batch: 43832

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Toluene	0.100	0.08351		mg/Kg		84	70 - 130	21	35
Ethylbenzene	0.100	0.08255		mg/Kg		83	70 - 130	19	35
m-Xylene & p-Xylene	0.200	0.1689		mg/Kg		84	70 - 130	18	35
o-Xylene	0.100	0.08398		mg/Kg		84	70 - 130	16	35
	Toluene Ethylbenzene m-Xylene & p-Xylene	Analyte         Added           Toluene         0.100           Ethylbenzene         0.100           m-Xylene & p-Xylene         0.200	Analyte         Added         Result           Toluene         0.100         0.08351           Ethylbenzene         0.100         0.08255           m-Xylene & p-Xylene         0.200         0.1689	Analyte         Added         Result         Qualifier           Toluene         0.100         0.08351           Ethylbenzene         0.100         0.08255           m-Xylene & p-Xylene         0.200         0.1689	Analyte         Added         Result Qualifier         Unit           Toluene         0.100         0.08351         mg/Kg           Ethylbenzene         0.100         0.08255         mg/Kg           m-Xylene & p-Xylene         0.200         0.1689         mg/Kg	Analyte         Added         Result         Qualifier         Unit         D           Toluene         0.100         0.08351         mg/Kg           Ethylbenzene         0.100         0.08255         mg/Kg           m-Xylene & p-Xylene         0.200         0.1689         mg/Kg	Analyte         Added         Result Qualifier         Unit         D         %Rec           Toluene         0.100         0.08351         mg/Kg         84           Ethylbenzene         0.100         0.08255         mg/Kg         83           m-Xylene & p-Xylene         0.200         0.1689         mg/Kg         84	Analyte         Added         Result Qualifier         Unit         D         %Rec Limits           Toluene         0.100         0.08351         mg/Kg         84         70 - 130           Ethylbenzene         0.100         0.08255         mg/Kg         83         70 - 130           m-Xylene & p-Xylene         0.200         0.1689         mg/Kg         84         70 - 130	Analyte         Added         Result Qualifier         Unit         D         %Rec         Limits         RPD           Toluene         0.100         0.08351         mg/Kg         84         70 - 130         21           Ethylbenzene         0.100         0.08255         mg/Kg         83         70 - 130         19           m-Xylene & p-Xylene         0.200         0.1689         mg/Kg         84         70 - 130         18

LCSD LCSD

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	106	70 - 130
1,4-Difluorobenzene (Surr)	104	70 - 130

Lab Sample ID: 890-3817-A-4-D MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

Analysis Batch: 43866

Prep Type: Total/NA

Prep Batch: 43832

Spike MS MS %Rec Sample Sample Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Benzene <0.00201 U F1 F2 0.101 0.03806 F1 38 70 - 130 mg/Kg Toluene <0.00201 UF1 0.101 0.03900 F1 38 70 - 130 mg/Kg Ethylbenzene <0.00201 UF1 0.101 0.04328 F1 43 70 - 130 mg/Kg 0.202 m-Xylene & p-Xylene <0.00402 UF1 0.08599 F1 42 70 - 130 mg/Kg o-Xylene <0.00201 UF1 0.101 0.04492 F1 mg/Kg 70 - 130

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	121	70 - 130
1,4-Difluorobenzene (Surr)	100	70 - 130

Lab Sample ID: 890-3817-A-4-E MSD

**Matrix: Solid** 

Analysis Batch: 43866

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 43832

7											
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00201	U F1 F2	0.0990	0.02633	F1 F2	mg/Kg		27	70 - 130	36	35
Toluene	<0.00201	U F1	0.0990	0.02875	F1	mg/Kg		28	70 - 130	30	35
Ethylbenzene	<0.00201	U F1	0.0990	0.03064	F1	mg/Kg		31	70 - 130	34	35
m-Xylene & p-Xylene	<0.00402	U F1	0.198	0.06396	F1	mg/Kg		32	70 - 130	29	35
o-Xylene	<0.00201	U F1	0.0990	0.03464	F1	mg/Kg		34	70 - 130	26	35

MSD MSD

Surrogate	%Recovery	Quaimer	Limits
4-Bromofluorobenzene (Surr)	129		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

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

Lab Sample ID: MB 880-43908/1-A

**Matrix: Solid** 

Analysis Batch: 43947

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

Prep Batch: 43908

мв мв Result Qualifier RL Unit Prepared Gasoline Range Organics <50.0 U 50.0 mg/Kg 01/13/23 13:08 01/15/23 08:29

(GRO)-C6-C10

**Eurofins Carlsbad** 

# **QC Sample Results**

Client: Ensolum

Project/Site: Redtail State Com 1H

SDG: 03D2024104

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

Lab Sample ID: MB 880-43908/1-A	Client Sample ID: Method Blank
Matrix: Solid	Prep Type: Total/NA
Analysis Batch: 43947	Prep Batch: 43908

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		01/13/23 13:08	01/15/23 08:29	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		01/13/23 13:08	01/15/23 08:29	1
	МВ	MB						
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	167	S1+	70 - 130			01/13/23 13:08	01/15/23 08:29	1
o-Terphenyl	203	S1+	70 - 130			01/13/23 13:08	01/15/23 08:29	1

Lab Sample ID: LCS 880-43908/2-A					Client	t Sample	ID: Lab Contr	ol Sample
Matrix: Solid							Prep Type	: Total/NA
Analysis Batch: 43947							Prep Ba	tch: 43908
	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	1000	1045		mg/Kg		105	70 - 130	
(GRO)-C6-C10								
Diesel Range Organics (Over	1000	972.8		mg/Kg		97	70 - 130	
C10-C28)								
LCS LCS								

Limits

70 - 130

70 - 130

Lab Sample ID: LCSD 880-43908/3-A Matrix: Solid Analysis Batch: 43947				Clier	nt Sam	iple ID: I	•	I Sampl ype: To Batch:	tal/NA
	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	1000	1027		mg/Kg		103	70 - 130	2	20
(GRO)-C6-C10									
Diesel Range Organics (Over	1000	981.4		mg/Kg		98	70 - 130	1	20

	LCSD	LCSD LCSD				
Surrogate	%Recovery	Qualifier	Limits			
1-Chlorooctane			70 - 130			
o-Tembenyl	132	S1+	70 130			

%Recovery Qualifier

111

127

Lab Sample ID: 890-3793-A-1-D M Matrix: Solid Analysis Batch: 43947	5							Client	Prep	D: Matrix Spike Type: Total/NA D Batch: 43908
	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	998	872.4		mg/Kg		85	70 - 130	
Diesel Range Organics (Over C10-C28)	<49.9	U	998	1034		mg/Kg		102	70 - 130	

	IVIS	IVIS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	92		70 - 130
o-Terphenyl	100		70 - 130

**Eurofins Carlsbad** 

Surrogate

o-Terphenyl

C10-C28)

1-Chlorooctane

Lab Sample ID: 890-3793-A-1-E MSD

## QC Sample Results

Job ID: 890-3818-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 43908

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	<49.9	U	997	901.5		mg/Kg		88	70 - 130	3	20
(GRO)-C6-C10											
Diesel Range Organics (Over	<49.9	U	997	1119		mg/Kg		111	70 - 130	8	20
C10-C28)											

**Matrix: Solid** 

Analysis Batch: 43947

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	96		70 - 130
o-Terphenyl	107		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-43824/1-A Client Sample ID: Method Blank **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 43928** 

мв мв Analyte Result Qualifier RL Unit Prepared Analyzed Dil Fac Chloride <5.00 U 5.00 mg/Kg 01/13/23 23:15

Lab Sample ID: LCS 880-43824/2-A **Client Sample ID: Lab Control Sample Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 43928** 

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	250	270.5	,	mg/Kg		108	90 - 110	 

Lab Sample ID: LCSD 880-43824/3-A Client Sample ID: Lab Control Sample Dup **Prep Type: Soluble** 

**Matrix: Solid** 

Analysis Batch: 43928

	Spike	LCSD	LCSD				%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Chloride	250	265.2		ma/Ka		106	90 - 110		20	

Lab Sample ID: 890-3817-A-1-B MS Client Sample ID: Matrix Spike **Prep Type: Soluble** 

**Matrix: Solid** 

Analysis Batch: 43928

	Sample	Sample	<b>Spike</b>	IVIS	IVIS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	1360		253	1554	E 4	mg/Kg		75	90 - 110	

Lab Sample ID: 890-3817-A-1-C MSD Client Sample ID: Matrix Spike Duplicate

Matrix: Solid

Analysis Batch: 43928

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	1360		253	1573	E 4	mg/Kg		82	90 - 110	1	20

**Eurofins Carlsbad** 

**Prep Type: Soluble** 

## **QC Association Summary**

Client: Ensolum

Job ID: 890-3818-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

#### **GC VOA**

#### Prep Batch: 43654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-43654/5-A	Method Blank	Total/NA	Solid	5035	

#### Prep Batch: 43832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3818-1	FS01	Total/NA	Solid	5035	
MB 880-43832/5-B	Method Blank	Total/NA	Solid	5035	
LCS 880-43832/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-43832/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3817-A-4-D MS	Matrix Spike	Total/NA	Solid	5035	
890-3817-A-4-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

#### Analysis Batch: 43866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3818-1	FS01	Total/NA	Solid	8021B	43832
MB 880-43654/5-A	Method Blank	Total/NA	Solid	8021B	43654
MB 880-43832/5-B	Method Blank	Total/NA	Solid	8021B	43832
LCS 880-43832/1-A	Lab Control Sample	Total/NA	Solid	8021B	43832
LCSD 880-43832/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	43832
890-3817-A-4-D MS	Matrix Spike	Total/NA	Solid	8021B	43832
890-3817-A-4-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	43832

#### **Analysis Batch: 44103**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3818-1	FS01	Total/NA	Solid	Total BTEX	

#### **GC Semi VOA**

#### Prep Batch: 43908

<b>Lab Sample ID</b> 890-3818-1	Client Sample ID FS01	Prep Type Total/NA	Matrix Solid	Method 8015NM Prep	Prep Batch
MB 880-43908/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-43908/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-43908/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3793-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3793-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

#### Analysis Batch: 43947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
890-3818-1	FS01	Total/NA	Solid	8015B NM	43908	
MB 880-43908/1-A	Method Blank	Total/NA	Solid	8015B NM	43908	
LCS 880-43908/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	43908	
LCSD 880-43908/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	43908	
890-3793-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	43908	
890-3793-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	43908	

#### **Analysis Batch: 44060**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3818-1	FS01	Total/NA	Solid	8015 NM	

**Eurofins Carlsbad** 

# **QC Association Summary**

Client: Ensolum Job ID: 890-3818-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

HPLC/IC

Leach Batch: 43824

<b>Lab Sample ID</b> 890-3818-1	Client Sample ID FS01	Prep Type Soluble	Matrix Solid	Method DI Leach	Prep Batch
MB 880-43824/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-43824/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-43824/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3817-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3817-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 43928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3818-1	FS01	Soluble	Solid	300.0	43824
MB 880-43824/1-A	Method Blank	Soluble	Solid	300.0	43824
LCS 880-43824/2-A	Lab Control Sample	Soluble	Solid	300.0	43824
LCSD 880-43824/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	43824
890-3817-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	43824
890-3817-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	43824

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#### **Lab Chronicle**

Client: Ensolum Job ID: 890-3818-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: FS01** 

Lab Sample ID: 890-3818-1

Matrix: Solid

EET MID

EET MID

Date Collected: 01/09/23 13:20 Date Received: 01/10/23 16:03

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	43832	01/12/23 14:48	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	43866	01/14/23 07:22	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44103	01/16/23 17:00	AJ	EET MID
Total/NA	Analysis	8015 NM		1			44060	01/16/23 16:51	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	43908	01/13/23 13:08	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	43947	01/15/23 12:34	AJ	EET MID

20

4.96 g

50 mL

43824

43928

01/12/23 14:04

01/14/23 00:41

KS

СН

#### Laboratory References:

Soluble

Soluble

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

DI Leach

300.0

Leach

Analysis

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## **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3818-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

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

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

Authority Texas		rogram	Identification Number	Expiration Date 06-30-23	
		ELAP	T104704400-22-25		
The following analytes the agency does not of	. ,	ut the laboratory is not certif	ied by the governing authority. This list ma	ay include analytes fo	
Analysis Method	Prep Method	Matrix	Analyte		
8015 NM		Solid	Total TPH		
Total BTEX		Solid	Total BTEX		

#### **Method Summary**

Client: Ensolum
Project/Site: Redtail State Com 1H

Job ID: 890-3818-1 SDG: 03D2024104

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

#### **Protocol References:**

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions. SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

#### Laboratory References:

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

**Eurofins Carlsbad** 

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## Sample Summary

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 890-3818-1

SDG: 03D2024104

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3818-1	FS01	Solid	01/09/23 13:20	01/10/23 16:03	4

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Received by OCD: 5/1/2023 2::38:05 PM

Revised Date: 08/25/2020 Rev. 2020.2



**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:			
	Mork	Order No.	

						TIOOL	, 14IVI (	(575) 38	72-7500	, ourise	Jua, 1414	(010)							www	xenc	o.com	Р	age	of	1
Project Manager:	Josh Adams				Bill to: (	if different	)	Kalei	Jennir	ıgs									,	Work	Orde	r Comm	ents		
Company Name:	Ensolum, LLC				Compa	ny Name	,	Ensol	um, Ll	.c						Prog	am: U	ST/PS	ST []F	RP [	Brow	nfields	□RC	uperf	ınd 🗌
Address:	3122 Nat'l Park	s High	way		Address	s:		13122 Natifialks Highway				State of Project: NM  Reporting: Level II  Level III PST/UST TRRP Level I													
City, State ZIP:	Carlsbad, NM 8	38220			City, St	ate ZIP:		Carls	bad, N	M 8822	20					Repo	ting: L	evel l	Le	vel III [	☐ PS	T/UST [	TRRE	Leve	IV 🗌
Phone:	303-517-8437			Email	jadams	@enso	lum.c	om, kj	ennin	qs@e	nsolur	n.con	1			Delive	rables	: EDI			ADaP	Т	Other	: <u></u>	
Project Name:	Redtails	toto	mm 14	Tur	n Around	1							ANAI	LYSIS	REQ	UEST							Preser	vative Co	les
Project Number:	N3D2D2			Routine	Rus		Pres. Code		I		I										T	None: N	10	DI Water	H₂O
Project Location:	32.3398			Due Date:			Code				<u> </u>										<b>†</b>	Cool: C	ool	MeOH: N	ie
Sampler's Name:	Julianna			TAT starts ti	ne day rec	eived by						1								ĺ	ł	HCL: H		HNO₃: H	N .
PO#:			2	the lab, if re			e e		l				ì	1	4			DUI <b>S</b> I				H <sub>2</sub> S0 <sub>4</sub> :	H <sub>2</sub>	NaOH: N	a
SAMPLE RECE	IPT Temp E	Blank:	Yes No	Wet Ice:	Yes	No	mete						HIMI	MUNIT				WW				H <sub>3</sub> PO <sub>4</sub> :	HP		
Samples Received	Intact: Yes	No	Thermomet	er ID:	NMC	For	Œ														1	NaHSO	•		
Cooler Custody Sea	als: Yes No	N/A	Correction	Factor:	- (	7.9	Par											MIM				Na <sub>2</sub> S <sub>2</sub> O	3: NaSC	)3	
Sample Custody Se	eals: Yes No	N/A	Temperatur	e Reading:	1.4					w			890-38	318 C	hain of	Custo	dy					Zn Acet			
Total Containers:			Corrected 1	emperature:	1.9							-	000 0					1		ı	1	NaOH+	Ascorbi	Acid: SAP	0
Sample Ide	entification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	MEX	<u>₹</u> /	CHLORIDES	1												Sampl	e Comme	nts
F50:	1	5	01-09-23	1320	4'	0	1	/	V	1												0.00	1000	0	01.10
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Total 200.7 / 6	6010 200.8 / 6	020:		8RCRA 1	3PPM	Texas 1	1 AI	Sb A	As Ba	Be	B Cd	Ca(	Cr Co	Cu	Fe Pl	Mg	Mn N	/lo N	K Se	e Ag	SiO <sub>2</sub>	Na Sr	TI Sn	U V Zn	
Circle Method(s)			zed	TCLP / S												_						245.1/			
Notice: Signature of thi																			rms and	conditi	ons				
of service. Eurofins Xe of Eurofins Xenco. A m	nco will be liable only	for the co	st of samples a	nd shall not ass	ume any n	esponsibili	ity for a	ny losse	s or ex	oenses i	incurred	by the	client if	such lo	sses an	due to	circums	stances	beyond	the co	ntrol				
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#### **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3818-1 SDG Number: 03D2024104

Login Number: 3818 List Source: Eurofins Carlsbad

List Number: 1 Creator: Clifton, Cloe

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

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

 Client: Ensolum
 Job Number: 890-3818-1

 SDG Number: 03D2024104

List Source: Eurofins Midland

List Number: 3818 List Number: 2 List

List Creation: 01/12/23 10:37 AM

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	N/A	

Euronnis Carisbau

Released to Imaging: 7/21/2023 2:39:28 PM

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<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

## PREPARED FOR

Attn: Josh Adams Ensolum 601 N. Marienfeld St. Suite 400 Midland, Texas 79701

Generated 4/18/2023 2:24:05 PM Revision 1

# **JOB DESCRIPTION**

Redtail State Com 1H SDG NUMBER 03D2024104

## **JOB NUMBER**

890-3819-1

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**

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

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

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Client: Ensolum

Laboratory Job ID: 890-3819-1

Project/Site: Redtail State Com 1H

SDG: 03D2024104

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## **Definitions/Glossary**

Client: Ensolum Job ID: 890-3819-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

**Qualifiers** 

**GC VOA** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

**GC Semi VOA** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

**HPLC/IC** 

Qualifier **Qualifier Description** 

F1 MS and/or MSD recovery exceeds control limits.

**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) Minimum Detectable Concentration (Radiochemistry) MDC

MDL Method Detection Limit ML Minimum Level (Dioxin) MPN Most Probable Number Method Quantitation Limit MQL

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)

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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

**TNTC** Too Numerous To Count

#### **Case Narrative**

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 890-3819-1

SDG: 03D2024104

Job ID: 890-3819-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3819-1

#### REVISION

The report being provided is a revision of the original report sent on 1/16/2023. The report (revision 1) is being revised due to Per client email, requesting PH01 and PH02 to be removed.

#### Receipt

The samples were received on 1/10/2023 4:03 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

#### Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: SW03 (890-3819-1), SW02 (890-3819-2), SW04 (890-3819-3), PH01 (890-3819-4) and PH02 (890-3819-5).

#### GC VOA

Method 8021B: Surrogate recovery for the following sample was outside control limits: PH01 (890-3819-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

#### GC Semi VOA

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: PH02 (890-3819-5), (MB 880-43836/1-A) and (890-3814-A-1-E). Evidence of matrix interferences is not obvious.

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

#### HPLC/IC

Method 300 ORGFM 28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-43824 and analytical batch 880-43928 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.

**Eurofins Carlsbad** 4/18/2023 (Rev. 1)

Lab Sample ID: 890-3819-1

01/16/23 17:06

## **Client Sample Results**

Client: Ensolum Job ID: 890-3819-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: SW03

Date Collected: 01/10/23 09:40 Date Received: 01/10/23 16:03

Sample Depth: 0 - 4

Total BTEX

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		01/13/23 08:16	01/14/23 03:36	1
Toluene	< 0.00201	U	0.00201	mg/Kg		01/13/23 08:16	01/14/23 03:36	1
Ethylbenzene	< 0.00201	U	0.00201	mg/Kg		01/13/23 08:16	01/14/23 03:36	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		01/13/23 08:16	01/14/23 03:36	1
o-Xylene	< 0.00201	U	0.00201	mg/Kg		01/13/23 08:16	01/14/23 03:36	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		01/13/23 08:16	01/14/23 03:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130			01/13/23 08:16	01/14/23 03:36	1
1,4-Difluorobenzene (Surr)	104		70 - 130			01/13/23 08:16	01/14/23 03:36	1

Method: SW846 8015 NM - Die	sel Range C	Organics (	DRO) (GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			01/16/23 16:35	1

0.00402

mg/Kg

<0.00402 U

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

Analyte	Result	Qualifier	RL	Unit D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.9	U	49.9	mg/Kg	01/12/23 15:08	01/13/23 17:39	1
(GRO)-C6-C10							
Diesel Range Organics (Over	<49.9	U	49.9	mg/Kg	01/12/23 15:08	01/13/23 17:39	1
C10-C28)							
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg	01/12/23 15:08	01/13/23 17:39	1
Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130		01/12/23 15:08	01/13/23 17:39	1
o-Terphenyl	105		70 - 130		01/12/23 15:08	01/13/23 17:39	1

Method: EPA 300.0 - Anions, Id	on Chromatography - S	oluble					
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	95.9	4.99	mg/Kg			01/14/23 00:48	1

Client Sample ID: SW02

Date Collected: 01/10/23 10:20

Lab Sample ID: 890-3819-2

Matrix: Solid

Sample Depth: 0 - 4

Date Received: 01/10/23 16:03

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		01/13/23 08:16	01/14/23 03:57	1
Toluene	<0.00201	U	0.00201	mg/Kg		01/13/23 08:16	01/14/23 03:57	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		01/13/23 08:16	01/14/23 03:57	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		01/13/23 08:16	01/14/23 03:57	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		01/13/23 08:16	01/14/23 03:57	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		01/13/23 08:16	01/14/23 03:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130			01/13/23 08:16	01/14/23 03:57	1

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Client: Ensolum Job ID: 890-3819-1 SDG: 03D2024104

Project/Site: Redtail State Com 1H

Client Sample ID: SW02 Lab Sample ID: 890-3819-2 Date Collected: 01/10/23 10:20 Matrix: Solid

Date Received: 01/10/23 16:03 Sample Depth: 0 - 4

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

Surrogate %Recovery Qualifier I imits Prepared Dil Fac Analyzed 01/13/23 08:16 01/14/23 03:57 1,4-Difluorobenzene (Surr) 107 70 - 130

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

Analyte Result Qualifier RL Unit D Prepared Analyzed Dil Fac Total BTEX <0.00402 U 0.00402 mg/Kg 01/16/23 17:06

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

D Result Qualifier Unit Prepared Analyzed Dil Fac Total TPH <49.9 U 49.9 mg/Kg 01/16/23 16:35

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

Result Qualifier D Dil Fac **Analyte** Unit Prepared Analyzed <49.9 U 49.9 01/12/23 15:08 01/13/23 18:01 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over <49.9 U 49.9 mg/Kg 01/12/23 15:08 01/13/23 18:01 C10-C28) Oll Range Organics (Over C28-C36) <49.9 U 49.9 01/12/23 15:08 01/13/23 18:01 mg/Kg

%Recovery Qualifier Dil Fac Surrogate Limits Prepared Analyzed 70 - 130 1-Chlorooctane 105 01/12/23 15:08 01/13/23 18:01 o-Terphenyl 01/12/23 15:08 01/13/23 18:01 105 70 - 130

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Result Qualifier Analyte RL Unit Prepared Analyzed Dil Fac Chloride 264 5.03 mg/Kg 01/14/23 00:54

Client Sample ID: SW04 Lab Sample ID: 890-3819-3 Matrix: Solid

Date Collected: 01/10/23 10:25 Date Received: 01/10/23 16:03

Sample Depth: 0 - 4

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

Analyte Result Qualifier RI Unit D Prepared Dil Fac Analyzed Benzene < 0.00199 U 0.00199 mg/Kg 01/13/23 08:16 01/14/23 04:18 Toluene <0.00199 U 0.00199 mg/Kg 01/13/23 08:16 01/14/23 04:18 Ethylbenzene <0.00199 U 0.00199 mg/Kg 01/13/23 08:16 01/14/23 04:18 m-Xylene & p-Xylene <0.00398 U 0.00398 mg/Kg 01/13/23 08:16 01/14/23 04:18 o-Xylene <0.00199 U 0.00199 mg/Kg 01/13/23 08:16 01/14/23 04:18 Xylenes, Total <0.00398 U 0.00398 mg/Kg 01/13/23 08:16 01/14/23 04:18

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 70 - 130 01/13/23 08:16 01/14/23 04:18 4-Bromofluorobenzene (Surr) 119 1,4-Difluorobenzene (Surr) 105 70 - 130 01/13/23 08:16 01/14/23 04:18

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte Result Qualifier RL Unit D Prepared Analyzed Dil Fac Total BTEX <0.00398 U 0.00398 mg/Kg 01/16/23 17:06

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

Analyte Result Qualifier Unit Prepared Analyzed Dil Fac Total TPH <50.0 U 50.0 mg/Kg 01/16/23 16:35

Lab Sample ID: 890-3819-3

Analyzed

01/14/23 01:00

## **Client Sample Results**

Client: Ensolum Job ID: 890-3819-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: SW04** 

Date Collected: 01/10/23 10:25 Date Received: 01/10/23 16:03

Sample Depth: 0 - 4

Analyte

Chloride

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		01/12/23 15:08	01/13/23 18:23	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		01/12/23 15:08	01/13/23 18:23	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		01/12/23 15:08	01/13/23 18:23	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	111		70 - 130			01/12/23 15:08	01/13/23 18:23	1
o-Terphenyl	110		70 - 130			01/12/23 15:08	01/13/23 18:23	1

RL

5.04

Unit

mg/Kg

Prepared

D

Result Qualifier

87.9 F1

4

7

9

10

Dil Fac

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## **Surrogate Summary**

Client: Ensolum Job ID: 890-3819-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)						
		BFB1	DFBZ1					
Lab Sample ID	Client Sample ID	(70-130)	(70-130)					
890-3819-1	SW03	109	104					
890-3819-2	SW02	113	107					
890-3819-3	SW04	119	105					
Surrogate Legend								
BFB = 4-Bromofluoro	henzene (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)
		1001	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3819-1	SW03	104	105	
890-3819-2	SW02	105	105	
890-3819-3	SW04	111	110	

1CO = 1-Chlorooctane OTPH = o-Terphenyl

#### **QC Sample Results**

Client: Ensolum Job ID: 890-3819-1 SDG: 03D2024104 Project/Site: Redtail State Com 1H

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-43747/5-A

**Matrix: Solid** 

Analysis Batch: 43877

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 43747

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	<0.00200	U	0.00200	mg/Kg		01/11/23 13:33	01/13/23 16:30	
Toluene	<0.00200	U	0.00200	mg/Kg		01/11/23 13:33	01/13/23 16:30	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/11/23 13:33	01/13/23 16:30	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		01/11/23 13:33	01/13/23 16:30	
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/11/23 13:33	01/13/23 16:30	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		01/11/23 13:33	01/13/23 16:30	

мв мв

Surrogate	%Recovery	Qualifier	Limits	Prepared
4-Bromofluorobenzene (Surr)	99		70 - 130	01/11/23 13:33
1,4-Difluorobenzene (Surr)	86		70 - 130	01/11/23 13:33

Client Sample ID: Method Blank

Analyzed 01/13/23 16:30 01/13/23 16:30

Prep Type: Total/NA

Prep Batch: 43868

Lab Sample ID: MB 880-43868/5-A **Matrix: Solid** 

Analysis Batch: 43877

	MR	MR						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		01/13/23 08:16	01/14/23 03:14	1
Toluene	<0.00200	U	0.00200	mg/Kg		01/13/23 08:16	01/14/23 03:14	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/13/23 08:16	01/14/23 03:14	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		01/13/23 08:16	01/14/23 03:14	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/13/23 08:16	01/14/23 03:14	1
Xylenes, Total	< 0.00400	U	0.00400	mg/Kg		01/13/23 08:16	01/14/23 03:14	1

мв мв

Surrogate	%Recovery Qualifie	r Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100	70 - 130	01/13/23 08:16	01/14/23 03:14	1
1,4-Difluorobenzene (Surr)	90	70 - 130	01/13/23 08:16	01/14/23 03:14	1

Lab Sample ID: LCS 880-43868/1-A

**Matrix: Solid** 

Analysis Batch: 43877

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Prep Batch: 43868

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.1038		mg/Kg		104	70 - 130	
Toluene	0.100	0.09662		mg/Kg		97	70 - 130	
Ethylbenzene	0.100	0.1080		mg/Kg		108	70 - 130	
m-Xylene & p-Xylene	0.200	0.1989		mg/Kg		99	70 - 130	
o-Xylene	0.100	0.1040		mg/Kg		104	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	100	70 _ 130
1.4-Difluorobenzene (Surr)	95	70 - 130

Lab Sample ID: LCSD 880-43868/2-A

**Matrix: Solid** 

Analysis Batch: 43877

Client Sample ID: Lab	Control Sample Dup
	Date of Taxable Taxable I/NIA

Prep Type: Total/NA

Prep Batch: 43868

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.1034		mg/Kg		103	70 - 130	0	35

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Dil Fac

#### QC Sample Results

Client: Ensolum Job ID: 890-3819-1 SDG: 03D2024104 Project/Site: Redtail State Com 1H

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

Lab Sample ID: LCSD 880-43868/2-A

**Matrix: Solid** 

**Analysis Batch: 43877** 

Client Sample ID: Lab Contr	rol Sample Dup
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Prep Type: Total/NA Prep Batch: 43868

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Toluene	0.100	0.09614		mg/Kg		96	70 - 130	0	35
Ethylbenzene	0.100	0.1036		mg/Kg		104	70 - 130	4	35
m-Xylene & p-Xylene	0.200	0.1896		mg/Kg		95	70 - 130	5	35
o-Xylene	0.100	0.09875		mg/Kg		99	70 - 130	5	35

LCSD LCSD

Surrogate	%Recovery Qua	lifier Limits
4-Bromofluorobenzene (Surr)	95	70 - 130
1,4-Difluorobenzene (Surr)	96	70 - 130

Lab Sample ID: 890-3819-1 MS

**Matrix: Solid** 

Analysis Batch: 43877

Client Sample ID: SW03 Prep Type: Total/NA

Prep Batch: 43868

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00201	U	0.0998	0.1043		mg/Kg		105	70 - 130	
Toluene	<0.00201	U	0.0998	0.09540		mg/Kg		96	70 - 130	
Ethylbenzene	<0.00201	U	0.0998	0.1017		mg/Kg		102	70 - 130	
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1879		mg/Kg		94	70 - 130	
o-Xylene	<0.00201	U	0.0998	0.09643		mg/Kg		97	70 - 130	

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	95	70 - 130
1,4-Difluorobenzene (Surr)	100	70 - 130

Lab Sample ID: 890-3819-1 MSD

**Matrix: Solid** 

Analysis Batch: 43877

Client Sample ID: SW03 Prep Type: Total/NA

Prep Batch: 43868

		Sample	Sample	Spike	MSD	MSD				%Rec		RPD
	Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
	Benzene	<0.00201	U	0.101	0.08686		mg/Kg		86	70 - 130	18	35
	Toluene	<0.00201	U	0.101	0.08178		mg/Kg		81	70 - 130	15	35
	Ethylbenzene	<0.00201	U	0.101	0.09122		mg/Kg		90	70 - 130	11	35
	m-Xylene & p-Xylene	<0.00402	U	0.202	0.1709		mg/Kg		85	70 - 130	9	35
	o-Xylene	<0.00201	U	0.101	0.08906		mg/Kg		88	70 - 130	8	35
ı												

MSD MSD

мв мв Result Qualifier

<50.0 U

Surrogate	%Recovery	Quaimer	Limits
4-Bromofluorobenzene (Surr)	105		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

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

Lab Sample ID: MB 880-43836/1-A

**Matrix: Solid** 

Analysis Batch: 43854

Gasoline Range Organics

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

Prepared

01/12/23 15:08

Prep Batch: 43836

01/13/23 08:27

(GRO)-C6-C10

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50.0

Unit

mg/Kg

#### QC Sample Results

Client: Ensolum Job ID: 890-3819-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Lab Sample ID: MB 880-43836/1-A **Matrix: Solid** 

Lab Sample ID: LCS 880-43836/2-A

**Matrix: Solid** 

Analysis Batch: 43854

Analysis Batch: 43854

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 43836

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		01/12/23 15:08	01/13/23 08:27	1
C10-C28)	50.0		50.0	".		044404004500	0.4.4.0.10.0.00.00	
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		01/12/23 15:08	01/13/23 08:27	1

MB MB

MR MR

	Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
	1-Chlorooctane	176	S1+	70 - 130	01/12/23 15:08	01/13/23 08:27	1
l	o-Terphenyl	160	S1+	70 - 130	01/12/23 15:08	01/13/23 08:27	1

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 43836

LCS LCS Spike Analyte Added Result Qualifier Unit %Rec Limits Gasoline Range Organics 1000 967.7 97 70 - 130 mg/Kg (GRO)-C6-C10 1000 919.0 Diesel Range Organics (Over mg/Kg 92 70 - 130C10-C28)

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	110		70 - 130
o-Terphenyl	103		70 - 130

Lab Sample ID: LCSD 880-43836/3-A

**Matrix: Solid** Analysis Batch: 43854 Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 43836

	Spike	LCSD	LCSD			%Rec		RPD
Analyte	Added	Result	Qualifier U	nit D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	1000	1093	m	ng/Kg	109	70 - 130	12	20
(GRO)-C6-C10								
Diesel Range Organics (Over	1000	1022	m	ıg/Kg	102	70 - 130	11	20
C10-C28)								

LCSD LCSD Surrogate %Recovery Qualifier Limits 1-Chlorooctane 126 70 - 130 o-Terphenyl 115 70 - 130

Lab Sample ID: 890-3814-A-1-F MS

**Matrix: Solid** 

Analysis Batch: 43854

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 43836

MS MS Sample Sample Spike %Rec Result Qualifier Added Result Qualifier Unit %Rec Limits Analyte <49.9 U 998 1041 70 - 130 Gasoline Range Organics 102 mg/Kg (GRO)-C6-C10 998 1012 Diesel Range Organics (Over <49.9 U mg/Kg 101 70 - 130

C10-C28)

	IVIS	IVIS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	116		70 - 130
o-Terphenyl	102		70 - 130

Lab Sample ID: 890-3814-A-1-G MSD

#### QC Sample Results

Client: Ensolum Job ID: 890-3819-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 43836

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	<49.9	U	997	1007		mg/Kg		99	70 - 130	3	20
(GRO)-C6-C10											
Diesel Range Organics (Over	<49.9	U	997	940.5		mg/Kg		94	70 - 130	7	20
C40 C20)											

C10-C28)

**Matrix: Solid** 

Analysis Batch: 43854

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	103		70 - 130
o-Terphenyl	96		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-43824/1-A Client Sample ID: Method Blank

**Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 43928** 

мв мв

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			01/13/23 23:15	1

Lab Sample ID: LCS 880-43824/2-A **Client Sample ID: Lab Control Sample Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 43928** 

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	 250	270.5		mg/Kg		108	90 - 110	 

Lab Sample ID: LCSD 880-43824/3-A Client Sample ID: Lab Control Sample Dup **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 43928** 

	Spike	LCSD	LCSD				%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Chloride	250	265.2		mg/Kg		106	90 - 110	2	20	

Lab Sample ID: 890-3819-3 MS Client Sample ID: SW04 **Prep Type: Soluble** 

**Matrix: Solid** 

Analysis Batch: 43928

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	87.0	F1	252	372 9	F1	ma/Ka		113	90 110	

Lab Sample ID: 890-3819-3 MSD Client Sample ID: SW04 **Prep Type: Soluble** 

**Matrix: Solid** 

Analysis Batch: 43928

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	87.9	F1	252	367.1	F1	mg/Kg	_	111	90 - 110	2	20

# **QC Association Summary**

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 890-3819-1 SDG: 03D2024104

#### **GC VOA**

#### Prep Batch: 43868

Lab Sample I	D Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3819-1	SW03	Total/NA	Solid	5035	
890-3819-2	SW02	Total/NA	Solid	5035	
890-3819-3	SW04	Total/NA	Solid	5035	

#### **Analysis Batch: 43877**

La	ib Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
89	0-3819-1	SW03	Total/NA	Solid	8021B	43868
89	0-3819-2	SW02	Total/NA	Solid	8021B	43868
89	0-3819-3	SW04	Total/NA	Solid	8021B	43868

## **Analysis Batch: 44113**

<b>Lab Sample ID</b> 890-3819-1	Client Sample ID SW03	Prep Type Total/NA	Matrix Solid	Method Total BTEX	Prep Batch
890-3819-2	SW02	Total/NA	Solid	Total BTEX	
890-3819-3	SW04	Total/NA	Solid	Total BTEX	

## **GC Semi VOA**

#### Prep Batch: 43836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3819-1	SW03	Total/NA	Solid	8015NM Prep	
890-3819-2	SW02	Total/NA	Solid	8015NM Prep	
890-3819-3	SW04	Total/NA	Solid	8015NM Prep	

### Analysis Batch: 43854

<b>Lab Sample ID</b> 890-3819-1	Client Sample ID SW03	Prep Type Total/NA	Matrix Solid	Method 8015B NM	Prep Batch 43836
890-3819-2	SW02	Total/NA	Solid	8015B NM	43836
890-3819-3	SW04	Total/NA	Solid	8015B NM	43836

## **Analysis Batch: 44028**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3819-1	SW03	Total/NA	Solid	8015 NM	
890-3819-2	SW02	Total/NA	Solid	8015 NM	
890-3819-3	SW04	Total/NA	Solid	8015 NM	

#### **HPLC/IC**

#### Leach Batch: 43824

Lab Sample ID 890-3819-1	Client Sample ID SW03	Prep Type Soluble	Matrix Solid	Method DI Leach	Prep Batch
890-3819-2	SW02	Soluble	Solid	DI Leach	
890-3819-3	SW04	Soluble	Solid	DI Leach	

#### **Analysis Batch: 43928**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3819-1	SW03	Soluble	Solid	300.0	43824
890-3819-2	SW02	Soluble	Solid	300.0	43824
890-3819-3	SW04	Soluble	Solid	300.0	43824

Project/Site: Redtail State Com 1H

Job ID: 890-3819-1

SDG: 03D2024104

Lab Sample ID: 890-3819-1

**Matrix: Solid** 

Client Sample ID: SW03

Client: Ensolum

Date Collected: 01/10/23 09:40 Date Received: 01/10/23 16:03

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	43868	01/13/23 08:16	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	43877	01/14/23 03:36	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44113	01/16/23 17:06	AJ	EET MID
Total/NA	Analysis	8015 NM		1			44028	01/16/23 16:35	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	43836	01/12/23 15:08	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	43854	01/13/23 17:39	AJ	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	43824	01/12/23 14:04	KS	EET MID
Soluble	Analysis	300.0		1			43928	01/14/23 00:48	CH	EET MID

Client Sample ID: SW02

Date Collected: 01/10/23 10:20 Date Received: 01/10/23 16:03

Lab Sample ID: 890-3819-2

**Matrix: Solid** 

Batch Batch Dil Initial Final Batch Prepared Method **Prep Type** Type Run **Factor Amount** Amount Number or Analyzed **Analyst** Lab Total/NA 5035 43868 01/13/23 08:16 MNR **EET MID** Prep 4.98 g 5 mL Total/NA 8021B 5 mL **EET MID** Analysis 5 mL 43877 01/14/23 03:57 MNR 1 Total/NA Analysis **Total BTEX** 1 44113 01/16/23 17:06 AJ **EET MID** Total/NA 8015 NM **EET MID** Analysis 1 44028 01/16/23 16:35 AJ Total/NA Prep 8015NM Prep 10.02 g 10 mL 43836 01/12/23 15:08 DM **EET MID** Total/NA 8015B NM 43854 Analysis 1 uL 1 uL 01/13/23 18:01 AJ **EET MID** Soluble 50 mL 43824 DI Leach 4.97 g 01/12/23 14:04 KS **EET MID** Leach 300.0 01/14/23 00:54 CH Soluble Analysis 1 43928 **EET MID** 

Client Sample ID: SW04

Date Collected: 01/10/23 10:25 Date Received: 01/10/23 16:03

Lab Sample ID: 890-3819-3

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	43868	01/13/23 08:16	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	43877	01/14/23 04:18	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44113	01/16/23 17:06	AJ	EET MID
Total/NA	Analysis	8015 NM		1			44028	01/16/23 16:35	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	43836	01/12/23 15:08	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	43854	01/13/23 18:23	AJ	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	43824	01/12/23 14:04	KS	EET MID
Soluble	Analysis	300.0		1			43928	01/14/23 01:00	CH	EET MID

**Laboratory References:** 

Released to Imaging: 7/21/2023 2:39:28 PM

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

## **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3819-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

**Laboratory: Eurofins Midland** 

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

Authority Texas		rogram	Identification Number	Expiration Date		
		ELAP	T104704400-22-25	06-30-23		
The following analyte	a are included in this ren	art but the laboratory is r		TI : 15 A		
0 ,	•	ort, but the laboratory is r	not certified by the governing authority.	inis list may include analytes for wr		
the agency does not	offer certification.	•	, , ,	I his list may include analytes for wr		
the agency does not on Analysis Method	•	Matrix	Analyte	This list may include analytes for wr		
the agency does not	offer certification.	•	, , ,	This list may include analytes for wr		

Page 16 of 21

## **Method Summary**

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 890-3819-1

SDG: 03D2024104

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: Redtail State Com 1H

Job ID: 890-3819-1

SDG: 03D2024104

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	De
890-3819-1	SW03	Solid	01/10/23 09:40	01/10/23 16:03	0 - 4
890-3819-2	SW02	Solid	01/10/23 10:20	01/10/23 16:03	0 - 4
890-3819-3	SW04	Solid	01/10/23 10:25	01/10/23 16:03	0 - 4

Received by OCD: 5/1/2023 2:38:05 PM



**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

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																			www.	xenco	.com	Page	of
Project Manager:	Josh Adams				Bill to: (if	f different)		Kalei .	Jennin	gs					_				V	Vork	Order	r Comments	· · · · · · · · · · · · · · · · · · ·
Company Name:	Ensolum, LLC				Compan	y Name:		Ensol	um, LL	.c						Program: UST/PST PRP Brownfields RC Juperfund							
Address:	3122 Nat'l Parl	s Highv	vay		Address	:		3122	Nat'l P	arks H	lighway					State of Project: NM							
City, State ZIP:	Carlsbad, NM				City, Sta	ate ZIP:		Carlst	ad, N	M 882	20					Reporting: Level II Level III PST/UST TRRP Level IV							
Phone:	303-517-8437			/Email:			n.co	m, kje	kjennings@ensolum.com			Deliverables: EDD ADaPT Other:											
		to to A	M11											YSIS	REC	UEST						Preser	vative Codes
Project Name:	Kentail S		INITH	Routine	Around	P	res.			Г	T		AIVA		1							None: NO	DI Water: H₂O
Project Number:	10302024		1 2019		L Kusi	, c	ode			-	-				_	<del>                                     </del>	<del> </del>					Cool: Cool	MeOH: Me
Project Location:	32.3398			Due Date:	1										[							HCL: HC	HNO <sub>3</sub> : HN
Sampler's Name: PO #:	Juliann	a Falcor	ııdld	TAT starts to the lab, if re		4:30nm	60							I	!	I	1	1		1		H <sub>2</sub> S0 <sub>4</sub> : H <sub>2</sub>	NaOH: Na
SAMPLE RECE	IPT Temp	Riank: (	Yes No	Wet Ice:	Yes	No	meters						HU									H₃PO₄: HP	
Samples Received		No.	Thermomet		NIN		ram								Ш		1/11/1		₩			NaHSO4: NABI	s
Cooler Custody Sea			Correction F		-0	~ ~	Pa												Ш			Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> NaSC	D₃
Sample Custody Se		-	Temperatur	e Reading:							890-3819 Chain of Custody				Zn Acetate+NaOH: Zn								
Total Containers:			Corrected T	emperature:		2	5				DES		890-3819 CI			nain or Custody				NaOH+Ascorbic Acid: SAPC			
Sample Ide	entification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ #	of ont	втех	TPH	CHLORIDES												Sampl	e Comments
SW03	)	5	01/10/23	1940	0-4	C																anna	002000111
5002		5	01/10/23	1020	174	0																NALANI	13323904
5004		5	01/10/23	1025	04	C																<u> </u>	
OHU1		5	01/0/23	1360	4	G																	
DHUZ		5	1111/23	1340	4'	G				1													
			0,,,						-														
																<u> </u>							
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Total 200.7/	6010 200.8 / (	6020:		8RCRA 1	3PPM	Texas 11	Al	Sb A	As Ba	Ве	B Cd	Ca (	Cr Co	Cu	Fe P	b Mg	Mn M	lo Ni	K Se	Ag	SiO <sub>2</sub>	Na Sr Tl Sn	U V Zn
Circle Method(s)		e analy	zed			10: 8RCF																245.1 / 7470	
Notice: Signature of thi	is document and reling	wishment	of samples cor	stitutes a valid	purchase o	order from cli	ent co	ompany	to Eur	ofins X	enco, its	affiliate	s and s	ubcontr	actors.	It assig	ns stan	dard ter	ms and	conditio	ons		
of service. Eurofins Xe of Eurofins Xenco. A m	and the state and	44b	at of samples s	ad chall not see	umo any re	enoneihility	for an	v losse	S OF AY	penses	incurred	l by the	client if	such lo	sses a	re due to	circum	stances	beyond	the con	itroi		
I Eurofins Xenco. A m	ninimum charge of \$85	.uu wiii be	applied to each	i project and a	cuarge of \$	o ioi eacil sa	inpie	Sabiille		CV									-				

Relinquished by: (Signature)	Received by: (Signature)	Date/Time (c 3 Relinquished by: (Signature)	Received by: (Signature)	Date/Time
· Collowald	) (lose Cul)	1.10.231403		
3		4		
5		6		
				Revised Date: 08/25/2020 Rev. 2020.2

## **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3819-1 SDG Number: 03D2024104

Login Number: 3819 List Source: Eurofins Carlsbad

List Number: 1 Creator: Clifton, Cloe

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

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

Client: Ensolum

Job Number: 890-3819-1

SDG Number: 03D2024104

List Source: Eurofins Midland List Creation: 01/12/23 10:37 AM

List Number: 2

Login Number: 3819

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	N/A	

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2

3

4

6

0

13

14

<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

## PREPARED FOR

Attn: Josh Adams Ensolum 601 N. Marienfeld St. Suite 400 Midland, Texas 79701

Generated 2/3/2023 11:13:19 AM

# **JOB DESCRIPTION**

Redtail State Com 01H SDG NUMBER 03D2024104

## **JOB NUMBER**

890-3880-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

Released to Imaging: 7/21/2023 2:39:28 PM

# **Eurofins Carlsbad**

## **Job Notes**

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

## **Authorization**

Generated 2/3/2023 11:13:19 AM

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

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

Client: Ensolum
Project/Site: Redtail State Com 01H
Laboratory Job ID: 890-3880-1
SDG: 03D2024104

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#### **Definitions/Glossary**

Client: Ensolum Job ID: 890-3880-1
Project/Site: Redtail State Com 01H SDG: 03D2024104

J4

**Qualifiers** 

**GC VOA** 

 Qualifier
 Qualifier Description

 S1+
 Surrogate recovery excellent

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

GC Semi VOA

Qualifier Description

\*1 LCS/LCSD RPD exceeds control limits.

U Indicates the analyte was analyzed for but not detected.

**HPLC/IC** 

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

**Eurofins Carlsbad** 

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R

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#### **Case Narrative**

Client: Ensolum

Job ID: 890-3880-1 Project/Site: Redtail State Com 01H SDG: 03D2024104

Job ID: 890-3880-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3880-1

#### Receipt

The samples were received on 1/18/2023 2:47 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.4°C

#### **Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: FS03 (890-3880-1), FS04 (890-3880-2) and FS05 (890-3880-3).

#### GC VOA

Method 8021B: Surrogate recovery for the following samples were outside control limits: FS04 (890-3880-2) and FS05 (890-3880-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

#### GC Semi VOA

Method 8015MOD NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-45145 and analytical batch 880-45222 recovered outside control limits for the following analytes: Gasoline Range Organics (GRO)-C6-C10 and Diesel Range Organics (Over C10-C28).

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

#### HPLC/IC

Method 300 ORGFM 28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-44580 and analytical batch 880-44680 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.

Lab Sample ID: 890-3880-1

## **Client Sample Results**

Client: Ensolum Job ID: 890-3880-1
Project/Site: Redtail State Com 01H SDG: 03D2024104

Client Sample ID: FS03

Date Collected: 01/18/23 11:10 Date Received: 01/18/23 14:47

Sample Depth: 4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		01/24/23 12:09	01/27/23 12:51	1
Toluene	<0.00201	U	0.00201	mg/Kg		01/24/23 12:09	01/27/23 12:51	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		01/24/23 12:09	01/27/23 12:51	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		01/24/23 12:09	01/27/23 12:51	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		01/24/23 12:09	01/27/23 12:51	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		01/24/23 12:09	01/27/23 12:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	128		70 - 130			01/24/23 12:09	01/27/23 12:51	1
1,4-Difluorobenzene (Surr)	87		70 - 130			01/24/23 12:09	01/27/23 12:51	1
- Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			01/27/23 15:30	1
Method: SW846 8015 NM - Diese Analyte		ics (DRO) (G	GC)	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH			49.9			Prepareu	02/03/23 11:49	
Total IPH	<b>&lt;49.9</b>	U	49.9	mg/Kg				
							02/03/23 11.49	1
Method: SW846 8015B NM - Dies	sel Range Orga	nics (DRO)	(GC)				02/03/23 11.49	1
Method: SW846 8015B NM - Dies Analyte	•	nics (DRO) Qualifier	(GC)	Unit	D	Prepared	Analyzed	1 Dil Fac
Analyte Gasoline Range Organics	•	Qualifier	•	Unit mg/Kg	<u>D</u>	Prepared 01/31/23 14:03		
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result	Qualifier U *1	RL		<u>D</u>	<u>.</u>	Analyzed	Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result   <49.9	Qualifier U *1 U *1	RL 49.9	mg/Kg	<u>D</u>	01/31/23 14:03	<b>Analyzed</b> 02/02/23 16:59	Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result   <49.9   <49.9	Qualifier U*1 U*1	RL 49.9 49.9	mg/Kg	<u>D</u>	01/31/23 14:03	Analyzed 02/02/23 16:59 02/02/23 16:59	Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result  <49.9 <49.9 <49.9	Qualifier U *1 U *1	RL 49.9 49.9 49.9	mg/Kg	<u>D</u>	01/31/23 14:03 01/31/23 14:03 01/31/23 14:03	Analyzed 02/02/23 16:59 02/02/23 16:59 02/02/23 16:59	<b>Dil Fac</b> 1
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result	Qualifier U *1 U *1	RL 49.9 49.9 49.9 <i>Limits</i>	mg/Kg	<u>D</u>	01/31/23 14:03 01/31/23 14:03 01/31/23 14:03 <i>Prepared</i>	Analyzed 02/02/23 16:59 02/02/23 16:59 02/02/23 16:59 Analyzed	Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <49.9   <49.9   <49.9     <49.9     <79     <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <79   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70   <70	Qualifier U*1 U*1 U Qualifier	RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg	<u> </u>	01/31/23 14:03 01/31/23 14:03 01/31/23 14:03 Prepared 01/31/23 14:03	Analyzed 02/02/23 16:59 02/02/23 16:59 02/02/23 16:59  Analyzed 02/02/23 16:59	<b>Dil Fac</b> 1
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result	Qualifier U*1 U*1 U Qualifier	RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg	<u>D</u>	01/31/23 14:03 01/31/23 14:03 01/31/23 14:03 Prepared 01/31/23 14:03	Analyzed 02/02/23 16:59 02/02/23 16:59 02/02/23 16:59  Analyzed 02/02/23 16:59	Dil Fac

Client Sample ID: FS04

Date Collected: 01/18/23 11:15 Date Received: 01/18/23 14:47

Sample Depth: 4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		01/24/23 12:09	01/27/23 13:17	1
Toluene	<0.00200	U	0.00200	mg/Kg		01/24/23 12:09	01/27/23 13:17	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/24/23 12:09	01/27/23 13:17	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		01/24/23 12:09	01/27/23 13:17	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/24/23 12:09	01/27/23 13:17	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		01/24/23 12:09	01/27/23 13:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	138	S1+	70 - 130			01/24/23 12:09	01/27/23 13:17	

**Eurofins Carlsbad** 

Lab Sample ID: 890-3880-2

**Matrix: Solid** 

Lab Sample ID: 890-3880-2

#### Client Sample Results

Job ID: 890-3880-1 Client: Ensolum Project/Site: Redtail State Com 01H SDG: 03D2024104

Client Sample ID: FS04 Date Collected: 01/18/23 11:15

Date Received: 01/18/23 14:47 Sample Depth: 4'

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

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 70 - 130 01/24/23 12:09 1,4-Difluorobenzene (Surr) 95 01/27/23 13:17

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

Analyte Result Qualifier RL Unit D Analyzed Dil Fac Prepared Total BTEX <0.00401 0.00401 01/27/23 15:30 mg/Kg

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

RL Unit D Prepared Analyzed Dil Fac Total TPH <49.9 49.9 mg/Kg 02/03/23 11:49

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

Analyte Result Qualifier RL Unit D Prepared Analyzed Dil Fac <49.9 U \*1 49.9 01/31/23 14:03 02/02/23 17:20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 <49.9 U \*1 49.9 mg/Kg 01/31/23 14:03 02/02/23 17:20 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36) <49.9 U 49.9 mg/Kg 01/31/23 14:03 02/02/23 17:20

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1-Chlorooctane 78 70 - 130 01/31/23 14:03 02/02/23 17:20 o-Terphenyl 78 70 - 130 01/31/23 14:03 02/02/23 17:20

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte Result Qualifier RL Unit D Prepared Analyzed Dil Fac 4.97 01/24/23 20:59 Chloride 364 mg/Kg

Lab Sample ID: 890-3880-3 **Client Sample ID: FS05** 

Date Collected: 01/18/23 11:20 Date Received: 01/18/23 14:47

Sample Depth: 4'

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

Analyte Result Qualifier RL Unit D Prepared Analyzed Dil Fac Benzene <0.00199 U 0.00199 mg/Kg 01/24/23 12:09 01/27/23 13:44 Toluene <0.00199 U 0.00199 01/24/23 12:09 01/27/23 13:44 mg/Kg Ethylbenzene <0.00199 U 0.00199 01/24/23 12:09 01/27/23 13:44 mg/Kg 01/27/23 13:44 m-Xylene & p-Xylene <0.00398 U 0.00398 01/24/23 12:09 mg/Kg o-Xylene <0.00199 U 0.00199 mg/Kg 01/24/23 12:09 01/27/23 13:44 Xylenes, Total <0.00398 U 0.00398 mg/Kg 01/24/23 12:09 01/27/23 13:44

%Recovery Qualifier Limits Dil Fac Surrogate Prepared Analyzed S1+ 70 - 130 4-Bromofluorobenzene (Surr) 135 01/24/23 12:09 01/27/23 13:44 1,4-Difluorobenzene (Surr) 92 70 - 130 01/24/23 12:09 01/27/23 13:44

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte Result Qualifier RL D Dil Fac Unit Prepared Analyzed Total BTEX <0.00398 0.00398 01/27/23 15:30 mg/Kg

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

Analyte Result Qualifier RL Unit D Prepared Analyzed Dil Fac <49.9 U 02/03/23 11:49 Total TPH 49.9 mg/Kg

**Eurofins Carlsbad** 

Matrix: Solid

Lab Sample ID: 890-3880-3

01/24/23 21:04

## **Client Sample Results**

Client: Ensolum

Project/Site: Redtail State Com 01H

SDG: 03D2024104

**Client Sample ID: FS05** 

Date Collected: 01/18/23 11:20 Date Received: 01/18/23 14:47

Sample Depth: 4'

Chloride

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.9	U *1	49.9	mg/Kg		01/31/23 14:03	02/02/23 17:42	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<49.9	U *1	49.9	mg/Kg		01/31/23 14:03	02/02/23 17:42	1
C10-C28)								
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		01/31/23 14:03	02/02/23 17:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	87		70 - 130			01/31/23 14:03	02/02/23 17:42	1
o-Terphenyl	89		70 - 130			01/31/23 14:03	02/02/23 17:42	1
o-Terphenyl  Method: EPA 300.0 - Anions, Ion		nhy - Solubl				01/31/23 14:03	02/02/23 17:42	
metriou. Li A 300.0 • Allions, lon	om omatograp	niy - Solubi	<b>C</b>					

4.99

523

mg/Kg

\_\_\_\_

6

8

46

11

13

## **Surrogate Summary**

Client: Ensolum

Project/Site: Redtail State Com 01H

SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3880-1	FS03	128	87	
890-3880-1 MS	FS03	129	95	
890-3880-1 MSD	FS03	138 S1+	95	
890-3880-2	FS04	138 S1+	95	
890-3880-3	FS05	135 S1+	92	
LCS 880-44625/1-A	Lab Control Sample	131 S1+	99	
LCSD 880-44625/2-A	Lab Control Sample Dup	124	102	
MB 880-44625/5-A	Method Blank	88	83	

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid Prep Type: Total/NA

		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-24010-A-1-B MS	Matrix Spike	91	82
880-24010-A-1-C MSD	Matrix Spike Duplicate	83	71
890-3880-1	FS03	79	79
890-3880-2	FS04	78	78
890-3880-3	FS05	87	89
LCS 880-45145/2-A	Lab Control Sample	80	75
LCSD 880-45145/3-A	Lab Control Sample Dup	92	91
MB 880-45145/1-A	Method Blank	87	91

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

### QC Sample Results

Job ID: 890-3880-1 Client: Ensolum Project/Site: Redtail State Com 01H SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-44625/5-A

**Matrix: Solid** 

Analysis Batch: 44889

Client Sample ID: Method Blank

Prep Type: Total/NA

1

Prep Batch: 44625

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	<0.00200	U	0.00200	mg/Kg		01/24/23 12:09	01/27/23 12:24	
Toluene	<0.00200	U	0.00200	mg/Kg		01/24/23 12:09	01/27/23 12:24	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		01/24/23 12:09	01/27/23 12:24	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		01/24/23 12:09	01/27/23 12:24	
o-Xylene	<0.00200	U	0.00200	mg/Kg		01/24/23 12:09	01/27/23 12:24	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		01/24/23 12:09	01/27/23 12:24	

MB MB

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		70 - 130	01/24/23 12:09	01/27/23 12:24	1
1,4-Difluorobenzene (Surr)	83		70 - 130	01/24/23 12:09	01/27/23 12:24	1

Lab Sample ID: LCS 880-44625/1-A

**Matrix: Solid** 

**Analysis Batch: 44889** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 44625

	<b>Spike</b>	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.1090		mg/Kg		109	70 - 130	
Toluene	0.100	0.1121		mg/Kg		112	70 - 130	
Ethylbenzene	0.100	0.1157		mg/Kg		116	70 - 130	
m-Xylene & p-Xylene	0.200	0.2386		mg/Kg		119	70 - 130	
o-Xylene	0.100	0.1195		mg/Kg		119	70 - 130	

Spike

Added

0.100

0.100

0.100

0.200

0.100

LCSD LCSD

0.1136

0.1013

0.1050

0.2128

0.1073

Result Qualifier

Unit

mg/Kg

mg/Kg

mg/Kg

mg/Kg

mg/Kg

LCS LCS

Surrogate	%Recovery	Qualifier	Limits	
4-Bromofluorobenzene (Surr)	131	S1+	70 - 130	
1,4-Difluorobenzene (Surr)	99		70 - 130	

Lab Sample ID: LCSD 880-44625/2-A

**Matrix: Solid** 

Analyte

Benzene

Toluene

o-Xylene

Ethylbenzene

m-Xylene & p-Xylene

**Analysis Batch: 44889** 

Client Sample ID: Lab Control Sample Dup

%Rec

70 - 130

70 - 130

106

107

Prep Type: Total/NA Prep Batch: 44625

11

11

RPD

35

35

%Rec Limits Limit 114 70 - 130 35 101 70 - 130 10 35 105 70 - 130 10 35

LCSD LCSD %Recovery Qualifier Limits Surrogate 70 - 130 4-Bromofluorobenzene (Surr) 124 1,4-Difluorobenzene (Surr) 102 70 - 130

Lab Sample ID: 890-3880-1 MS

**Matrix: Solid** 

Analysis Batch: 44889

**Client Sample ID: FS03** Prep Type: Total/NA

Prep Batch: 44625

Sample Sample Spike MS MS %Rec Result Qualifier Analyte Added Result Qualifier Unit %Rec Limits <0.00201 U 0.101 Benzene 0.1074 mg/Kg 107 70 - 130 Toluene <0.00201 U 0.101 0.09370 mg/Kg 93 70 - 130

### QC Sample Results

Client: Ensolum Job ID: 890-3880-1 Project/Site: Redtail State Com 01H SDG: 03D2024104

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

Lab Sample ID: 890-3880-1 MS **Matrix: Solid** 

Analysis Batch: 44889

**Client Sample ID: FS03** Prep Type: Total/NA

Prep Batch: 44625

Sample Sample Spike MS MS %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits 0.101 Ethylbenzene <0.00201 U 0.09485 94 70 - 130 mg/Kg m-Xylene & p-Xylene <0.00402 U 0.202 0.1976 mg/Kg 98 70 - 130 <0.00201 U 0.101 o-Xylene 0.09993 99 70 - 130 mg/Kg

MS MS

Surrogate	%Recovery Q	ualifier	Limits
4-Bromofluorobenzene (Surr)	129		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: 890-3880-1 MSD

**Matrix: Solid** 

**Analysis Batch: 44889** 

Client Sample ID: FS03 Prep Type: Total/NA

Prep Batch: 44625

Sample Sample Spike MSD MSD %Rec Result Qualifier Added Result Qualifier RPD Limit Analyte Unit Limits 0.0990 105 Benzene <0.00201 U 0.1039 mg/Kg 70 - 130 3 35 0.09077 Toluene <0.00201 U 0.0990 mg/Kg 92 70 - 130 3 35 Ethylbenzene <0.00201 U 0.0990 0.08913 mg/Kg 90 70 - 130 6 35 0.198 0.1880 95 70 - 130 35 m-Xylene & p-Xylene <0.00402 U mg/Kg 5 0.0990 <0.00201 U 0.09630 97 70 - 130 o-Xylene mg/Kg

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	138	S1+	70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

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

Lab Sample ID: MB 880-45145/1-A

**Matrix: Solid** 

Analysis Batch: 45222

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

Prep Batch: 45145

	IVID	IVID						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.9	U	49.9	mg/Kg		01/31/23 14:03	02/02/23 09:48	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<49.9	U	49.9	mg/Kg		01/31/23 14:03	02/02/23 09:48	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		01/31/23 14:03	02/02/23 09:48	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	87		70 - 130	01/31/23 14:	03 02/02/23 09:48	1
o-Terphenyl	91		70 - 130	01/31/23 14:	03 02/02/23 09:48	1

Lab Sample ID: LCS 880-45145/2-A

**Matrix: Solid** 

Analysis Batch: 45222

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Prep Batch: 45145

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	999	716.6		mg/Kg		72	70 - 130	
(GRO)-C6-C10								
Diesel Range Organics (Over	999	910.1		mg/Kg		91	70 - 130	
C10-C28)								

Job ID: 890-3880-1

Client: Ensolum Project/Site: Redtail State Com 01H SDG: 03D2024104

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

Lab Sample ID: LCS 880-45145/2-A

**Matrix: Solid** 

Analysis Batch: 45222

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

Prep Batch: 45145

LCS LCS Surrogate %Recovery Qualifier Limits 1-Chlorooctane 80 70 - 130 o-Terphenyl 75 70 - 130

Lab Sample ID: LCSD 880-45145/3-A Client Sample ID: Lab Control Sample Dup

**Matrix: Solid** 

Analysis Batch: 45222

Prep Type: Total/NA

Prep Batch: 45145 %Rec RPD

Spike LCSD LCSD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit 999 1055 \*1 106 70 - 13038 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 999 1157 \*1 mg/Kg 116 70 - 13024 20 C10-C28)

LCSD LCSD

Surrogate %Recovery Qualifier Limits 92 70 - 130 1-Chlorooctane 91 70 - 130 o-Terphenyl

Lab Sample ID: 880-24010-A-1-B MS Client Sample ID: Matrix Spike

MS MS

**Matrix: Solid** 

**Analysis Batch: 45222** 

Prep Type: Total/NA Prep Batch: 45145

Limits

Analyte Result Qualifier Added Result Qualifier Unit D %Rec Gasoline Range Organics <50.0 U \*1 1000 878.8 mg/Kg 83 70 - 130 (GRO)-C6-C10 63.9 \*1 Diesel Range Organics (Over 1000 976.1 mg/Kg 91 70 - 130 C10-C28)

Spike

MS MS

Sample Sample

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

Lab Sample ID: 880-24010-A-1-C MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Analysis Batch: 45222

Prep Type: Total/NA

Prep Batch: 45145

Sample Sample MSD MSD RPD Spike %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit U \*1 998 Gasoline Range Organics <50.0 744.8 mg/Kg 70 70 - 130 17 20 (GRO)-C6-C10 Diesel Range Organics (Over 63.9 \*1 998 831.4 mg/Kg 77 70 - 130 16 20 C10-C28)

MSD MSD

%Recovery Qualifier Surrogate Limits 1-Chlorooctane 83 70 - 130 71 70 - 130 o-Terphenyl

### QC Sample Results

Job ID: 890-3880-1 Client: Ensolum Project/Site: Redtail State Com 01H SDG: 03D2024104

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Client Sample ID: FS03** 

**Client Sample ID: FS03** 

**Prep Type: Soluble** 

**Prep Type: Soluble** 

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-44580/1-A

**Matrix: Solid** 

Analysis Batch: 44680

MB MB

Dil Fac Analyte Result Qualifier RL Unit D Prepared Analyzed Chloride <5.00 U 5.00 mg/Kg 01/24/23 20:30

Lab Sample ID: LCS 880-44580/2-A

**Matrix: Solid** 

**Analysis Batch: 44680** 

Spike LCS LCS %Rec Added Qualifier Analyte Result Unit D %Rec Limits Chloride 250 267.8 mg/Kg 107 90 - 110

Lab Sample ID: LCSD 880-44580/3-A

**Matrix: Solid** 

Analysis Batch: 44680

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit %Rec Limits **RPD** Limit Chloride 250 268.0 90 - 110 mg/Kg 107

Lab Sample ID: 890-3880-1 MS

**Matrix: Solid** 

Analysis Batch: 44680

Spike MS MS %Rec Sample Sample Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Chloride 616 F1 251 1067 F1 180 90 - 110 mg/Kg

Lab Sample ID: 890-3880-1 MSD

**Matrix: Solid** 

Analysis Batch: 44680

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 616 F1 251 1069 F1 mg/Kg 181 90 - 110 0 20

# **QC Association Summary**

Client: Ensolum Job ID: 890-3880-1
Project/Site: Redtail State Com 01H SDG: 03D2024104

**GC VOA** 

Prep Batch: 44625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3880-1	FS03	Total/NA	Solid	5035	
890-3880-2	FS04	Total/NA	Solid	5035	
890-3880-3	FS05	Total/NA	Solid	5035	
MB 880-44625/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-44625/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-44625/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3880-1 MS	FS03	Total/NA	Solid	5035	
890-3880-1 MSD	FS03	Total/NA	Solid	5035	

Analysis Batch: 44889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3880-1	FS03	Total/NA	Solid	8021B	44625
890-3880-2	FS04	Total/NA	Solid	8021B	44625
890-3880-3	FS05	Total/NA	Solid	8021B	44625
MB 880-44625/5-A	Method Blank	Total/NA	Solid	8021B	44625
LCS 880-44625/1-A	Lab Control Sample	Total/NA	Solid	8021B	44625
LCSD 880-44625/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	44625
890-3880-1 MS	FS03	Total/NA	Solid	8021B	44625
890-3880-1 MSD	FS03	Total/NA	Solid	8021B	44625

Analysis Batch: 44935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3880-1	FS03	Total/NA	Solid	Total BTEX	
890-3880-2	FS04	Total/NA	Solid	Total BTEX	
890-3880-3	FS05	Total/NA	Solid	Total BTEX	

**GC Semi VOA** 

Prep Batch: 45145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3880-1	FS03	Total/NA	Solid	8015NM Prep	
890-3880-2	FS04	Total/NA	Solid	8015NM Prep	
890-3880-3	FS05	Total/NA	Solid	8015NM Prep	
MB 880-45145/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-45145/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-45145/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-24010-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-24010-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 45222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3880-1	FS03	Total/NA	Solid	8015B NM	45145
890-3880-2	FS04	Total/NA	Solid	8015B NM	45145
890-3880-3	FS05	Total/NA	Solid	8015B NM	45145
MB 880-45145/1-A	Method Blank	Total/NA	Solid	8015B NM	45145
LCS 880-45145/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	45145
LCSD 880-45145/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	45145
880-24010-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	45145
880-24010-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	45145

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# **QC Association Summary**

Client: Ensolum
Project/Site: Redtail State Com 01H
SDG: 03D2024104

GC Semi VOA

Analysis Batch: 45386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3880-1	FS03	Total/NA	Solid	8015 NM	
890-3880-2	FS04	Total/NA	Solid	8015 NM	
890-3880-3	FS05	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 44580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3880-1	FS03	Soluble	Solid	DI Leach	
890-3880-2	FS04	Soluble	Solid	DI Leach	
890-3880-3	FS05	Soluble	Solid	DI Leach	
MB 880-44580/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-44580/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-44580/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3880-1 MS	FS03	Soluble	Solid	DI Leach	
890-3880-1 MSD	FS03	Soluble	Solid	DI Leach	

Analysis Batch: 44680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3880-1	FS03	Soluble	Solid	300.0	44580
890-3880-2	FS04	Soluble	Solid	300.0	44580
890-3880-3	FS05	Soluble	Solid	300.0	44580
MB 880-44580/1-A	Method Blank	Soluble	Solid	300.0	44580
LCS 880-44580/2-A	Lab Control Sample	Soluble	Solid	300.0	44580
LCSD 880-44580/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	44580
890-3880-1 MS	FS03	Soluble	Solid	300.0	44580
890-3880-1 MSD	FS03	Soluble	Solid	300.0	44580

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Client: Ensolum

Job ID: 890-3880-1 Project/Site: Redtail State Com 01H SDG: 03D2024104

**Client Sample ID: FS03** 

Date Collected: 01/18/23 11:10 Date Received: 01/18/23 14:47

Lab Sample ID: 890-3880-1

**Matrix: Solid** 

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	44625	01/24/23 12:09	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	44889	01/27/23 12:51	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44935	01/27/23 15:30	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45386	02/03/23 11:49	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45145	01/31/23 14:03	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45222	02/02/23 16:59	AJ	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	44580	01/23/23 15:15	KS	EET MID
Soluble	Analysis	300.0		1			44680	01/24/23 20:45	CH	EET MID

**Client Sample ID: FS04** Lab Sample ID: 890-3880-2

Date Collected: 01/18/23 11:15 Date Received: 01/18/23 14:47

Batch Dil Initial Final Batch Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab Prep 5035 01/24/23 12:09 Total/NA 4.99 g 5 mL 44625 MNR EET MID 8021B Total/NA 5 mL 01/27/23 13:17 MNR **EET MID** Analysis 1 5 mL 44889 Total/NA Total BTEX 44935 01/27/23 15:30 Analysis 1 A.I **EET MID** Total/NA Analysis 8015 NM 45386 02/03/23 11:49 **EET MID** Total/NA 8015NM Prep Prep 10.03 g 10 mL 45145 01/31/23 14:03 DM EET MID Total/NA Analysis 8015B NM 1 uL 1 uL 45222 02/02/23 17:20 ΑJ **EET MID** Soluble 5.03 g 44580 KS Leach DI Leach 50 mL 01/23/23 15:15 **EET MID** Soluble Analysis 300.0 44680 01/24/23 20:59 СН **EET MID** 

Lab Sample ID: 890-3880-3 **Client Sample ID: FS05** 

Date Collected: 01/18/23 11:20 Date Received: 01/18/23 14:47

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	44625	01/24/23 12:09	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	44889	01/27/23 13:44	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			44935	01/27/23 15:30	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45386	02/03/23 11:49	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45145	01/31/23 14:03	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45222	02/02/23 17:42	AJ	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	44580	01/23/23 15:15	KS	EET MID
Soluble	Analysis	300.0		1			44680	01/24/23 21:04	CH	EET MID

**Laboratory References:** 

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

**Eurofins Carlsbad** 

**Matrix: Solid** 

# **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3880-1 Project/Site: Redtail State Com 01H

SDG: 03D2024104

### **Laboratory: Eurofins Midland**

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

Authority	Pr	ogram	Identification Number	<b>Expiration Date</b>			
Texas	NE	ELAP	T104704400-22-25	06-30-23			
The following analytes the agency does not of	• •	it the laboratory is not certif	ied by the governing authority. This list ma	ay include analytes fo			
Analysis Method	Prep Method	Matrix	Analyte				
8015 NM		Solid	Total TPH				

# **Method Summary**

Client: Ensolum Job ID: 890-3880-1
Project/Site: Redtail State Com 01H SDG: 03D2024104

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

**Eurofins Carlsbad** 

Released to Imaging: 7/21/2023 2:39:28 PM

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# **Sample Summary**

Client: Ensolum

Project/Site: Redtail State Com 01H

Job ID: 890-3880-1

SDG: 03D2024104

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	
890-3880-1	FS03	Solid	01/18/23 11:10	01/18/23 14:47	4
890-3880-2	FS04	Solid	01/18/23 11:15	01/18/23 14:47	4
890-3880-3	FS05	Solid	01/18/23 11:20	01/18/23 14:47	4'

Released to Imaging: 7/21/2023 2:39:28 PM

2/3/2023

**Environment Testing** 

Xenco

# **Chain of Custody**

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

Work Order	No:		
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Project Manager:	Josh	Adams				Bill to: (if	different)		Kalei	Jennin	gs										Work	Orde	r Comn	nents		
Company Name:	Ensol	um, LLC				Compan	y Name:		Ensol	Ensolum, LLC 3122 Nat'l Parks Highway					Progr	am: U	T/PS	T []F	PRP [	Brow	nfields	RC	uperl	und []		
Address:	3122	Nat'l Par	ks High	vay		Address			3122						State of Project: NM   Reporting: Level II   Level III   PST/UST   TRRP   Level IV											
City, State ZIP:	Carls	bad, NM	88220			City, Sta	te ZIP:		Carlsl	oad, N	M 882	20					Repor	ting: Le	vel II	Le	vel III [	PS	T/UST [	TRRF	Lev	el IV
Phone:	303-5	17-8437			Email:	jadams	@enso	lum.co	om, kj	ennin	gs@e	nsolum	com				Delive	rables	EDD			ADaP	т 🗆	Other		
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SAMPLE RECE	PT	Temp	Blank:	Yes No	Wet Ice:	(Yes)	No	eter				i	i		1 1			- 4			1		H <sub>3</sub> PO <sub>4</sub> :	HP		
Samples Received		(Yes	No	Thermomet		TIM.		Ta I				1						HILIH					NaHSC	A: NABI	S	
Cooler Custody Sea	ls:	Yes N	O NIA	Correction f	actor:	-0	1.2	o a					]) <b> </b>				11111	111/111					Na <sub>2</sub> S <sub>2</sub> C	3: NaSC	)3	
Sample Custody Se	als:	Yes N	O NIX	Temperatur	e Reading:	2	6				S			444										tate+Na		
Total Containers:		_		Corrected T	emperature:	12.	4				SDE .	1 8	11111111 190-38	880 C	hain of	Cust	odv						NaOH+	Ascorbi	c Acid: SAI	
Sample Ide	ntificati	ion	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	втех	TPH H	CHLORIDES										L			Sampl	e Comme	ents
F503			5	01-14-23	1110	4	C	1																		
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Total 200.7 / 6		200.8 /			8RCRA 1															K S	e Ag	SIU <sub>2</sub>	Na Sr / 245.1	11 SN	U V ZN 17471	
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1-18-23 1447

Revised Date: 08/25/2020 Rev. 2020.2

### **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3880-1 SDG Number: 03D2024104

Login Number: 3880 List Source: Eurofins Carlsbad List Number: 1

Creator: Stutzman, Amanda

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

**Eurofins Carlsbad** Page 21 of 22

### **Login Sample Receipt Checklist**

Job Number: 890-3880-1 SDG Number: 03D2024104

Login Number: 3880

List Source: Eurofins Midland
List Number: 2

List Creation: 01/20/23 10:42 AM

Creator: Rodriguez, Leticia

Client: Ensolum

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	N/A	

0 0, 270

<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Josh Adams Ensolum 601 N. Marienfeld St. Suite 400 Midland, Texas 79701

Generated 2/5/2023 9:38:37 AM

# **JOB DESCRIPTION**

Redtail State Com 1H SDG NUMBER 03D2024104

# **JOB NUMBER**

890-3940-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220



# **Eurofins Carlsbad**

# **Job Notes**

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

# **Authorization**

Generated 2/5/2023 9:38:37 AM

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

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

Page 2 of 41

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Client: Ensolum

Project/Site: Redtail State Com 1H

Laboratory Job ID: 890-3940-1

SDG: 03D2024104

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### **Definitions/Glossary**

Job ID: 890-3940-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

#### **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** F1 MS and/or MSD recovery exceeds control limits. F2 MS/MSD RPD exceeds control limits

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

HPLC/IC

Qualifier **Qualifier Description** 

U Indicates the analyte was analyzed for but not detected.

### **Glossary**

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
0/ 0	D 1D

Percent Recovery %R CFL Contains Free Liquid CFU Colony Forming Unit Contains No Free Liquid **CNF** 

Duplicate Error Ratio (normalized absolute difference) DER

Dil Fac Dilution Factor

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) Limit of Quantitation (DoD/DOE) LOQ

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

Method Detection Limit MDL ML Minimum Level (Dioxin) MPN Most Probable Number MOI Method Quantitation Limit

NC Not Calculated

Not Detected at the reporting limit (or MDL or EDL if shown) ND

NEG Negative / Absent POS Positive / Present

Practical Quantitation Limit **PQL** 

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

Relative Error Ratio (Radiochemistry) **RER** 

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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

**TNTC** Too Numerous To Count

#### Case Narrative

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 890-3940-1

SDG: 03D2024104

Job ID: 890-3940-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3940-1

#### Receipt

The samples were received on 1/24/2023 8:44 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C

#### **Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: SW01 (890-3940-1), SW05 (890-3940-2), SW06 (890-3940-3), SW07 (890-3940-4), FS06 (890-3940-5), FS07 (890-3940-6), FS08 (890-3940-7), FS09 (890-3940-8), FS10 (890-3940-9), FS11 (890-3940-10), FS12 (890-3940-11), FS13 (890-3940-12), FS14 (890-3940-13), FS15 (890-3940-14) and FS16 (890-3940-15).

#### GC VOA

Method 8021B: Surrogate recovery for the following sample was outside control limits: (MB 880-45336/5-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

Method 8015MOD NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-45337 and analytical batch 880-45443 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8015MOD NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-45275 and analytical batch 880-45439 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8015MOD NM: Surrogate recovery for the following samples were outside control limits: (890-3930-A-1-F MS) and (890-3930-A-1-G MSD). Evidence of matrix interferences is not obvious.

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

#### HPI C/IC

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

# **Client Sample Results**

Client: Ensolum Job ID: 890-3940-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: SW01 Lab Sample ID: 890-3940-1

Date Collected: 01/23/23 11:00 Date Received: 01/24/23 08:44

Sample Depth: 0-4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		02/03/23 09:22	02/03/23 13:06	1
Toluene	<0.00201	U	0.00201	mg/Kg		02/03/23 09:22	02/03/23 13:06	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		02/03/23 09:22	02/03/23 13:06	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		02/03/23 09:22	02/03/23 13:06	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		02/03/23 09:22	02/03/23 13:06	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		02/03/23 09:22	02/03/23 13:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		70 - 130			02/03/23 09:22	02/03/23 13:06	1
1,4-Difluorobenzene (Surr)	103		70 - 130			02/03/23 09:22	02/03/23 13:06	1
- Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			02/04/23 10:13	1
Method: SW846 8015 NM - Diese	d Bango Organ	ics (DBO) (	SC)					
Analyte	•	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			02/05/23 09:57	1
- -				mg/Kg			02/05/23 09:57	
• -	sel Range Orga			mg/Kg Unit		Prepared	02/05/23 09:57  Analyzed	
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	sel Range Orga	nics (DRO) Qualifier	(GC)		<u>D</u>	Prepared 02/02/23 14:55		1
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	sel Range Orga Result	nics (DRO) Qualifier	(GC)	Unit	<u>D</u>		Analyzed	1 Dil Fac
Thethod: SW846 8015B NM - Dies	sel Range Orga Result <50.0	nics (DRO) Qualifier U	(GC) RL 50.0	Unit mg/Kg	<u>D</u>	02/02/23 14:55	<b>Analyzed</b> 02/05/23 01:15	Dil Fac
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	sel Range Orga Result <50.0	nics (DRO) Qualifier U	(GC) RL 50.0	Unit mg/Kg mg/Kg	<u>D</u>	02/02/23 14:55 02/02/23 14:55	Analyzed 02/05/23 01:15 02/05/23 01:15	1 Dil Fac 1 1
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	sel Range Orga Result <50.0 <50.0 <50.0	nics (DRO) Qualifier U	(GC) RL 50.0 50.0	Unit mg/Kg mg/Kg	<u>D</u>	02/02/23 14:55 02/02/23 14:55 02/02/23 14:55	Analyzed 02/05/23 01:15 02/05/23 01:15 02/05/23 01:15	Dil Fac  1  1  Dil Fac
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result   <50.0   <50.0   <50.0     %Recovery	nics (DRO) Qualifier U	(GC)  RL  50.0  50.0  50.0 <i>Limits</i>	Unit mg/Kg mg/Kg	<u>D</u>	02/02/23 14:55 02/02/23 14:55 02/02/23 14:55 <b>Prepared</b>	Analyzed 02/05/23 01:15 02/05/23 01:15 02/05/23 01:15 Analyzed	Dil Fac
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	sel Range Orga           Result         <50.0	nics (DRO) Qualifier U U Qualifier	(GC)  RL 50.0  50.0  50.0  Limits 70 - 130 70 - 130	Unit mg/Kg mg/Kg	<u>D</u>	02/02/23 14:55 02/02/23 14:55 02/02/23 14:55 Prepared 02/02/23 14:55	Analyzed 02/05/23 01:15 02/05/23 01:15 02/05/23 01:15  Analyzed 02/05/23 01:15	1 Dil Fac
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	sel Range Orga Result <50.0 <50.0 <50.0  %Recovery 77 81  Chromatograp	nics (DRO) Qualifier U U Qualifier	(GC)  RL 50.0  50.0  50.0  Limits 70 - 130 70 - 130	Unit mg/Kg mg/Kg	<u>D</u>	02/02/23 14:55 02/02/23 14:55 02/02/23 14:55 Prepared 02/02/23 14:55	Analyzed 02/05/23 01:15 02/05/23 01:15 02/05/23 01:15  Analyzed 02/05/23 01:15	1 Dil Fac 1 1 1 1 Dil Fac 1 1

Client Sample ID: SW05

Date Collected: 01/23/23 11:05

Lab Sample ID: 890-3940-2

Matrix: Solid

Date Received: 01/24/23 08:44

Sample Depth: 0-4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		02/03/23 09:22	02/03/23 13:33	1
Toluene	<0.00198	U	0.00198	mg/Kg		02/03/23 09:22	02/03/23 13:33	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		02/03/23 09:22	02/03/23 13:33	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		02/03/23 09:22	02/03/23 13:33	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		02/03/23 09:22	02/03/23 13:33	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		02/03/23 09:22	02/03/23 13:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	81		70 - 130			02/03/23 09:22	02/03/23 13:33	

Lab Sample ID: 890-3940-2

# **Client Sample Results**

Client: Ensolum Job ID: 890-3940-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: SW05** 

Date Collected: 01/23/23 11:05 Date Received: 01/24/23 08:44

Sample Depth: 0-4'

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

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	93	70 - 130	02/03/23 09:22	02/03/23 13:33	1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			02/04/23 10:13	1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			02/05/23 09:57	1

Method: SW846 8015B NM - Diesel Range Organics	(DRO)	(GC)	١
motified. Offerto College Ithin Biodol Rungo Organico	(5.10)	, , , , ,	,

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 01:55	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 01:55	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 01:55	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	79	70 - 130	02/02/23 14:55	02/05/23 01:55	1
o-Terphenyl	81	70 - 130	02/02/23 14:55	02/05/23 01:55	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	78.7		5.00	mg/Kg			01/30/23 10:09	1

Client Sample ID: SW06 Lab Sample ID: 890-3940-3

Date Collected: 01/23/23 11:10 Date Received: 01/24/23 08:44

Sample Depth: 0-4'

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

Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 13:59	1
<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 13:59	1
<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 13:59	1
<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 13:59	1
<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 13:59	1
<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 13:59	1
%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
79		70 - 130			02/03/23 09:22	02/03/23 13:59	1
91		70 - 130			02/03/23 09:22	02/03/23 13:59	1
	<0.00199 <0.00199 <0.00199 <0.00398 <0.00199 <0.00398  %Recovery 79		<0.00199	<0.00199	<0.00199	<0.00199	<0.00199 U

Mothod: TAI	SOP Total RTFY	- Total RTFY	Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	< 0.00398	U	0.00398	ma/Ka			02/04/23 10:13	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (G
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Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			02/05/23 09:57	1

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Matrix: Solid

Lab Sample ID: 890-3940-3

# **Client Sample Results**

Client: Ensolum Job ID: 890-3940-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: SW06

Date Collected: 01/23/23 11:10 Date Received: 01/24/23 08:44

Sample Depth: 0-4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 02:15	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 02:15	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 02:15	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	77		70 - 130			02/02/23 14:55	02/05/23 02:15	1
o-Terphenyl	81		70 - 130			02/02/23 14:55	02/05/23 02:15	1
Method: EPA 300.0 - Anions, Ion	Chromatograp	hy - Solubl	e					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac

Client Sample ID: SW07

Date Collected: 01/23/23 11:20

Lab Sample ID: 890-3940-4

Matrix: Solid

Date Received: 01/24/23 08:44

Sample Depth: 0-4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 14:25	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 14:25	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 14:25	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		02/03/23 09:22	02/03/23 14:25	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 14:25	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		02/03/23 09:22	02/03/23 14:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130			02/03/23 09:22	02/03/23 14:25	1
1,4-Difluorobenzene (Surr)	100		70 - 130			02/03/23 09:22	02/03/23 14:25	1
Analyte Total BTEX	<0.00399			mg/Kg	<u>D</u>	Prepared	Analyzed 02/04/23 10:13	Dil Fac
Method: SW846 8015 NM - Diese Analyte		ics (DRO) ( Qualifier	GC) RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9		49.9	mg/Kg		Пориго	02/05/23 09:57	1
Method: SW846 8015B NM - Dies	• •		• •					
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 02:36	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 02:36	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 02:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	74		70 - 130			02/02/23 14:55	02/05/23 02:36	1

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Lab Sample ID: 890-3940-4

# **Client Sample Results**

Client: Ensolum

Job ID: 890-3940-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: SW07** 

Date Collected: 01/23/23 11:20 Date Received: 01/24/23 08:44

Sample Depth: 0-4'

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble								
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	114		5.03	mg/Kg			01/30/23 10:18	1

**Client Sample ID: FS06** Lab Sample ID: 890-3940-5 Matrix: Solid

Date Collected: 01/23/23 11:45 Date Received: 01/24/23 08:44

Sample Depth: 4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 14:51	
Toluene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 14:51	
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 14:51	
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 14:51	
o-Xylene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 14:51	
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 14:51	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	99		70 - 130			02/03/23 09:22	02/03/23 14:51	
1,4-Difluorobenzene (Surr)	102		70 - 130			02/03/23 09:22	02/03/23 14:51	
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	ulation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Total BTEX	<0.00398	U	0.00398	mg/Kg			02/04/23 10:13	
Method: SW846 8015 NM - Diese Analyte	•	ics (DRO) ((	GC)	Unit	D	Prepared	Analyzed	Dil Fa
T-4-LTDLL								Dilla
IOIAI IPH	<49.9	U	49.9	mg/Kg			02/05/23 09:57	
•				mg/Kg				
Total TPH  Method: SW846 8015B NM - Dies  Analyte	sel Range Orga			mg/Kg Unit	D	Prepared		Dil Fa
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	sel Range Orga	nics (DRO) Qualifier	(GC)		<u>D</u>	Prepared 02/02/23 14:55	02/05/23 09:57	Dil Fa
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	sel Range Orga Result	nics (DRO) Qualifier	(GC)	Unit	<u>D</u>	<u>.</u>	02/05/23 09:57  Analyzed	Dil Fa
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	sel Range Orga Result <49.9	nics (DRO) Qualifier U	(GC) RL 49.9	Unit mg/Kg	<u>D</u>	02/02/23 14:55	02/05/23 09:57  Analyzed  02/05/23 02:56	Dil Fa
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10	sel Range Orga Result <49.9	nics (DRO) Qualifier U	(GC)  RL  49.9	Unit mg/Kg mg/Kg	<u>D</u>	02/02/23 14:55	02/05/23 09:57  Analyzed 02/05/23 02:56 02/05/23 02:56	Dil Fa
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)	sel Range Orga Result <49.9 <49.9	nics (DRO) Qualifier U	(GC)  RL  49.9  49.9  49.9	Unit mg/Kg mg/Kg	<u>D</u>	02/02/23 14:55 02/02/23 14:55 02/02/23 14:55	02/05/23 09:57  Analyzed 02/05/23 02:56 02/05/23 02:56 02/05/23 02:56	Dil Fa
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	sel Range Orga Result <49.9 <49.9 <49.9 %Recovery	nics (DRO) Qualifier U	(GC)  RL 49.9  49.9  49.9  Limits	Unit mg/Kg mg/Kg	<u>D</u>	02/02/23 14:55 02/02/23 14:55 02/02/23 14:55 Prepared	02/05/23 09:57  Analyzed 02/05/23 02:56 02/05/23 02:56 02/05/23 02:56 Analyzed	Dil Fa
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	sel Range Orga           Result         <49.9	ualifier U U Qualifier	RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	Unit mg/Kg mg/Kg	<u>D</u>	02/02/23 14:55  02/02/23 14:55  02/02/23 14:55  Prepared  02/02/23 14:55	02/05/23 09:57  Analyzed 02/05/23 02:56 02/05/23 02:56  02/05/23 02:56  Analyzed 02/05/23 02:56	
Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	sel Range Orga Result <49.9 <49.9 <49.9  **Recovery** 85 90  Chromatograp	ualifier U U Qualifier	RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	Unit mg/Kg mg/Kg	<u>D</u>	02/02/23 14:55  02/02/23 14:55  02/02/23 14:55  Prepared  02/02/23 14:55	02/05/23 09:57  Analyzed 02/05/23 02:56 02/05/23 02:56  02/05/23 02:56  Analyzed 02/05/23 02:56	Dil Fa

# **Client Sample Results**

Client: Ensolum Job ID: 890-3940-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: FS07** 

Lab Sample ID: 890-3940-6 Date Collected: 01/23/23 11:50 Matrix: Solid Date Received: 01/24/23 08:44

Sample Depth: 4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 15:17	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 15:17	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 15:17	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		02/03/23 09:22	02/03/23 15:17	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 15:17	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		02/03/23 09:22	02/03/23 15:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130			02/03/23 09:22	02/03/23 15:17	1
1,4-Difluorobenzene (Surr)	104		70 - 130			02/03/23 09:22	02/03/23 15:17	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			02/04/23 10:13	1
		ics (DRO) (	•		_			B.: E
		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte Total TPH		Qualifier	•	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 02/05/23 09:57	Dil Fac
Analyte Total TPH	Result < 50.0	Qualifier U	<b>RL</b> 50.0		<u>D</u>	Prepared		Dil Fac
Analyte	Result  <50.0 sel Range Orga	Qualifier U	<b>RL</b> 50.0		<u>D</u>	Prepared Prepared		1
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	Result  <50.0 sel Range Orga	Qualifier Unics (DRO) Qualifier	RL 50.0	mg/Kg			02/05/23 09:57	1 Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <50.0  sel Range Orga Result	Qualifier U  nics (DRO) Qualifier U	RL	mg/Kg		Prepared	02/05/23 09:57  Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10	Result <50.0  sel Range Orga Result <50.0	Qualifier U  nics (DRO) Qualifier U	(GC) RL 50.0	mg/Kg  Unit  mg/Kg		Prepared 02/02/23 14:55	02/05/23 09:57  Analyzed 02/05/23 03:17	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result   <50.0	Qualifier U  nics (DRO) Qualifier U  U	RL 50.0  (GC)  RL 50.0  50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/02/23 14:55 02/02/23 14:55	02/05/23 09:57  Analyzed 02/05/23 03:17 02/05/23 03:17	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result   <50.0	Qualifier U  nics (DRO) Qualifier U  U	RL 50.0  (GC)  RL 50.0  50.0  50.0	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/02/23 14:55 02/02/23 14:55	02/05/23 09:57  Analyzed 02/05/23 03:17 02/05/23 03:17	Dil Face 1 1 1 1 Dil Face
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result   <50.0	Qualifier U  nics (DRO) Qualifier U  U	RL 50.0  (GC)  RL 50.0  50.0  50.0 <i>Limits</i>	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/02/23 14:55 02/02/23 14:55 02/02/23 14:55 Prepared	02/05/23 09:57  Analyzed 02/05/23 03:17 02/05/23 03:17 02/05/23 03:17 Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits  70 - 130  70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/02/23 14:55 02/02/23 14:55 02/02/23 14:55  Prepared 02/02/23 14:55	02/05/23 09:57  Analyzed 02/05/23 03:17  02/05/23 03:17  02/05/23 03:17  Analyzed 02/05/23 03:17	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits  70 - 130  70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/02/23 14:55 02/02/23 14:55 02/02/23 14:55  Prepared 02/02/23 14:55	02/05/23 09:57  Analyzed 02/05/23 03:17  02/05/23 03:17  02/05/23 03:17  Analyzed 02/05/23 03:17	Dil Fac  1  Dil Fac  1  Dil Fac  1  Dil Fac  1  Dil Fac

**Client Sample ID: FS08** Lab Sample ID: 890-3940-7

Date Collected: 01/23/23 11:55 Date Received: 01/24/23 08:44

Sample Depth: 4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		02/03/23 09:22	02/03/23 15:44	1
Toluene	<0.00198	U	0.00198	mg/Kg		02/03/23 09:22	02/03/23 15:44	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		02/03/23 09:22	02/03/23 15:44	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		02/03/23 09:22	02/03/23 15:44	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		02/03/23 09:22	02/03/23 15:44	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		02/03/23 09:22	02/03/23 15:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130			02/03/23 09:22	02/03/23 15:44	1

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**Matrix: Solid** 

### **Client Sample Results**

Client: Ensolum Job ID: 890-3940-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: FS08** Lab Sample ID: 890-3940-7 Date Collected: 01/23/23 11:55

Date Received: 01/24/23 08:44 Sample Depth: 4'

Method: SW846 8021B -	<b>Volatile Organic</b>	Compounds (	GC)	(Continued)	

Surrogate	%Recovery Qua	ualifier Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	97	70 - 130	02/03/23 09:22	02/03/23 15:44	1

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

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396 U	0.00396	ma/Ka			02/04/23 10:13	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	ma/Ka			02/05/23 09:57	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	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 03:36	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 03:36	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 03:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	76	70 - 130	02/02/23 14:55	02/05/23 03:36	1
o-Terphenyl	82	70 - 130	02/02/23 14:55	02/05/23 03:36	1

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

Analyte	Result Qualifie	er RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3430	49.6	mg/Kg			01/30/23 10:33	10

**Client Sample ID: FS09** Lab Sample ID: 890-3940-8 **Matrix: Solid** 

Date Collected: 01/23/23 12:00 Date Received: 01/24/23 08:44

Sample Depth: 4'

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

			,					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 16:10	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 16:10	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 16:10	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		02/03/23 09:22	02/03/23 16:10	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 16:10	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		02/03/23 09:22	02/03/23 16:10	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130			02/03/23 09:22	02/03/23 16:10	1
1 1 Diffusionabanzana (Curr)	100		70 120			00/02/22 00:22	00/00/00 16:10	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Anaiyzea	DII Fac
4-Bromofluorobenzene (Surr)	100		70 - 130	02/03/23 09:22	02/03/23 16:10	1
1,4-Difluorobenzene (Surr)	108		70 - 130	02/03/23 09:22	02/03/23 16:10	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	ma/Ka			02/04/23 10:13	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			02/05/23 09:57	1

# **Client Sample Results**

Client: Ensolum Job ID: 890-3940-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: FS09

Date Collected: 01/23/23 12:00 Date Received: 01/24/23 08:44

Sample Depth: 4'

ient Sample ID: FS09	Lab Sample ID: 890-3940-8
to Collected: 01/23/23 12:00	Matrix: Solid

Method: SW846 8015B NM - Dies	el Range Orga	nics (DRO)	(GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 03:56	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 03:56	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 03:56	1
0	0/5	O	1 : : : -			D	A Ir al	D# 5
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	78		70 - 130			02/02/23 14:55	02/05/23 03:56	1
o-Terphenyl	85		70 - 130			02/02/23 14:55	02/05/23 03:56	1
Method: EPA 300.0 - Anions, Ion	Chromatogran	hy - Solubl	le.					
Analyte	• •	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
		Quantite				i icpaieu		
Chloride	10900		101	mg/Kg			01/30/23 10:47	20

Client Sample ID: FS10

Date Collected: 01/23/23 12:05

Lab Sample ID: 890-3940-9

Matrix: Solid

Date Collected: 01/23/23 12:05 Date Received: 01/24/23 08:44

Sample Depth: 4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 16:36	1
Toluene	<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 16:36	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 16:36	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 16:36	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 16:36	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 16:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		70 - 130			02/03/23 09:22	02/03/23 16:36	1
1,4-Difluorobenzene (Surr)	96		70 - 130			02/03/23 09:22	02/03/23 16:36	1
Method: TAL SOP Total BTEX - T	otal BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			02/04/23 10:13	1
Method: SW846 8015 NM - Diese	l Range Organ	ics (DRO) (	GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			02/05/23 09:57	1
Method: SW846 8015B NM - Dies	el Range Orga	nics (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		02/02/23 14:55	02/05/23 04:17	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 04:17	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 04:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	85		70 - 130			02/02/23 14:55	02/05/23 04:17	1
	91		70 - 130			02/02/23 14:55	02/05/23 04:17	

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Lab Sample ID: 890-3940-9

Client: Ensolum Job ID: 890-3940-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: FS10** 

Date Collected: 01/23/23 12:05 Date Received: 01/24/23 08:44

Sample Depth: 4'

Method: EPA 300.0 - Anions, Ion C	hromatograp	hy - Soluble	9					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6150		49.7	mg/Kg			01/30/23 10:52	10

**Client Sample ID: FS11** Lab Sample ID: 890-3940-10 Matrix: Solid

Date Collected: 01/23/23 12:10 Date Received: 01/24/23 08:44

Sample Depth: 4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 17:02	1
Toluene	<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 17:02	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 17:02	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 17:02	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 17:02	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 17:02	,
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		70 - 130			02/03/23 09:22	02/03/23 17:02	1
1,4-Difluorobenzene (Surr)	94		70 - 130			02/03/23 09:22	02/03/23 17:02	1
Method: TAL SOP Total BTEX - 1	otal BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			02/04/23 10:13	1
Analyte Total TPH		Qualifier U	<b>RL</b> 49.9	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 02/05/23 09:57	Dil Fa
Total TPH	<49.9	U	49.9	mg/Kg			02/05/23 09:57	1
Method: SW846 8015B NM - Dies			• •		_			D.: E
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 04:37	1
Diesel Range Organics (Over	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 04:37	1
C10-C28)				0 0				
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/05/23 04:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	78		70 - 130			02/02/23 14:55	02/05/23 04:37	1
o-Terphenyl	86		70 - 130			02/02/23 14:55	02/05/23 04:37	1
Method: EPA 300.0 - Anions, Ion	Chromatograp	hy - Solubl	e					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5380		50.3	mg/Kg			01/30/23 11:06	10

# **Client Sample Results**

Client: Ensolum Job ID: 890-3940-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: FS12

Lab Sample ID: 890-3940-11

Date Collected: 01/23/23 12:15 Matrix: Solid
Date Received: 01/24/23 08:44

Sample Depth: 4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 18:47	
Toluene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 18:47	•
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 18:47	,
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 18:47	
o-Xylene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 18:47	•
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 18:47	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	90		70 - 130			02/03/23 09:22	02/03/23 18:47	
1,4-Difluorobenzene (Surr)	101		70 - 130			02/03/23 09:22	02/03/23 18:47	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Total BTEX	<0.00398	U	0.00398	mg/Kg			02/04/23 10:13	
Method: SW846 8015 NM - Diese	el Range Organ	ics (DRO) (	GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			02/05/23 09:57	
Method: SW846 8015B NM - Dies	sel Range Orga	nics (DRO)	(GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
O	<50.0					00/00/00 44-55		
	<50.0	U	50.0	mg/Kg		02/02/23 14:55	02/05/23 04:57	
(GRO)-C6-C10 Diesel Range Organics (Over	<50.0 <50.0		50.0 50.0	mg/Kg mg/Kg		02/02/23 14:55	02/05/23 04:57 02/05/23 04:57	
(GRO)-C6-C10 Diesel Range Organics (Over C10-C28)		U						
Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate	<50.0	U	50.0	mg/Kg		02/02/23 14:55	02/05/23 04:57	
(GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	<50.0 <50.0	U	50.0	mg/Kg		02/02/23 14:55 02/02/23 14:55	02/05/23 04:57 02/05/23 04:57	Dil Fa
(GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	<50.0 <50.0 %Recovery	U	50.0 50.0 <i>Limits</i>	mg/Kg		02/02/23 14:55 02/02/23 14:55 <b>Prepared</b>	02/05/23 04:57 02/05/23 04:57 Analyzed	Dil Fa
(GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	<50.0 <50.0 <b>%Recovery</b> 76 83	U U <b>Qualifier</b>	50.0 50.0 Limits 70 - 130 70 - 130	mg/Kg		02/02/23 14:55 02/02/23 14:55  Prepared 02/02/23 14:55	02/05/23 04:57 02/05/23 04:57 <b>Analyzed</b> 02/05/23 04:57	Dil Fac
(GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	<50.0 <50.0  **Recovery 76 83  Chromatograp	U U <b>Qualifier</b>	50.0 50.0 Limits 70 - 130 70 - 130	mg/Kg	D	02/02/23 14:55 02/02/23 14:55  Prepared 02/02/23 14:55	02/05/23 04:57 02/05/23 04:57 <b>Analyzed</b> 02/05/23 04:57	Dil Fac

Client Sample ID: FS13 Lab Sample ID: 890-3940-12

Date Collected: 01/23/23 14:15 Date Received: 01/24/23 08:44

Sample Depth: 4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 19:13	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 19:13	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 19:13	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		02/03/23 09:22	02/03/23 19:13	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 19:13	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		02/03/23 09:22	02/03/23 19:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130			02/03/23 09:22	02/03/23 19:13	1

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**Matrix: Solid** 

Lab Sample ID: 890-3940-12

### **Client Sample Results**

Client: Ensolum Job ID: 890-3940-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: FS13** 

Date Collected: 01/23/23 14:15 Date Received: 01/24/23 08:44

Sample Depth: 4'

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

Surrogate	%Recovery Q	Qualifier Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	92	70 - 130	02/03/23 09:22	02/03/23 19:13	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			02/04/23 10:13	1

Method: SW846 8015 NM	- Diesal Range	Organice	(DRO)	(CC)	ï
MICHICA. STACTO CO 12 IAIN	- Diesei Kange	Organics	(DIXO)	$\mathbf{U}$	,

Analyte	Result Q	Qualifier RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9 U	49.9	mg/Kg			02/05/23 09:31	1

	Mothod: SW046 904ED NM Diocol Dan	go Organico (DBO) (CC)	v
ı	Method: SW846 8015B NM - Diesel Ran	ge 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		02/03/23 09:23	02/04/23 12:43	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 12:43	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 12:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	86	70 - 130	02/03/23 09:23	02/04/23 12:43	1
o-Terphenyl	86	70 - 130	02/03/23 09:23	02/04/23 12:43	1

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

Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7660		99.6	mg/Kg			01/30/23 11:16	20

Client Sample ID: FS14

Date Collected: 01/23/23 14:25

Lab Sample ID: 890-3940-13

Matrix: Solid

Date Collected: 01/23/23 14:25 Date Received: 01/24/23 08:44

Sample Depth: 4'

Markland, CIMO 40 00	21B - Volatile Organic	O
IVIATOON' SVVXAN XII	21B - Volatile Circanic	L.Omnollings (Lat.)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 19:39	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 19:39	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 19:39	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		02/03/23 09:22	02/03/23 19:39	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 19:39	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		02/03/23 09:22	02/03/23 19:39	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130			02/03/23 09:22	02/03/23 19:39	1
=								

4-Bromofluorobenzene (Surr)	100	70 - 130	02/03/23 09:22	02/03/23 19:39	1
1,4-Difluorobenzene (Surr)	109	70 - 130	02/03/23 09:22	02/03/23 19:39	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	ma/Ka			02/04/23 10:13	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			02/05/23 09:31	1

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Released to Imaging: 7/21/2023 2:39:28 PM

Lab Sample ID: 890-3940-13

01/30/23 11:21

Matrix: Solid

Lab Sample ID: 890-3940-14

# **Client Sample Results**

Client: Ensolum Job ID: 890-3940-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: FS14

Date Collected: 01/23/23 14:25 Date Received: 01/24/23 08:44

Sample Depth: 4'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		02/03/23 09:23	02/04/23 13:05	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		02/03/23 09:23	02/04/23 13:05	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		02/03/23 09:23	02/04/23 13:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	85		70 - 130			02/03/23 09:23	02/04/23 13:05	1
o-Terphenyl	81		70 - 130			02/03/23 09:23	02/04/23 13:05	1

99.4

mg/Kg

9700

**Client Sample ID: FS15** 

Date Collected: 01/23/23 14:30

Date Received: 01/24/23 08:44

Sample Depth: 4'

Chloride

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:06	1
Toluene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:06	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:06	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 20:06	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:06	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 20:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130			02/03/23 09:22	02/03/23 20:06	1
1,4-Difluorobenzene (Surr)	106		70 - 130			02/03/23 09:22	02/03/23 20:06	1
Method: TAL SOP Total BTEX - T	otal BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			02/04/23 10:13	1
Method: SW846 8015 NM - Diese	l Range Organ	ics (DRO) (	GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			02/05/23 09:31	1
Method: SW846 8015B NM - Dies	sel Range Orga	nics (DRO)	(GC)					
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		02/03/23 09:23	02/04/23 13:27	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		02/03/23 09:23	02/04/23 13:27	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		02/03/23 09:23	02/04/23 13:27	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
			70 - 130			02/03/23 09:23	02/04/23 13:27	1
1-Chlorooctane	103		10 - 130			02/03/23 09.23	02/04/23 13.21	,

Lab Sample ID: 890-3940-14

# **Client Sample Results**

Client: Ensolum Job ID: 890-3940-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: FS15** 

Date Collected: 01/23/23 14:30 Date Received: 01/24/23 08:44

Sample Depth: 4'

Method: EPA 300.0 - Anions, Ion C	Chromatography - Soluble						
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14300	100	mg/Kg			01/30/23 11:26	20

Lab Sample ID: 890-3940-15 **Client Sample ID: FS16** Matrix: Solid

Date Collected: 01/23/23 14:30 Date Received: 01/24/23 08:44

Method: SW846 8021B - Volatile	<b>Organic Comp</b>	ounds (GC)						
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:32	
Toluene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:32	
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:32	
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 20:32	
o-Xylene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:32	
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 20:32	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	104		70 - 130			02/03/23 09:22	02/03/23 20:32	
1,4-Difluorobenzene (Surr)	108		70 - 130			02/03/23 09:22	02/03/23 20:32	
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Total BTEX	<0.00398	U	0.00398	mg/Kg			02/04/23 10:13	
Analyte Total TPH		Qualifier U	<b>RL</b> 49.9	Unit mg/Kg	D	Prepared	Analyzed 02/05/23 09:31	Dil Fa
Total TPH	<49.9	U	49.9	mg/Kg			02/05/23 09:31	
Method: SW846 8015B NM - Dies	• •		• •					
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 13:48	
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 13:48	
			49.9	mg/Kg		02/03/23 09:23	02/04/23 13:48	
,	<49.9	U	43.3					
,	<49.9 <b>%Recovery</b>		Limits			Prepared	Analyzed	Dil Fa
Oll Range Organics (Over C28-C36)  Surrogate				Ů Ů		Prepared 02/03/23 09:23	Analyzed 02/04/23 13:48	
Oll Range Organics (Over C28-C36)  Surrogate  1-Chlorooctane	%Recovery		Limits	Ů.				
Oll Range Organics (Over C28-C36)  Surrogate		Qualifier				02/03/23 09:23	02/04/23 13:48	
Oll Range Organics (Over C28-C36)  Surrogate  1-Chlorooctane o-Terphenyl	%Recovery 101 93 Chromatograp	Qualifier		Unit	D	02/03/23 09:23	02/04/23 13:48	Dil Fa

# **Surrogate Summary**

Client: Ensolum

Job ID: 890-3940-1

Project/Site: Podtoil State Com 1H

SDC: 03D3034104

Project/Site: Redtail State Com 1H SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3940-1	SW01	91	103	
890-3940-1 MS	SW01	106	107	
890-3940-1 MSD	SW01	90	106	
890-3940-2	SW05	81	93	
890-3940-3	SW06	79	91	
890-3940-4	SW07	96	100	
890-3940-5	FS06	99	102	
890-3940-6	FS07	102	104	
890-3940-7	FS08	98	97	
890-3940-8	FS09	100	108	
890-3940-9	FS10	79	96	
890-3940-10	FS11	76	94	
890-3940-11	FS12	90	101	
890-3940-12	FS13	94	92	
890-3940-13	FS14	100	109	
890-3940-14	FS15	93	106	
890-3940-15	FS16	104	108	
LCS 880-45336/1-A	Lab Control Sample	86	104	
_CSD 880-45336/2-A	Lab Control Sample Dup	95	106	
MB 880-45336/5-A	Method Blank	64 S1-	95	

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 Recove
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3923-A-3-E MS	Matrix Spike	107	86	
890-3923-A-3-F MSD	Matrix Spike Duplicate	123	98	
890-3930-A-1-F MS	Matrix Spike	11 S1-	12 S1-	
890-3930-A-1-G MSD	Matrix Spike Duplicate	10 S1-	10 S1-	
890-3940-1	SW01	77	81	
890-3940-2	SW05	79	81	
890-3940-3	SW06	77	81	
890-3940-4	SW07	74	78	
890-3940-5	FS06	85	90	
890-3940-6	FS07	77	83	
890-3940-7	FS08	76	82	
890-3940-8	FS09	78	85	
890-3940-9	FS10	85	91	
890-3940-10	FS11	78	86	
890-3940-11	FS12	76	83	
890-3940-12	FS13	86	86	
890-3940-13	FS14	85	81	
890-3940-14	FS15	103	94	
890-3940-15	FS16	101	93	

# **Surrogate Summary**

Client: Ensolum Job ID: 890-3940-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
LCS 880-45275/2-A	Lab Control Sample	74	78	
LCS 880-45337/2-A	Lab Control Sample	107	92	
LCSD 880-45275/3-A	Lab Control Sample Dup	82	85	
LCSD 880-45337/3-A	Lab Control Sample Dup	125	107	
MB 880-45275/1-A	Method Blank	87	95	
MB 880-45337/1-A	Method Blank	112	110	
Surrogate Legend				
1CO = 1-Chlorooctane				
OTPH = o-Terphenyl				

Client: Ensolum
Project/Site: Redtail State Com 1H

Job ID: 890-3940-1 SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-45336/5-A

Lab Sample ID: LCS 880-45336/1-A

Matrix: Solid Analysis Batch: 45307 Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 45336

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		02/03/23 09:22	02/03/23 12:40	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Pro	epared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	64	S1-	70 - 130	02/03	3/23 09:22	02/03/23 12:40	1
1,4-Difluorobenzene (Surr)	95		70 - 130	02/03	3/23 09:22	02/03/23 12:40	1

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 45336

LCS LCS Spike Analyte Added Result Qualifier Unit %Rec Limits Benzene 0.100 0.1031 mg/Kg 103 70 - 130 Toluene 0.100 0.09751 mg/Kg 98 70 - 130 0.100 97 Ethylbenzene 0.09723 mg/Kg 70 - 130 0.200 0.1957 98 70 - 130 m-Xylene & p-Xylene mg/Kg 0.100 0.09666 70 - 130 o-Xylene mg/Kg

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	86	70 - 130
1,4-Difluorobenzene (Surr)	104	70 - 130

Client Sample ID: Lab Control Sample Dup

Matrix: Solid

**Matrix: Solid** 

Analysis Batch: 45307

Analysis Batch: 45307

Lab Sample ID: LCSD 880-45336/2-A

Prep Type: Total/NA Prep Batch: 45336

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.1071		mg/Kg		107	70 - 130	4	35
Toluene	0.100	0.1057		mg/Kg		106	70 - 130	8	35
Ethylbenzene	0.100	0.1042		mg/Kg		104	70 - 130	7	35
m-Xylene & p-Xylene	0.200	0.2107		mg/Kg		105	70 - 130	7	35
o-Xylene	0.100	0.1090		mg/Kg		109	70 - 130	12	35

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		70 - 130
1.4-Difluorobenzene (Surr)	106		70 <sub>-</sub> 130

Lab Sample ID: 890-3940-1 MS

Matrix: Solid

Analysis Batch: 45307

Client Sample ID: SW01
Prep Type: Total/NA

Prep Batch: 45336

_		Sample	Sample	Spike	MS	MS				%Rec	
Analyte		Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene		<0.00201	U	0.0998	0.1231		mg/Kg		123	70 - 130	
Toluene	<	<0.00201	U	0.0998	0.1255		mg/Kg		126	70 - 130	

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### QC Sample Results

Client: Ensolum Job ID: 890-3940-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Lab Sample ID: 890-3940-1 MS **Matrix: Solid** 

Analysis Batch: 45307

Client Sample ID: SW01 Prep Type: Total/NA

Prep Batch: 45336

	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Ethylbenzene	<0.00201	U	0.0998	0.1243		mg/Kg		125	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2459		mg/Kg		123	70 - 130
o-Xylene	<0.00201	U	0.0998	0.1246		mg/Kg		125	70 - 130
·									

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	106	70 - 130
1,4-Difluorobenzene (Surr)	107	70 - 130

Lab Sample ID: 890-3940-1 MSD

**Matrix: Solid** 

Analysis Batch: 45307

Client Sample ID: SW01 Prep Type: Total/NA

Prep Batch: 45336

Sample Sample Spike MSD MSD RPD %Rec Result Qualifier Added Result Qualifier RPD Limit Analyte Unit Limits 0.100 Benzene <0.00201 U 0.1021 mg/Kg 102 70 - 130 19 35 Toluene <0.00201 U 0.09949 0.100 mg/Kg 99 70 - 130 23 35 Ethylbenzene <0.00201 U 0.100 0.09971 mg/Kg 100 70 - 130 22 35 <0.00402 U 0.200 0.1993 70 - 130 21 35 m-Xylene & p-Xylene mg/Kg 99 0.100 <0.00201 U 0.09513 95 70 - 130 27 o-Xylene mg/Kg

MSD MSD

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

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

Lab Sample ID: MB 880-45275/1-A

**Matrix: Solid** 

Analysis Batch: 45439

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

Prep Batch: 45275

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/04/23 20:30	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/04/23 20:30	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/02/23 14:55	02/04/23 20:30	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	l Analyzed	Dil Fac
1-Chlorooctane	87		70 - 130	02/02/23 14	:55 02/04/23 20:30	1
o-Terphenyl	95		70 - 130	02/02/23 14	:55 02/04/23 20:30	1

Lab Sample ID: LCS 880-45275/2-A

**Matrix: Solid** 

Analysis Batch: 45439

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

Prep Batch: 45275

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	999	746.0		mg/Kg		75	70 - 130	 
(GRO)-C6-C10								
Diesel Range Organics (Over	999	837.9		mg/Kg		84	70 - 130	
C10-C28)								

### QC Sample Results

Client: Ensolum Job ID: 890-3940-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Lab Sample ID: LCS 880-45275/2-A

Lab Sample ID: LCSD 880-45275/3-A

**Matrix: Solid** 

Analysis Batch: 45439

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 45275

LCS LCS

Surrogate %Recovery Qualifier Limits 1-Chlorooctane 74 70 - 130 o-Terphenyl 78 70 - 130

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

**Matrix: Solid** Analysis Batch: 45439 Prep Batch: 45275 Spike LCSD LCSD %Rec RPD

Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit 999 825.6 83 70 - 13010 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 999 929.7 93 mg/Kg 70 - 13010 20

C10-C28)

LCSD LCSD Surrogate %Recovery Qualifier Limits 82 70 - 130 1-Chlorooctane 85 70 - 130 o-Terphenyl

Lab Sample ID: 890-3930-A-1-F MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

Analysis Batch: 45439

Prep Type: Total/NA

Prep Batch: 45275

Sample Sample Spike MS MS Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits Gasoline Range Organics <50.0 U F1 F2 1000 1403 F1 mg/Kg 137 70 - 130 (GRO)-C6-C10 Diesel Range Organics (Over 138 1000 1195 mg/Kg 106 70 - 130 C10-C28)

MS MS Surrogate %Recovery Qualifier Limits S1-70 - 130 1-Chlorooctane 11 o-Terphenyl 12 S1-70 - 130

Lab Sample ID: 890-3930-A-1-G MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Analysis Batch: 45439

Prep Type: Total/NA

Prep Batch: 45275

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics	<50.0	U F1 F2	998	902.8	F2	mg/Kg		87	70 - 130	43	20	
(GRO)-C6-C10												
Diesel Range Organics (Over	138		998	1024		mg/Kg		89	70 - 130	15	20	
C10 C20)												

C10-C28)

Surrogate

o-Terphenyl

1-Chlorooctane

MSD MSD %Recovery Qualifier Limits 10 S1-70 - 130 10 S1-70 - 130

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Type: Total/NA

Prep Batch: 45337

Client Sample ID: Lab Control Sample Dup

### QC Sample Results

Client: Ensolum Job ID: 890-3940-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Lab Sample ID: MB 880-45337/1-A

Analysis Batch: 45443

**Matrix: Solid** 

Prep Type: Total/NA Prep Batch: 45337

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1
Diesel Range Organics (Over	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1
C10-C28) Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1
	МВ	MB						
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130			02/03/23 09:23	02/04/23 08:56	1
o-Terphenyl	110		70 - 130			02/03/23 09:23	02/04/23 08:56	1

Lab Sample ID: LCS 880-45337/2-A **Client Sample ID: Lab Control Sample Matrix: Solid** 

Analysis Batch: 45443

C10-C28)

Prep Batch: 45337 LCS LCS Spike %Rec Added Analyte Result Qualifier Unit D %Rec Limits 903.4 Gasoline Range Organics 999 mg/Kg 90 70 - 130 (GRO)-C6-C10 999 878.2 Diesel Range Organics (Over mg/Kg 88 70 - 130

LCS LCS %Recovery Qualifier Limits Surrogate 1-Chlorooctane 107 70 - 130 o-Terphenyl 92 70 - 130

Lab Sample ID: LCSD 880-45337/3-A

Matrix: Solid

**Analysis Batch: 45443** 

•	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	999	910.9		mg/Kg		91	70 - 130	1	20
(GRO)-C6-C10									
Diesel Range Organics (Over	999	1007		mg/Kg		101	70 - 130	14	20
C10-C28)									

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	125		70 - 130
o-Terphenyl	107		70 - 130

Lab Sample ID: 890-3923-A-3-E MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

Analysis Batch: 45443									Prep	Batch: 45337
	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	<50.0	U F2	1000	862.5		mg/Kg		84	70 - 130	
(GRO)-C6-C10										
Diesel Range Organics (Over	<50.0	U	1000	883.8		mg/Kg		87	70 - 130	
C10-C28)										

**Eurofins Carlsbad** 

Prep Type: Total/NA

Job ID: 890-3940-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

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

Lab Sample ID: 890-3923-A-3-E MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

Analysis Batch: 45443

Prep Type: Total/NA

Prep Batch: 45337

MS MS Surrogate %Recovery Qualifier Limits 1-Chlorooctane 107 70 - 130 o-Terphenyl 86 70 - 130

Lab Sample ID: 890-3923-A-3-F MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Client: Ensolum

Analysis Batch: 45443

Prep Type: Total/NA

Prep Batch: 45337

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit <50.0 U F2 998 1297 F2 127 70 - 13040 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 998 1003 mg/Kg 99 70 - 13013 20 C10-C28)

MSD MSD

%Recovery Surrogate Qualifier Limits 123 70 - 130 1-Chlorooctane 98 70 - 130 o-Terphenyl

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-44969/1-A Client Sample ID: Method Blank **Prep Type: Soluble** 

**Matrix: Solid** 

Analysis Batch: 45039

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Analyte Result Qualifier RL Unit D Dil Fac Prepared Analyzed Chloride 5.00 <5.00 U mg/Kg 01/30/23 09:11

Lab Sample ID: LCS 880-44969/2-A Client Sample ID: Lab Control Sample **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 45039** 

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 255.4 mg/Kg 102 90 - 110

Lab Sample ID: LCSD 880-44969/3-A Client Sample ID: Lab Control Sample Dup **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 45039** 

	Spike	LCSD	LCSD			%Rec		RPD
Analyte	Added	Result	Qualifier Unit	D	%Rec	Limits	RPD	Limit
Chloride	250	253.0	mg/Kg		101	90 - 110	1	20

Lab Sample ID: 890-3940-7 MS **Client Sample ID: FS08 Prep Type: Soluble** 

**Matrix: Solid** 

Analysis Batch: 45039

Analysis Batom 40000										
	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	3430		2480	5784		mg/Kg		95	90 - 110	

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Released to Imaging: 7/21/2023 2:39:28 PM

# **QC Sample Results**

Client: Ensolum Job ID: 890-3940-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-3940-7 MSD

Matrix: Solid

Client Sample ID: FS08

Prep Type: Soluble

Analysis Batch: 45039

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	3430		2480	5766		mg/Kg		94	90 - 110	0	20

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Client: Ensolum Job ID: 890-3940-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

**GC VOA** 

## Analysis Batch: 45307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-1	SW01	Total/NA	Solid	8021B	45336
890-3940-2	SW05	Total/NA	Solid	8021B	45336
890-3940-3	SW06	Total/NA	Solid	8021B	45336
890-3940-4	SW07	Total/NA	Solid	8021B	45336
890-3940-5	FS06	Total/NA	Solid	8021B	45336
890-3940-6	FS07	Total/NA	Solid	8021B	45336
890-3940-7	FS08	Total/NA	Solid	8021B	45336
890-3940-8	FS09	Total/NA	Solid	8021B	45336
890-3940-9	FS10	Total/NA	Solid	8021B	45336
890-3940-10	FS11	Total/NA	Solid	8021B	45336
890-3940-11	FS12	Total/NA	Solid	8021B	45336
890-3940-12	FS13	Total/NA	Solid	8021B	45336
890-3940-13	FS14	Total/NA	Solid	8021B	45336
890-3940-14	FS15	Total/NA	Solid	8021B	45336
890-3940-15	FS16	Total/NA	Solid	8021B	45336
MB 880-45336/5-A	Method Blank	Total/NA	Solid	8021B	45336
LCS 880-45336/1-A	Lab Control Sample	Total/NA	Solid	8021B	45336
LCSD 880-45336/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	45336
890-3940-1 MS	SW01	Total/NA	Solid	8021B	45336
890-3940-1 MSD	SW01	Total/NA	Solid	8021B	45336

Prep Batch: 45336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
890-3940-1	SW01	Total/NA	Solid	5035	
890-3940-2	SW05	Total/NA	Solid	5035	
390-3940-3	SW06	Total/NA	Solid	5035	
390-3940-4	SW07	Total/NA	Solid	5035	
390-3940-5	FS06	Total/NA	Solid	5035	
390-3940-6	FS07	Total/NA	Solid	5035	
390-3940-7	FS08	Total/NA	Solid	5035	
390-3940-8	FS09	Total/NA	Solid	5035	
90-3940-9	FS10	Total/NA	Solid	5035	
90-3940-10	FS11	Total/NA	Solid	5035	
90-3940-11	FS12	Total/NA	Solid	5035	
90-3940-12	FS13	Total/NA	Solid	5035	
390-3940-13	FS14	Total/NA	Solid	5035	
390-3940-14	FS15	Total/NA	Solid	5035	
390-3940-15	FS16	Total/NA	Solid	5035	
MB 880-45336/5-A	Method Blank	Total/NA	Solid	5035	
CS 880-45336/1-A	Lab Control Sample	Total/NA	Solid	5035	
CSD 880-45336/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3940-1 MS	SW01	Total/NA	Solid	5035	
390-3940-1 MSD	SW01	Total/NA	Solid	5035	

#### Analysis Batch: 45476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method Prep Batch
890-3940-1	SW01	Total/NA	Solid	Total BTEX
890-3940-2	SW05	Total/NA	Solid	Total BTEX
890-3940-3	SW06	Total/NA	Solid	Total BTEX
890-3940-4	SW07	Total/NA	Solid	Total BTEX
890-3940-5	FS06	Total/NA	Solid	Total BTEX

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Client: Ensolum Job ID: 890-3940-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

**GC VOA (Continued)** 

## **Analysis Batch: 45476 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-6	FS07	Total/NA	Solid	Total BTEX	
890-3940-7	FS08	Total/NA	Solid	Total BTEX	
890-3940-8	FS09	Total/NA	Solid	Total BTEX	
890-3940-9	FS10	Total/NA	Solid	Total BTEX	
890-3940-10	FS11	Total/NA	Solid	Total BTEX	
890-3940-11	FS12	Total/NA	Solid	Total BTEX	
890-3940-12	FS13	Total/NA	Solid	Total BTEX	
890-3940-13	FS14	Total/NA	Solid	Total BTEX	
890-3940-14	FS15	Total/NA	Solid	Total BTEX	
890-3940-15	FS16	Total/NA	Solid	Total BTEX	

#### **GC Semi VOA**

#### Prep Batch: 45275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-1	SW01	Total/NA	Solid	8015NM Prep	
890-3940-2	SW05	Total/NA	Solid	8015NM Prep	
890-3940-3	SW06	Total/NA	Solid	8015NM Prep	
890-3940-4	SW07	Total/NA	Solid	8015NM Prep	
890-3940-5	FS06	Total/NA	Solid	8015NM Prep	
890-3940-6	FS07	Total/NA	Solid	8015NM Prep	
890-3940-7	FS08	Total/NA	Solid	8015NM Prep	
890-3940-8	FS09	Total/NA	Solid	8015NM Prep	
890-3940-9	FS10	Total/NA	Solid	8015NM Prep	
890-3940-10	FS11	Total/NA	Solid	8015NM Prep	
890-3940-11	FS12	Total/NA	Solid	8015NM Prep	
MB 880-45275/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-45275/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-45275/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3930-A-1-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3930-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

#### Prep Batch: 45337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-12	FS13	Total/NA	Solid	8015NM Prep	
890-3940-13	FS14	Total/NA	Solid	8015NM Prep	
890-3940-14	FS15	Total/NA	Solid	8015NM Prep	
890-3940-15	FS16	Total/NA	Solid	8015NM Prep	
MB 880-45337/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-45337/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-45337/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3923-A-3-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3923-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

# Analysis Batch: 45439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-1	SW01	Total/NA	Solid	8015B NM	45275
890-3940-2	SW05	Total/NA	Solid	8015B NM	45275
890-3940-3	SW06	Total/NA	Solid	8015B NM	45275
890-3940-4	SW07	Total/NA	Solid	8015B NM	45275
890-3940-5	FS06	Total/NA	Solid	8015B NM	45275

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Client: Ensolum Job ID: 890-3940-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

# GC Semi VOA (Continued)

## **Analysis Batch: 45439 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-6	FS07	Total/NA	Solid	8015B NM	45275
890-3940-7	FS08	Total/NA	Solid	8015B NM	45275
890-3940-8	FS09	Total/NA	Solid	8015B NM	45275
890-3940-9	FS10	Total/NA	Solid	8015B NM	45275
890-3940-10	FS11	Total/NA	Solid	8015B NM	45275
890-3940-11	FS12	Total/NA	Solid	8015B NM	45275
MB 880-45275/1-A	Method Blank	Total/NA	Solid	8015B NM	45275
LCS 880-45275/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	45275
LCSD 880-45275/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	45275
890-3930-A-1-F MS	Matrix Spike	Total/NA	Solid	8015B NM	45275
890-3930-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	45275

#### Analysis Batch: 45443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-12	FS13	Total/NA	Solid	8015B NM	45337
890-3940-13	FS14	Total/NA	Solid	8015B NM	45337
890-3940-14	FS15	Total/NA	Solid	8015B NM	45337
890-3940-15	FS16	Total/NA	Solid	8015B NM	45337
MB 880-45337/1-A	Method Blank	Total/NA	Solid	8015B NM	45337
LCS 880-45337/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	45337
LCSD 880-45337/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	45337
890-3923-A-3-E MS	Matrix Spike	Total/NA	Solid	8015B NM	45337
890-3923-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	45337

#### Analysis Batch: 45495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-1	SW01	Total/NA	Solid	8015 NM	_
890-3940-2	SW05	Total/NA	Solid	8015 NM	
890-3940-3	SW06	Total/NA	Solid	8015 NM	
890-3940-4	SW07	Total/NA	Solid	8015 NM	
890-3940-5	FS06	Total/NA	Solid	8015 NM	
890-3940-6	FS07	Total/NA	Solid	8015 NM	
890-3940-7	FS08	Total/NA	Solid	8015 NM	
890-3940-8	FS09	Total/NA	Solid	8015 NM	
890-3940-9	FS10	Total/NA	Solid	8015 NM	
890-3940-10	FS11	Total/NA	Solid	8015 NM	
890-3940-11	FS12	Total/NA	Solid	8015 NM	
890-3940-12	FS13	Total/NA	Solid	8015 NM	
890-3940-13	FS14	Total/NA	Solid	8015 NM	
890-3940-14	FS15	Total/NA	Solid	8015 NM	
890-3940-15	FS16	Total/NA	Solid	8015 NM	

## HPLC/IC

#### Leach Batch: 44969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-1	SW01	Soluble	Solid	DI Leach	
890-3940-2	SW05	Soluble	Solid	DI Leach	
890-3940-3	SW06	Soluble	Solid	DI Leach	
890-3940-4	SW07	Soluble	Solid	DI Leach	
890-3940-5	FS06	Soluble	Solid	DI Leach	

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Client: Ensolum
Project/Site: Redtail State Com 1H
SDG: 03D2024104

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

## Leach Batch: 44969 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-6	FS07	Soluble	Solid	DI Leach	_
890-3940-7	FS08	Soluble	Solid	DI Leach	
890-3940-8	FS09	Soluble	Solid	DI Leach	
890-3940-9	FS10	Soluble	Solid	DI Leach	
890-3940-10	FS11	Soluble	Solid	DI Leach	
890-3940-11	FS12	Soluble	Solid	DI Leach	
890-3940-12	FS13	Soluble	Solid	DI Leach	
890-3940-13	FS14	Soluble	Solid	DI Leach	
890-3940-14	FS15	Soluble	Solid	DI Leach	
890-3940-15	FS16	Soluble	Solid	DI Leach	
MB 880-44969/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-44969/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-44969/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3940-7 MS	FS08	Soluble	Solid	DI Leach	
890-3940-7 MSD	FS08	Soluble	Solid	DI Leach	

#### Analysis Batch: 45039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-1	SW01	Soluble	Solid	300.0	44969
890-3940-2	SW05	Soluble	Solid	300.0	44969
890-3940-3	SW06	Soluble	Solid	300.0	44969
890-3940-4	SW07	Soluble	Solid	300.0	44969
890-3940-5	FS06	Soluble	Solid	300.0	44969
890-3940-6	FS07	Soluble	Solid	300.0	44969
890-3940-7	FS08	Soluble	Solid	300.0	44969
890-3940-8	FS09	Soluble	Solid	300.0	44969
890-3940-9	FS10	Soluble	Solid	300.0	44969
890-3940-10	FS11	Soluble	Solid	300.0	44969
890-3940-11	FS12	Soluble	Solid	300.0	44969
890-3940-12	FS13	Soluble	Solid	300.0	44969
890-3940-13	FS14	Soluble	Solid	300.0	44969
890-3940-14	FS15	Soluble	Solid	300.0	44969
890-3940-15	FS16	Soluble	Solid	300.0	44969
MB 880-44969/1-A	Method Blank	Soluble	Solid	300.0	44969
LCS 880-44969/2-A	Lab Control Sample	Soluble	Solid	300.0	44969
LCSD 880-44969/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	44969
890-3940-7 MS	FS08	Soluble	Solid	300.0	44969
890-3940-7 MSD	FS08	Soluble	Solid	300.0	44969

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Job ID: 890-3940-1 SDG: 03D2024104

Client: Ensolum Project/Site: Redtail State Com 1H

Lab Sample ID: 890-3940-1

Matrix: Solid

EET MID

Date Collected: 01/23/23 11:00 Date Received: 01/24/23 08:44

**Client Sample ID: SW01** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 13:06	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	45275	02/02/23 14:55	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45439	02/05/23 01:15	AJ	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	44969	01/29/23 17:44	KS	EET MID

Client Sample ID: SW05 Lab Sample ID: 890-3940-2

45039

01/30/23 09:54

СН

Date Collected: 01/23/23 11:05 Matrix: Solid

Date Received: 01/24/23 08:44

Analysis

300.0

Soluble

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 13:33	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45275	02/02/23 14:55	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45439	02/05/23 01:55	AJ	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		1			45039	01/30/23 10:09	CH	EET MID

**Client Sample ID: SW06** Lab Sample ID: 890-3940-3 Date Collected: 01/23/23 11:10

Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 13:59	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	45275	02/02/23 14:55	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45439	02/05/23 02:15	AJ	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		1			45039	01/30/23 10:13	CH	EET MID

**Client Sample ID: SW07** Lab Sample ID: 890-3940-4

Date Collected: 01/23/23 11:20 Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 14:25	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID

**Eurofins Carlsbad** 

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**Matrix: Solid** 

**Matrix: Solid** 

Job ID: 890-3940-1

Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: SW07** Lab Sample ID: 890-3940-4

Date Collected: 01/23/23 11:20 Matrix: Solid Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45275	02/02/23 14:55	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45439	02/05/23 02:36	AJ	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		1			45039	01/30/23 10:18	CH	EET MID

**Client Sample ID: FS06** Lab Sample ID: 890-3940-5

Date Collected: 01/23/23 11:45 **Matrix: Solid** Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 14:51	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	45275	02/02/23 14:55	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45439	02/05/23 02:56	AJ	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		10			45039	01/30/23 10:23	CH	EET MID

**Client Sample ID: FS07** Lab Sample ID: 890-3940-6

Date Collected: 01/23/23 11:50 **Matrix: Solid** Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 15:17	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	45275	02/02/23 14:55	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45439	02/05/23 03:17	AJ	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		50			45039	01/30/23 10:28	CH	EET MID

Lab Sample ID: 890-3940-7 **Client Sample ID: FS08** 

Date Collected: 01/23/23 11:55 **Matrix: Solid** Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 15:44	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45275	02/02/23 14:55	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45439	02/05/23 03:36	AJ	EET MID

Job ID: 890-3940-1

SDG: 03D2024104

**Client Sample ID: FS08** 

Client: Ensolum

Total/NA

Soluble

Soluble

Date Collected: 01/23/23 11:55 Date Received: 01/24/23 08:44

Project/Site: Redtail State Com 1H

Lab Sample ID: 890-3940-7

02/05/23 03:56

01/29/23 17:44

01/30/23 10:47

KS

СН

Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.04 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		10			45039	01/30/23 10:33	CH	EET MID

**Client Sample ID: FS09** Lab Sample ID: 890-3940-8

**Matrix: Solid** 

**EET MID** 

**EET MID** 

**EET MID** 

Date Collected: 01/23/23 12:00 Date Received: 01/24/23 08:44

8015B NM

DI Leach

300.0

Analysis

Analysis

Leach

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 16:10	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45275	02/02/23 14:55	DM	EET MID

1 uL

4.96 g

1 uL

50 mL

45439

44969

45039

**Client Sample ID: FS10** Lab Sample ID: 890-3940-9

20

Date Collected: 01/23/23 12:05 **Matrix: Solid** 

Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 16:36	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45275	02/02/23 14:55	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45439	02/05/23 04:17	AJ	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		10			45039	01/30/23 10:52	CH	EET MID

**Client Sample ID: FS11** Lab Sample ID: 890-3940-10

Date Collected: 01/23/23 12:10 **Matrix: Solid** Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 17:02	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45275	02/02/23 14:55	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45439	02/05/23 04:37	AJ	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		10			45039	01/30/23 11:06	CH	EET MID

**Client Sample ID: FS12** 

Client: Ensolum

Date Collected: 01/23/23 12:15 Date Received: 01/24/23 08:44

Project/Site: Redtail State Com 1H

Lab Sample ID: 890-3940-11

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 18:47	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:57	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	45275	02/02/23 14:55	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45439	02/05/23 04:57	AJ	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		20			45039	01/30/23 11:11	CH	EET MID

Lab Sample ID: 890-3940-12

**Matrix: Solid** 

Date Collected: 01/23/23 14:15 Date Received: 01/24/23 08:44

**Client Sample ID: FS13** 

Dil Initial Final Batch Batch Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab Prep 5035 Total/NA 5.01 g 5 mL 45336 02/03/23 09:22 MNR EET MID Total/NA 8021B 5 mL 02/03/23 19:13 **EET MID** Analysis 1 5 mL 45307 MNR Total/NA Total BTEX 45476 02/04/23 10:13 Analysis A.I **EET MID** 1 Total/NA Analysis 8015 NM 45495 02/05/23 09:31 **EET MID** Total/NA 45337 Prep 8015NM Prep 10.02 g 10 mL 02/03/23 09:23 DM EET MID Total/NA Analysis 8015B NM 1 uL 1 uL 45443 02/04/23 12:43 ΑJ **EET MID** Soluble 5.02 g KS Leach DI Leach 50 mL 44969 01/29/23 17:44 **EET MID** Soluble Analysis 300.0 20 45039 01/30/23 11:16 СН **EET MID** 

Client Sample ID: FS14

Date Collected: 01/23/23 14:25 Date Received: 01/24/23 08:44

Lab Sample ID: 890-3940-13

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 19:39	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:31	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	45337	02/03/23 09:23	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45443	02/04/23 13:05	AJ	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		20			45039	01/30/23 11:21	CH	EET MID

**Client Sample ID: FS15** 

Date Collected: 01/23/23 14:30

Date Received: 01/24/23 08:44

Lab Sample ID: 890-3940-14 **Matrix: Solid** 

Γ	D-4-h	Detek		Dil.	11411	Final	Datak	Durana			
	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	_
Total/NA	Prep	5035			5.02 g	5 mL	45336	02/03/23 09:22	MNR	EET MID	
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 20:06	MNR	EET MID	
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID	

## **Lab Chronicle**

Client: Ensolum

Project/Site: Redtail State Com 1H

SDG: 03D2024104

**Client Sample ID: FS15** 

Lab Sample ID: 890-3940-14

Matrix: Solid

Date Collected: 01/23/23 14:30 Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:31	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	45337	02/03/23 09:23	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45443	02/04/23 13:27	AJ	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		20			45039	01/30/23 11:26	CH	EET MID

Client Sample ID: FS16 Lab Sample ID: 890-3940-15

Date Collected: 01/23/23 14:30 Matrix: Solid

Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 20:32	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45476	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45495	02/05/23 09:31	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45337	02/03/23 09:23	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45443	02/04/23 13:48	AJ	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		20			45039	01/30/23 11:30	CH	EET MID

Laboratory References:

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

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# **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3940-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

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

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

Authority	Pr	rogram	Identification Number	<b>Expiration Date</b>
Texas	NE	ELAP	T104704400-22-25	06-30-23
The following analytes	are included in this report, bu	ut the laboratory is not certifi	ed by the governing authority. This list ma	av include analytes fo
the agency does not of	fer certification.	,	, 3 3 ,	.,
the agency does not of Analysis Method	fer certification.  Prep Method	Matrix	Analyte	-,,,
0 ,		Matrix Solid	, , ,	

# **Method Summary**

Job ID: 890-3940-1 Client: Ensolum Project/Site: Redtail State Com 1H

SDG: 03D2024104

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: Redtail State Com 1H

Job ID: 890-3940-1

SDG: 03D2024104

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3940-1	SW01	Solid	01/23/23 11:00	01/24/23 08:44	0-4'
890-3940-2	SW05	Solid	01/23/23 11:05	01/24/23 08:44	0-4'
890-3940-3	SW06	Solid	01/23/23 11:10	01/24/23 08:44	0-4'
890-3940-4	SW07	Solid	01/23/23 11:20	01/24/23 08:44	0-4'
890-3940-5	FS06	Solid	01/23/23 11:45	01/24/23 08:44	4'
890-3940-6	FS07	Solid	01/23/23 11:50	01/24/23 08:44	4'
890-3940-7	FS08	Solid	01/23/23 11:55	01/24/23 08:44	4'
890-3940-8	FS09	Solid	01/23/23 12:00	01/24/23 08:44	4'
890-3940-9	FS10	Solid	01/23/23 12:05	01/24/23 08:44	4'
890-3940-10	FS11	Solid	01/23/23 12:10	01/24/23 08:44	4'
890-3940-11	FS12	Solid	01/23/23 12:15	01/24/23 08:44	4'
890-3940-12	FS13	Solid	01/23/23 14:15	01/24/23 08:44	4'
890-3940-13	FS14	Solid	01/23/23 14:25	01/24/23 08:44	4'
890-3940-14	FS15	Solid	01/23/23 14:30	01/24/23 08:44	4'
890-3940-15	FS16	Solid	01/23/23 14:30	01/24/23 08:44	4'

Received by OCD: 5/1/2023 2:38:05 PM

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**Environment Testing** Xenco

# **Chain of Custody**

Houston, TX (281) 240-4200, Dailas, 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 Orde	er No:	

																			www.	xenco.	.com	Page	01
Project Manager:	Josh A	Adams				Bill to: (if	different	t)	Kalei	Jennii	ngs								Wo	ork Or	der C	Comments	
Company Name:	Ensol	um, LLC				Compan	y Name	e:	Enso	lum, L	LC					Program: UST/PST PRP Brownfields RRC Superfund							
Address:	601 N	Marienfe	eld St S	uite 400		Address			601	N Marie	enfeld	St Suite	400			State of Project:							
City, State ZIP:	Midlar	nd, TX 79	701			City, Sta	ite ZIP:		Midla	ınd, TX	7970	1				Reporting: Level II  Level III PST/UST TRRP Level IV							
Phone:	303-5	17-8437			Email	kjennin	gs@en	solum	m.com, jadams@ensolum.com						Deliverables: EDD ADaPT Other:						:		
Project Name:		Redtail S	tate Co	m 1H	Turi	n Around	Around ANALYSIS REC					QUEST Preservative					tive Codes						
Project Number:			202410		☑ Routine	Rush		Pres.				T										None: NO	DI Water: H <sub>2</sub> O
Project Location:	1	32.3398	103.6	388	Due Date:			3322														Cool: Cool	МеОН: Ме
Sampler's Name:				TAT starts th								l	İ	1	1	1					HCL: HC	HNO <sub>3</sub> : HN	
PO #:					the lab, if re	ceived by 4	1:30pm	2					1	mm mi	181 (BB) 181			WW				H <sub>2</sub> S0 <sub>4</sub> : H <sub>2</sub>	NaOH: Na
SAMPLE RECE	IPT	Temp B	Blank: /	Nes No	Wet Ice:	(Yes)	No	nete	9				1					MIM				H₃PO₄: HP	
Samples Received			No	Thermomet		Trou-		12	(EPA: 300.0)				1							1		NaHSO <sub>4</sub> : NABIS Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>	
Cooler Custody Sea		Yes No		Correction F		-0.73		Q.	A	1				111111111	111111 IIIIIII 40 Chain	of Custody					Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub> Zn Acetate+NaOH: Zn		
Sample Custody Se	als:	Yes No	AHA	Temperatur		4.	2_			_	Σ.			890-33					1			NaOH+Ascorbi	
Total Containers:	1			Corrected T	emperature:	4			ORIDES	3015	(8021		1									NaOn+Ascold	C ACIG. SAFC
Sample Ide	ntificati	on	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp		1 _	<del>T</del> PH (8015)	ВТЕХ											Sample	Comments
50001			3	1/23/23	1100	0-4	C																
5W05			S	1/23/23	1105	0-4	C	1		Ш	Ш						<u> </u>	<u> </u>				1APP 1772	139048
51006			S	1/23/23	1110	0-4	C	1		Ш												CC.	
50007			S	1/73/23	1120	04	C	1		$\sqcup$	$\sqcup$						_						
F506			5	1/23/23	1145	4'	C	1						_									
FS07			S	1/23/23	1150	4'	C	1			1						_						
F508			S	1 23 23	1155	4'	C		Н	$\sqcup$							_					ļ	
F509			S	1222	1200	41	C	1															
F510			S	1/23/23	1205	41	C	1	$\perp$	11							-						
F511			5	1/23/23	1210	4'	C	1	Щ														
Total 200.7 / 6	010	200.8 / 6	020:		RCRA 13	PPM Te	exas 11	Al S	Sb A	s Ba	Be B	Cd C	a Cr	Co Cı	Fe Pt	Mg N	In Mo	Ni K				a Sr Tl Sn U	
Circle Method(s) a	nd Met	al(s) to be	e analy	zed	TCLP / S	PLP 60	10: 8R	CRA	Sb /	As Ba	Be	Cd Cr	Co C	u Pb	Mn Mo	Ni Se	Ag 7	I U		Hg: 1	631 /	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.

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## eurofins **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 N	o:		

Project Manager:	Josh Adam	s			Bill to: (if	different	1)	Kalei Jennings							Work Order Comments									
Company Name:	Ensolum, L				Compan			Ensol	um, LL	.C						Program: UST/PST  PRP Brownfields RRC Superfund State of Project:  Reporting: Level II Level III PST/UST TRRP Level IV								
Address:	601 N Mari		Suite 400		Address			601 N	Marie	nfeld S	Suite 4	00			1 1									
City, State ZIP:	Midland, TX	C 79701			City, Sta	te ZIP:		Midla	nd, TX	79701					_									
Phone:	303-517-84	137		Email	kjenning	ıs@en	solum	.com,	om, jadams@ensolum.com					Deliverables: EDD ADaPT Other:										
Project Name:	Redta	ail State C	om 1H	Turi	Around							ANALYSIS REQUEST					Preservative			tive Codes				
Project Number:		3D20241		☑ Routine	Rush		Pres.														None: NO	DI Water: H <sub>2</sub> O		
Project Location:	32.3	398, -103	.6388	Due Date:																	Cool: Cool	MeOH: Me		
Sampler's Name:	Julia	nna Falco	mata			day received by ived by 4:30pm																	HCL: HC H <sub>2</sub> S0 <sub>4</sub> : H <sub>2</sub>	HNO₃: HN NaOH: Na
SAMPLE RECE	IPT Ter	np Blank:	Yes No	Wet Ice:	Yes	No	ne te	6.													H₃PO₄: HP			
Samples Received Cooler Custody Seample Custody Se	als: Yes		Thermome Correction Temperatu	Eactor: re Reading:			Paran	ES (EPA: 300.0)		22											NaHSO <sub>4</sub> : NABIS Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub> Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: SAPC			
otal Containers:			-	Temperature:		Grab/		CHLORIDES	PH (8015)	(8021														
Sample Ide	ntification	Matri	Date Sampled	Time Sampled	Depth	Comp		H	H H	втех											Sample	Comments		
FS12 FS13 FS14 FS15 FS16		\$ \$ \$ \$	01/23/23 01/23/23 01/23/23 01/23/23	1415	41	0000	1															739048		
Total 200.7/6	6010 200.8	3 / 6020:			PPM Te											Иg Mr					Na Sr TI Sn U			

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
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4			6		
					Revised Date 08/25/2020 Rev. 2020

# **Login Sample Receipt Checklist**

 Client: Ensolum
 Job Number: 890-3940-1

 SDG Number: 03D2024104

Login Number: 3940 List Source: Eurofins Carlsbad

List Number: 1

Creator: Stutzman, Amanda

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

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# **Login Sample Receipt Checklist**

Job Number: 890-3940-1 SDG Number: 03D2024104

Login Number: 3940
List Source: Eurofins Midland
List Number: 2
List Creation: 01/25/23 12:13 PM

Creator: Rodriguez, Leticia

Client: Ensolum

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	N/A	

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<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Josh Adams Ensolum 601 N. Marienfeld St. Suite 400 Midland, Texas 79701

Generated 2/5/2023 9:33:39 AM

# **JOB DESCRIPTION**

Redtail State Com 1H SDG NUMBER 03D2024104

# **JOB NUMBER**

890-3941-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220



# **Eurofins Carlsbad**

# **Job Notes**

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

# **Authorization**

Generated 2/5/2023 9:33:39 AM

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

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

Page 2 of 20 2/5/2023 Released to Imaging: 7/21/2023 2:39:28 PM

Client: Ensolum
Project/Site: Redtail State Com 1H
Laboratory Job ID: 890-3941-1
SDG: 03D2024104

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## **Definitions/Glossary**

Job ID: 890-3941-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

**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** 

F2 MS/MSD RPD exceeds control limits

U Indicates the analyte was analyzed for but not detected.

**HPLC/IC** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

**Glossary** 

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" Minimum Detectable Activity (Radiochemistry) MDA MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit Minimum Level (Dioxin) ML MPN Most Probable Number Method Quantitation Limit MQL

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)

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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

**TNTC** Too Numerous To Count

#### **Case Narrative**

Client: Ensolum
Project/Site: Redtail State Com 1H

Job ID: 890-3941-1 SDG: 03D2024104

Job ID: 890-3941-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3941-1

#### Receipt

The sample was received on 1/24/2023 8:44 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C

#### **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: SS04 (890-3941-1).

#### **GC VOA**

Method 8021B: Surrogate recovery for the following sample was outside control limits: (MB 880-45336/5-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

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-45337 and analytical batch 880-454343 was 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.

#### HPLC/IC

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

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Matrix: Solid

Lab Sample ID: 890-3941-1

Job ID: 890-3941-1

Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: SS04

Date Collected: 01/23/23 11:25 Date Received: 01/24/23 08:44

Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:59	1
Toluene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:59	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:59	
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 20:59	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 20:59	,
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 20:59	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	98		70 - 130			02/03/23 09:22	02/03/23 20:59	
1,4-Difluorobenzene (Surr)	103		70 - 130			02/03/23 09:22	02/03/23 20:59	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			02/04/23 10:13	1
Method: SW846 8015 NM - Diese	el Range Organ	ics (DRO) (	GC)					
	•	ics (DRO) ( Qualifier	GC) RL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte	•	Qualifier	•	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 02/05/23 09:31	
Analyte Total TPH	<b>Result</b> <49.9	Qualifier U	RL 49.9		<u>D</u>	Prepared		
Analyte Total TPH Method: SW846 8015B NM - Dies	Result <49.9	Qualifier U	RL 49.9		D_	Prepared Prepared		
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	Result <49.9	Qualifier Unics (DRO) Qualifier	RL 49.9	mg/Kg			02/05/23 09:31	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <49.9  sel Range Orga Result	Qualifier U  nics (DRO) Qualifier U	RL 49.9 (GC)	mg/Kg		Prepared	02/05/23 09:31  Analyzed	Dil Fa
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte  Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result <49.9  sel Range Orga Result <49.9	Qualifier U  nics (DRO) Qualifier U	(GC) RL 49.9	mg/Kg  Unit  mg/Kg		Prepared 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 14:09	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U	RL 49.9  (GC)  RL 49.9  49.9	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 14:09 02/04/23 14:09	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate	Result	Qualifier U  nics (DRO) Qualifier U  U	RL 49.9 (GC) RL 49.9 49.9	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 14:09 02/04/23 14:09 02/04/23 14:09	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U	RL 49.9 (GC) RL 49.9 49.9 Limits	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23 Prepared	Analyzed 02/04/23 14:09 02/04/23 14:09 02/04/23 14:09 Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 49.9 (GC) RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23  Prepared 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 14:09 02/04/23 14:09  02/04/23 14:09  Analyzed 02/04/23 14:09	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl  Method: EPA 300.0 - Anions, Ion Analyte	Result   <49.9	Qualifier U  nics (DRO) Qualifier U  U  Qualifier	RL 49.9 (GC) RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23  Prepared 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 14:09 02/04/23 14:09  02/04/23 14:09  Analyzed 02/04/23 14:09	Dil Fac

# **Surrogate Summary**

Client: Ensolum Job ID: 890-3941-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

-				Percent Surrogate
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3940-A-1-C MS	Matrix Spike	106	107	
890-3940-A-1-D MSD	Matrix Spike Duplicate	90	106	
890-3941-1	SS04	98	103	
LCS 880-45336/1-A	Lab Control Sample	86	104	
LCSD 880-45336/2-A	Lab Control Sample Dup	95	106	
MB 880-45336/5-A	Method Blank	64 S1-	95	
Surrogate Legend				
BFB = 4-Bromofluorober	nzene (Surr)			
DFBZ = 1,4-Difluorobenz	zene (Surr)			

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

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3923-A-3-E MS	Matrix Spike	107	86	
890-3923-A-3-F MSD	Matrix Spike Duplicate	123	98	
890-3941-1	SS04	97	82	
LCS 880-45337/2-A	Lab Control Sample	107	92	
LCSD 880-45337/3-A	Lab Control Sample Dup	125	107	
MB 880-45337/1-A	Method Blank	112	110	
Surrogate Legend				

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

# **QC Sample Results**

Client: Ensolum Job ID: 890-3941-1 SDG: 03D2024104 Project/Site: Redtail State Com 1H

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-45336/5-A

**Matrix: Solid** 

Analyte Benzene Toluene Ethylbenzene m-Xylene & p-Xylene

o-Xylene

Xylenes, Total

Analysis Batch: 45307

Client Sample ID: Method Blank

02/03/23 12:40

Prep Type: Total/NA

Prep Batch: 45336

MB	MB					
Result	Qualifier	RL	Unit D	Prepared	Analyzed	Dil Fac
<0.00200	U	0.00200	mg/Kg	02/03/23 09:22	02/03/23 12:40	1
<0.00200	U	0.00200	mg/Kg	02/03/23 09:22	02/03/23 12:40	1
<0.00200	U	0.00200	mg/Kg	02/03/23 09:22	02/03/23 12:40	1
<0.00400	U	0.00400	mg/Kg	02/03/23 09:22	02/03/23 12:40	1

mg/Kg

mg/Kg

MB MB

<0.00200 U

<0.00400 U

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	64	S1-	70 - 130	0	2/03/23 09:22	02/03/23 12:40	1
1,4-Difluorobenzene (Surr)	95		70 - 130	0	2/03/23 09:22	02/03/23 12:40	1

0.00200

0.00400

Lab Sample ID: LCS 880-45336/1-A

**Matrix: Solid** 

Analysis Batch: 45307

**Client Sample ID: Lab Control Sample** 

02/03/23 09:22

Prep Type: Total/NA

Prep Batch: 45336

	<b>Spike</b>	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.1031		mg/Kg		103	70 - 130	
Toluene	0.100	0.09751		mg/Kg		98	70 - 130	
Ethylbenzene	0.100	0.09723		mg/Kg		97	70 - 130	
m-Xylene & p-Xylene	0.200	0.1957		mg/Kg		98	70 - 130	
o-Xylene	0.100	0.09666		mg/Kg		97	70 - 130	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-45336/2-A

**Matrix: Solid** 

Analysis Batch: 45307

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

Prep Type: Total/NA Prep Batch: 45336

	Spike	LCSD	LCSD				%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.1071		mg/Kg		107	70 - 130	4	35	
Toluene	0.100	0.1057		mg/Kg		106	70 - 130	8	35	
Ethylbenzene	0.100	0.1042		mg/Kg		104	70 - 130	7	35	
m-Xylene & p-Xylene	0.200	0.2107		mg/Kg		105	70 - 130	7	35	
o-Xylene	0.100	0.1090		mg/Kg		109	70 - 130	12	35	

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		70 - 130
1.4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: 890-3940-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 45307

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

Prep Batch: 45336

-	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00201	U	0.0998	0.1231		mg/Kg		123	70 - 130	
Toluene	<0.00201	U	0.0998	0.1255		mg/Kg		126	70 - 130	

**Eurofins Carlsbad** 

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Prep Type: Total/NA

Prep Type: Total/NA

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 45336

## QC Sample Results

Job ID: 890-3941-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Lab Sample ID: 890-3940-A-1-C MS Client Sample ID: Matrix Spike

**Matrix: Solid** Analysis Batch: 45307

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Ethylbenzene	<0.00201	U	0.0998	0.1243		mg/Kg		125	70 - 130	
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2459		mg/Kg		123	70 - 130	
o-Xylene	<0.00201	U	0.0998	0.1246		mg/Kg		125	70 - 130	

MS MS Surrogate %Recovery Qualifier Limits 70 - 130 4-Bromofluorobenzene (Surr) 106 1,4-Difluorobenzene (Surr) 107 70 - 130

Lab Sample ID: 890-3940-A-1-D MSD Client Sample ID: Matrix Spike Duplicate

Matrix: Solid Analysis Batch: 45307

Analysis Batch: 45307									Prep	Batch:	45336
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00201	U	0.100	0.1021		mg/Kg		102	70 - 130	19	35
Toluene	<0.00201	U	0.100	0.09949		mg/Kg		99	70 - 130	23	35
Ethylbenzene	<0.00201	U	0.100	0.09971		mg/Kg		100	70 - 130	22	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1993		mg/Kg		99	70 - 130	21	35
o-Xylene	<0.00201	U	0.100	0.09513		mg/Kg		95	70 - 130	27	35

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

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

Lab Sample ID: MB 880-45337/1-A

**Matrix: Solid** 

Analysis Batch: 45443							Prep Batch	n: 45337
	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130	02/03/23 09:23	02/04/23 08:56	1
o-Terphenyl	110		70 - 130	02/03/23 09:23	02/04/23 08:56	1

Lab Sample ID: LCS 880-45337/2-A **Client Sample ID: Lab Control Sample** 

Analysis Batch: 45443

**Matrix: Solid** 

Spike LCS LCS %Rec Added Qualifier Analyte Result Unit %Rec Limits 999 90 70 - 130 Gasoline Range Organics 903 4 mg/Kg (GRO)-C6-C10

878.2

mg/Kg

88

70 - 130

999

Diesel Range Organics (Over C10-C28)

**Eurofins Carlsbad** 

Prep Type: Total/NA

Prep Batch: 45337

Job ID: 890-3941-1 Client: Ensolum Project/Site: Redtail State Com 1H

SDG: 03D2024104

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

Lab Sample ID: LCS 880-45337/2-A

Lab Sample ID: LCSD 880-45337/3-A

Lab Sample ID: 890-3923-A-3-E MS

**Matrix: Solid** 

Analysis Batch: 45443

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 45337

LCS LCS

Surrogate %Recovery Qualifier Limits 1-Chlorooctane 107 70 - 130 o-Terphenyl 92 70 - 130

Client Sample ID: Lab Control Sample Dup

Prep Batch: 45337

**Matrix: Solid** Prep Type: Total/NA Analysis Batch: 45443

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit 999 910.9 91 70 - 13020 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 999 1007 101 mg/Kg 70 - 13020 14 C10-C28)

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	125		70 - 130
o-Terphenyl	107		70 - 130

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 45337

Sample Sample Spike MS MS Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits Gasoline Range Organics <50.0 U F2 1000 862.5 mg/Kg 84 70 - 130 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 1000 883.8 mg/Kg 87 70 - 130

C10-C28)

**Matrix: Solid** 

**Analysis Batch: 45443** 

MS MS Surrogate %Recovery Qualifier Limits 70 - 130 1-Chlorooctane 107 o-Terphenyl 86 70 - 130

Lab Sample ID: 890-3923-A-3-F MSD Client Sample ID: Matrix Spike Duplicate Prep Type: Total/NA

**Matrix: Solid** 

Analysis Batch: 45443 Prep Batch: 45337 Sample Sample MSD MSD RPD Spike %Rec

Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits **RPD** Limit U F2 998 1297 F2 127 Gasoline Range Organics <50.0 mg/Kg 70 - 130 40 20 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 998 1003 mg/Kg 99 70 - 130 13 20

C10-C28)

MSD MSD

Surrogate	%Recovery Qualifier	Limits
1-Chlorooctane	123	70 - 130
o-Terphenyl	98	70 - 130

# QC Sample Results

Job ID: 890-3941-1 Client: Ensolum Project/Site: Redtail State Com 1H

SDG: 03D2024104

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-44795/1-A

**Matrix: Solid** 

Analysis Batch: 45051

Analyte

Chloride

Client Sample ID: Method Blank

**Prep Type: Soluble** 

Client Sample ID: Matrix Spike Duplicate

**Prep Type: Soluble** 

MB MB Dil Fac Result Qualifier RL Unit D Prepared Analyzed <5.00 U 5.00 mg/Kg 01/29/23 17:36

Lab Sample ID: LCS 880-44795/2-A Client Sample ID: Lab Control Sample **Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 45051

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 249.3 mg/Kg 100 90 - 110

Lab Sample ID: LCSD 880-44795/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 45051

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 249.8 mg/Kg 100 90 - 110

Lab Sample ID: 890-3928-A-3-B MS Client Sample ID: Matrix Spike **Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 45051

MS MS Sample Sample Spike %Rec Analyte Result Qualifier Added Qualifier %Rec Result Unit Limits Chloride 8.18 248 237.7 90 - 110 mg/Kg

Lab Sample ID: 890-3928-A-3-C MSD

**Matrix: Solid** 

Analysis Batch: 45051

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 248 8.18 238.4 mg/Kg 93 90 - 110 20

Client: Ensolum Job ID: 890-3941-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

#### **GC VOA**

#### Analysis Batch: 45307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3941-1	SS04	Total/NA	Solid	8021B	45336
MB 880-45336/5-A	Method Blank	Total/NA	Solid	8021B	45336
LCS 880-45336/1-A	Lab Control Sample	Total/NA	Solid	8021B	45336
LCSD 880-45336/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	45336
890-3940-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	45336
890-3940-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	45336

# Prep Batch: 45336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3941-1	SS04	Total/NA	Solid	5035	<u> </u>
MB 880-45336/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-45336/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-45336/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3940-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3940-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

#### **Analysis Batch: 45477**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3941-1	SS04	Total/NA	Solid	Total BTEX	

#### **GC Semi VOA**

## Prep Batch: 45337

<b>Lab Sample ID</b> 890-3941-1	Client Sample ID SS04	Prep Type Total/NA	Matrix Solid	Method 8015NM Prep	Prep Batch
MB 880-45337/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-45337/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-45337/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3923-A-3-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3923-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

#### Analysis Batch: 45443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3941-1	SS04	Total/NA	Solid	8015B NM	45337
MB 880-45337/1-A	Method Blank	Total/NA	Solid	8015B NM	45337
LCS 880-45337/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	45337
LCSD 880-45337/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	45337
890-3923-A-3-E MS	Matrix Spike	Total/NA	Solid	8015B NM	45337
890-3923-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	45337

#### Analysis Batch: 45496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3941-1	SS04	Total/NA	Solid	8015 NM	

## HPLC/IC

#### Leach Batch: 44795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3941-1	SS04	Soluble	Solid	DI Leach	
MB 880-44795/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-44795/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-44795/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

**Eurofins Carlsbad** 

2/5/2023

Client: Ensolum Job ID: 890-3941-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

# **HPLC/IC** (Continued)

## Leach Batch: 44795 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3928-A-3-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3928-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

#### Analysis Batch: 45051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3941-1	SS04	Soluble	Solid	300.0	44795
MB 880-44795/1-A	Method Blank	Soluble	Solid	300.0	44795
LCS 880-44795/2-A	Lab Control Sample	Soluble	Solid	300.0	44795
LCSD 880-44795/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	44795
890-3928-A-3-B MS	Matrix Spike	Soluble	Solid	300.0	44795
890-3928-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	44795

Eurofins Carlsbad

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Date Received: 01/24/23 08:44

## **Lab Chronicle**

Client: Ensolum Job ID: 890-3941-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: SS04 Lab Sample ID: 890-3941-1 Date Collected: 01/23/23 11:25

Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 20:59	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45477	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45496	02/05/23 09:31	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	45337	02/03/23 09:23	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45443	02/04/23 14:09	AJ	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	44795	01/26/23 08:36	СН	EET MID
Soluble	Analysis	300.0		1			45051	01/29/23 20:34	CH	EET MID

#### **Laboratory References:**

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

# **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3941-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

## **Laboratory: Eurofins Midland**

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

Authority		ogram	Identification Number	<b>Expiration Date</b>	
Texas	NELAP T104			06-30-23	
The following analytes	are included in this report, bu	it the laboratory is not certifi	ed by the governing authority. This list ma	av include analytes for	
the agency does not of	fer certification.	•	, , ,	,	
the agency does not of Analysis Method	fer certification .  Prep Method	Matrix	Analyte	,	
0 ,		Matrix Solid	Analyte Total TPH		

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# **Method Summary**

Job ID: 890-3941-1 Client: Ensolum Project/Site: Redtail State Com 1H

SDG: 03D2024104

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: Redtail State Com 1H

Job ID: 890-3941-1

SDG: 03D2024104

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3941-1	SS04	Solid	01/23/23 11:25	01/24/23 08:44	0.5'

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Received by OCD: 5/1/2023 2:38:05 PM

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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

www.xenco.com

Project Manager:	Josh /	Adams				Bill to: (if	differen	t)	Kalei Jennings					Work Order Comments					
Company Name:	Ensol	um, LLC				Compan	y Name	):	Ensolum, LLC Program: UST/PST PRP						Brownfields RRC Superfund				
Address:	601 N	Marienfe	eld St S	uite 400		Address	:		601 N	Marie	nfeld S	St Suite 400			State of Project:				
City, State ZIP:	Midla	nd, TX 79	701			City, Sta	te ZIP:		Midla	nd, TX	79701				Reporting: Level II				
Phone:	303-5	17-8437			Email	kjenning	gs@en	solum	.com,	jadan	ns@e	nsolum.co	m						
Project Name:		Redtail S	tate Co	m 1H	Tur	Around				ANALYSIS REQUEST Preservativ					tive Codes				
Project Number:	1		202410		☑ Routine	Rush		Pres. Code					T				None: NO	DI Water: H <sub>2</sub> O	
Project Location:		32.3398	-103.6	3388	Due Date:			5000									Cool: Cool	МеОН: Ме	
Sampler's Name:		Julianna			TAT starts th	e day rece	eived by										HCL: HC	HNO <sub>3</sub> : HN	
PO#:					the lab, if re	ceived by 4	4:30pm	20							DESCRIPTION .		H <sub>2</sub> S0 <sub>4</sub> : H <sub>2</sub>	NaOH: Na	
SAMPLE RECE	IPT	Temp E	Blank:	(Yes) No	Wet Ice:	Ves	No	ne te	(0:							H₃PO₄: HP			
Samples Received I	ntact:	(Yes	No	Thermome	ter ID:	Thm.	007	Iran	(EPA: 300.0)							NaHSO₄: NABI			
Cooler Custody Sea	ls:	Yes No	NA	Correction	Factor:		). 2	a.	PA:			Harard					Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSC		
	Sample Custody Seals: Yes No NA Tempera		Temperatu		ting: 4,2				_	1 - 1 -	890-3941 Chain of Custody			Zn Acetate+NaOH: Zn					
Total Containers:				Corrected 7	emperature:	L	10		SE SE	015)	(8021		1	1 1	1 ( 1	_,	NaOH+Ascorbi	Acid: SAPC	
Sample Ide	ntificati	on	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	CHLORIDES	TPH (8015)	BTEX						Sample	Comments	
5504			S	0 23 23	1125	.51	C	1	1	1	1								
				11-11-													nApp223	3239048	
																		,	
Total 200.7 / 60	010	200.8 / 6	020:		BRCRA 13I	PPM Te	exas 11	AI S	Sb As	Ba	Be B	Cd Ca C	r Co	Cu Fe F	b Mg Mn Mo	Ni K Se Ag S	SiO <sub>2</sub> Na Sr TI Sn U	V Zn	

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag TI U Hg: 1631 / 245.1 / 7470 / 7471 Circle Method(s) and Metal(s) to be analyzed

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 Eurofina-Xanco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofina Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinguished by: (Signature)	Received by: (Şigŋature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
( MIDVIGITA)	was that	1-24.23 084	4		
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	·····			F	Revised Date: 08/25/2020 Rev. 202

## **Login Sample Receipt Checklist**

Client: Ensolum Job Number: 890-3941-1 SDG Number: 03D2024104

Login Number: 3941 List Source: Eurofins Carlsbad

List Number: 1

Creator: Stutzman, Amanda

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

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## **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3941-1 SDG Number: 03D2024104

Login Number: 3941 List Source: Eurofins Midland
List Number: 2 List Creation: 01/25/23 12:13 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	N/A	

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<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Josh Adams Ensolum 601 N. Marienfeld St. Suite 400 Midland, Texas 79701

Generated 2/5/2023 9:33:55 AM

# **JOB DESCRIPTION**

Redtail State Com 1H SDG NUMBER 03D2024104

## **JOB NUMBER**

890-3942-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220



# **Eurofins Carlsbad**

## **Job Notes**

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

## **Authorization**

Generated 2/5/2023 9:33:55 AM

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

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

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2/5/2023

Client: Ensolum

Laboratory Job ID: 890-3942-1

Project/Site: Redtail State Com 1H

SDG: 03D2024104

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## **Definitions/Glossary**

Job ID: 890-3942-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

**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** 

F2 MS/MSD RPD exceeds control limits

U Indicates the analyte was analyzed for but not detected.

**HPLC/IC** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

**Glossary** 

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" Minimum Detectable Activity (Radiochemistry) MDA

MDC Minimum Detectable Concentration (Radiochemistry) MDL Method Detection Limit

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

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)

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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

**TNTC** Too Numerous To Count

#### Case Narrative

Job ID: 890-3942-1 Client: Ensolum

Project/Site: Redtail State Com 1H SDG: 03D2024104

Job ID: 890-3942-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3942-1

#### Receipt

The sample was received on 1/24/2023 8:44 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C

#### **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: SS05 (890-3942-1).

#### **GC VOA**

Method 8021B: Surrogate recovery for the following sample was outside control limits: (MB 880-45336/5-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

Method 8015MOD NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-45337 and analytical batch 880-45443 was 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.

#### HPLC/IC

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

Matrix: Solid

Lab Sample ID: 890-3942-1

## **Client Sample Results**

Client: Ensolum Job ID: 890-3942-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: SS05

Date Collected: 01/23/23 11:30 Date Received: 01/24/23 08:44

Sample Depth: 0.5'

Chloride

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 21:25	1
Toluene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 21:25	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 21:25	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 21:25	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		02/03/23 09:22	02/03/23 21:25	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/03/23 09:22	02/03/23 21:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130			02/03/23 09:22	02/03/23 21:25	1
1,4-Difluorobenzene (Surr)	102		70 - 130			02/03/23 09:22	02/03/23 21:25	1
Method: TAL SOP Total BTEX -	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			02/04/23 10:13	1
Method: SW846 8015 NM - Diese	el Range Organ	ics (DRO) (	GC)					
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			02/05/23 09:31	1
- Method: SW846 8015B NM - Die	sel Range Orga	nics (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		02/03/23 09:23	02/04/23 14:30	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 14:30	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 14:30	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	82		70 - 130			02/03/23 09:23	02/04/23 14:30	1
o-Terphenyl	77		70 - 130			02/03/23 09:23	02/04/23 14:30	1
Method: EPA 300.0 - Anions, Ior	Chromatogran	hv - Solubl	e					

4.97

8.32

mg/Kg

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01/29/23 20:40

## **Surrogate Summary**

Client: Ensolum Job ID: 890-3942-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

BFB1		DED 74			s)
		DFBZ1			
(70-130)	Client Sample ID	(70-130)			
106	MS Matrix Spike	107			
90	MSD Matrix Spike Duplicate	106			
100	SS05	102			
86	1-A Lab Control Sample	104			
95	6/2-A Lab Control Sample Dup	106			
64 S1-	-A Method Blank	95			
	egend				
		64 S1-	64 S1- 95	64 S1- 95	64 S1- 95

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

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3923-A-3-E MS	Matrix Spike	107	86	
890-3923-A-3-F MSD	Matrix Spike Duplicate	123	98	
890-3942-1	SS05	82	77	
LCS 880-45337/2-A	Lab Control Sample	107	92	
LCSD 880-45337/3-A	Lab Control Sample Dup	125	107	
MB 880-45337/1-A	Method Blank	112	110	

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

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Client: Ensolum Job ID: 890-3942-1 SDG: 03D2024104 Project/Site: Redtail State Com 1H

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-45336/5-A

**Matrix: Solid** Analysis Batch: 45307 Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 45336

	MB	MR						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		02/03/23 09:22	02/03/23 12:40	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	64	S1-	70 - 130	02/03/23 09:22	02/03/23 12:40	1
1.4-Difluorobenzene (Surr)	95		70 - 130	02/03/23 09:22	02/03/23 12:40	1

Lab Sample ID: LCS 880-45336/1-A

Matrix: Solid

Analysis Batch: 45307

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 45336

	<b>Spike</b>	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.1031		mg/Kg		103	70 - 130	
Toluene	0.100	0.09751		mg/Kg		98	70 - 130	
Ethylbenzene	0.100	0.09723		mg/Kg		97	70 - 130	
m-Xylene & p-Xylene	0.200	0.1957		mg/Kg		98	70 - 130	
o-Xylene	0.100	0.09666		mg/Kg		97	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	86	70 - 130
1,4-Difluorobenzene (Surr)	104	70 - 130

Lab Sample ID: LCSD 880-45336/2-A

**Matrix: Solid** 

Analysis Batch: 45307

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

Prep Type: Total/NA

Prep Batch: 45336

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.1071		mg/Kg		107	70 - 130	4	35
Toluene	0.100	0.1057		mg/Kg		106	70 - 130	8	35
Ethylbenzene	0.100	0.1042		mg/Kg		104	70 - 130	7	35
m-Xylene & p-Xylene	0.200	0.2107		mg/Kg		105	70 - 130	7	35
o-Xylene	0.100	0.1090		mg/Kg		109	70 - 130	12	35

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		70 - 130
1.4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: 890-3940-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 45307

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

Prep Batch: 45336

_	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00201	U	0.0998	0.1231		mg/Kg	_	123	70 - 130	
Toluene	<0.00201	U	0.0998	0.1255		mg/Kg		126	70 - 130	

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## QC Sample Results

Job ID: 890-3942-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Lab Sample ID: 890-3940-A-1-C MS Client Sample ID: Matrix Spike Prep Type: Total/NA

**Matrix: Solid** 

Analysis Batch: 45307

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Ethylbenzene	<0.00201	U	0.0998	0.1243		mg/Kg		125	70 - 130	
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2459		mg/Kg		123	70 - 130	
o-Xylene	<0.00201	U	0.0998	0.1246		mg/Kg		125	70 - 130	

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	106	70 - 130
1,4-Difluorobenzene (Surr)	107	70 - 130

Lab Sample ID: 890-3940-A-1-D MSD

**Matrix: Solid** 

m-Xylene & p-Xylene

o-Xylene

Analysis Batch: 45307

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

70 - 130

70 - 130

**Client Sample ID: Lab Control Sample** 

70 - 130

88

99

95

Prep Batch: 45336

21

27

Prep Batch: 45336

Sample Sample Spike MSD MSD RPD Result Qualifier RPD Limit Analyte babbA Result Qualifier %Rec Limits Unit Benzene <0.00201 U 0.100 0.1021 mg/Kg 102 70 - 130 19 35 Toluene <0.00201 U 0.100 0.09949 mg/Kg 99 70 - 130 23 35 Ethylbenzene <0.00201 U 0.100 0.09971 100 70 - 130 22 35 mg/Kg

0.1993

0.09513

mg/Kg

mg/Kg

0.200

0.100

MSD MSD Surrogate Qualifier Limits %Recovery 70 - 130 4-Bromofluorobenzene (Surr) 90

<0.00402 U

<0.00201 U

1,4-Difluorobenzene (Surr) 106 70 - 130

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

Lab Sample ID: MB 880-45337/1-A Client Sample ID: Method Blank **Matrix: Solid** Prep Type: Total/NA Prep Batch: 45337

Analysis Batch: 45443

мв мв Result Qualifier RL Unit D Prepared Analyzed Dil Fac Analyte 02/03/23 09:23 <49.9 U 49.9 02/04/23 08:56 Gasoline Range Organics mg/Kg (GRO)-C6-C10 02/03/23 09:23 02/04/23 08:56 Diesel Range Organics (Over <49.9 U 49 9 mg/Kg C10-C28) OII Range Organics (Over C28-C36) <49.9 U 49.9 02/03/23 09:23 02/04/23 08:56 mg/Kg

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130	02/03/23 09.	23 02/04/23 08:56	1
o-Terphenyl	110		70 - 130	02/03/23 09:	23 02/04/23 08:56	1

Lab Sample ID: LCS 880-45337/2-A **Matrix: Solid** 

Analysis Batch: 45443

Gasoline Range Organics (GRO)-C6-C10

Diesel Range Organics (Over

						45337		
Spike	LCS	LCS				%Rec		
Added	Result	Qualifier	Unit	D	%Rec	Limits		
999	903.4		mg/Kg	<u> </u>	90	70 - 130		
	Added	Added Result	Added Result Qualifier	Added Result Qualifier Unit	Added Result Qualifier Unit D	Added Result Qualifier Unit D %Rec	Spike         LCS         LCS         %Rec           Added         Result         Qualifier         Unit         D         %Rec         Limits	Added Result Qualifier Unit D %Rec Limits

mg/Kg

C10-C28)

Analyte

**Eurofins Carlsbad** 

Prep Type: Total/NA

878.2

999

35

Job ID: 890-3942-1

Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Lab Sample ID: LCS 880-45337/2-A

**Matrix: Solid** 

Analysis Batch: 45443

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 45337

LCS LCS

Surrogate %Recovery Qualifier Limits 1-Chlorooctane 107 70 - 130 o-Terphenyl 92 70 - 130

Lab Sample ID: LCSD 880-45337/3-A Client Sample ID: Lab Control Sample Dup

**Matrix: Solid** 

Analysis Batch: 45443

Prep Type: Total/NA

Prep Batch: 45337 RPD

Spike LCSD LCSD %Rec Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit 999 910.9 91 70 - 13020 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 999 1007 101 mg/Kg 70 - 13020 14 C10-C28)

LCSD LCSD

Sample Sample

Surrogate %Recovery Qualifier Limits 125 70 - 130 1-Chlorooctane 107 70 - 130 o-Terphenyl

Lab Sample ID: 890-3923-A-3-E MS Client Sample ID: Matrix Spike

MS MS

**Matrix: Solid** 

**Analysis Batch: 45443** 

Prep Type: Total/NA

Prep Batch: 45337

Limits

Analyte Result Qualifier Added Result Qualifier Unit D %Rec Gasoline Range Organics <50.0 U F2 1000 862.5 mg/Kg 84 70 - 130 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 1000 883.8 mg/Kg 87 70 - 130 C10-C28)

Spike

MS MS %Recovery Qualifier Surrogate Limits 70 - 130 1-Chlorooctane 107 o-Terphenyl 86 70 - 130

Lab Sample ID: 890-3923-A-3-F MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Analysis Batch: 45443

Prep Type: Total/NA

Prep Batch: 45337

Sample Sample MSD MSD RPD Spike %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits **RPD** Limit U F2 998 1297 F2 Gasoline Range Organics <50.0 127 70 - 130 40 20 mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 998 1003 mg/Kg 99 70 - 130 13 20 C10-C28)

MSD MSD

Released to Imaging: 7/21/2023 2:39:28 PM

Qualifier Surrogate %Recovery Limits 1-Chlorooctane 123 70 - 130 98 70 - 130 o-Terphenyl



Dil Fac

## QC Sample Results

Client: Ensolum Job ID: 890-3942-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-44795/1-A

**Matrix: Solid** 

Lab Sample ID: LCS 880-44795/2-A

Analysis Batch: 45051

мв мв

Analyte Result Qualifier RL Chloride <5.00 U 5.00

Unit

D mg/Kg

01/29/23 17:36

Client Sample ID: Matrix Spike Duplicate

**Prep Type: Soluble** 

Prepared

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

**Prep Type: Soluble** 

Client Sample ID: Method Blank

Analyzed

**Matrix: Solid** Analysis Batch: 45051

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 249.3 mg/Kg 100 90 - 110

Lab Sample ID: LCSD 880-44795/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 45051

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 249.8 mg/Kg 100 90 - 110

Lab Sample ID: 890-3928-A-3-B MS Client Sample ID: Matrix Spike **Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 45051

MS MS Sample Sample Spike %Rec Analyte Result Qualifier Added Qualifier %Rec Result Unit Limits Chloride 8.18 248 237.7 90 - 110 mg/Kg

Lab Sample ID: 890-3928-A-3-C MSD

**Matrix: Solid** 

Analysis Batch: 45051

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 248 8.18 238.4 mg/Kg 93 90 - 110 20

## **QC Association Summary**

Client: Ensolum Job ID: 890-3942-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

### **GC VOA**

### Analysis Batch: 45307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3942-1	SS05	Total/NA	Solid	8021B	45336
MB 880-45336/5-A	Method Blank	Total/NA	Solid	8021B	45336
LCS 880-45336/1-A	Lab Control Sample	Total/NA	Solid	8021B	45336
LCSD 880-45336/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	45336
890-3940-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	45336
890-3940-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	45336

## Prep Batch: 45336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3942-1	SS05	Total/NA	Solid	5035	
MB 880-45336/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-45336/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-45336/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3940-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3940-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

#### **Analysis Batch: 45478**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3942-1	SS05	Total/NA	Solid	Total BTEX	

### **GC Semi VOA**

## Prep Batch: 45337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3942-1	SS05	Total/NA	Solid	8015NM Prep	
MB 880-45337/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-45337/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-45337/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3923-A-3-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3923-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

### Analysis Batch: 45443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3942-1	SS05	Total/NA	Solid	8015B NM	45337
MB 880-45337/1-A	Method Blank	Total/NA	Solid	8015B NM	45337
LCS 880-45337/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	45337
LCSD 880-45337/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	45337
890-3923-A-3-E MS	Matrix Spike	Total/NA	Solid	8015B NM	45337
890-3923-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	45337

#### Analysis Batch: 45497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3942-1	SS05	Total/NA	Solid	8015 NM	

## HPLC/IC

### Leach Batch: 44795

Г					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3942-1	SS05	Soluble	Solid	DI Leach	
MB 880-44795/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-44795/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-44795/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

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# **QC Association Summary**

Client: Ensolum Job ID: 890-3942-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

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

## Leach Batch: 44795 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3928-A-3-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3928-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

#### Analysis Batch: 45051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3942-1	SS05	Soluble	Solid	300.0	44795
MB 880-44795/1-A	Method Blank	Soluble	Solid	300.0	44795
LCS 880-44795/2-A	Lab Control Sample	Soluble	Solid	300.0	44795
LCSD 880-44795/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	44795
890-3928-A-3-B MS	Matrix Spike	Soluble	Solid	300.0	44795
890-3928-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	44795

## **Lab Chronicle**

Client: Ensolum Job ID: 890-3942-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: SS05 Lab Sample ID: 890-3942-1

Date Collected: 01/23/23 11:30 Matrix: Solid
Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/03/23 21:25	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45478	02/04/23 10:13	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45497	02/05/23 09:31	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45337	02/03/23 09:23	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45443	02/04/23 14:30	AJ	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	44795	01/26/23 08:36	СН	EET MID
Soluble	Analysis	300.0		1			45051	01/29/23 20:40	CH	EET MID

#### **Laboratory References:**

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

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## **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3942-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

### **Laboratory: Eurofins Midland**

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

Authority		ogram	Identification Number	<b>Expiration Date</b>		
Texas	NE	ELAP	T104704400-22-25	06-30-23		
The following analytes the agency does not of	• '	it the laboratory is not certif	ed by the governing authority. This list ma	ay include analytes for		
Analysis Method	Prep Method	Matrix	Analyte			
8015 NM		Solid	Total TPH			
Total BTEX		Solid	Total BTFX			

## **Method Summary**

Client: Ensolum

Job ID: 890-3942-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

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: Redtail State Com 1H

Job ID: 890-3942-1

SDG: 03D2024104

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3942-1	SS05	Solid	01/23/23 11:30	01/24/23 08:44	0.5'

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Received by OCD: 5/1/2023 2:38:05 PM

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



**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:	

Page

www.xenco.com

Project Manager:	ger: Josh Adams Bill to: (if different)						Kalei.	Jennin	gs					Work Order Comments									
Company Name:	Ensol	um, LLC				Compan	y Name	:	Ensol	um, LL	.C					Program: UST/PST PRP Brownfields RRC Superfund							
Address:	601 N	Marienfe	ld St S	uite 400		Address	:		601 N Marienfeld St Suite 400  Midland TX 79701  State of Project:  Reporting: Level III  PST/UST TRRP Level III PST/UST TRRP Level III PST/UST TRRP Level III PST/UST TRRP Level III PST/UST PRRP PRRP PRRP PRRP PRRP PRRP PRRP PR														
City, State ZIP:	Midla	nd, TX 79	701			City, Sta	ite ZIP:		Midland, TX 79701												RP ∐ Level IV ∐		
Phone:	303-5	17-8437			Email	kjennin	gs@en	solum	.com,	com, jadams@ensolum.com				Deliv	erable	s: EDC		Α	DaPT	Γ□ Oth	er:		
Project Name:		Redtail S	tate Co	m 1H	Tur	n Around							Α	NALY:	SIS RE	QUES	r					Presen	vative Codes
Project Number:		03D2	202410	4	✓ Routine	☐ Rush	h	Pres. Code														None: NO	DI Water: H <sub>2</sub> O
Project Location:		32.3398	, -103.6	388	Due Date:																	Cool: Cool	MeOH: Me
Sampler's Name:		Julianna	Falcor	nata	TAT starts th								11	11011001 1101 1201 1401		MI 1011 11010 11110 11111 11111 11111 11111 11111 11111 1111				1		HCL: HC	HNO <sub>3</sub> : HN
PO#;					the lab, if re		4:30pm	50				- 11									H <sub>2</sub> S0 <sub>4</sub> : H <sub>2</sub> NaOH: Na		
SAMPLE RECE	PT	Temp B	Blank:	Yes No	Wet Ice:	(Yas	No	metr	300.0)				- 11									H₃PO₄: HP	210
Samples Received I	ntact:	Yes	No	Thermomet		Thru	-007	arai	90				111									NaHSO₄: NAI	
Cooler Custody Sea	eals: Yes No N/A remperatur		Factor:	-0	.2	۵	(EPA:				89	0-3942	2 Chair	of Cus	ody					Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : Nas			
Sample Custody Sea			re Reading:	4	+3		S		1	1 1					-		Zn Acetate+N						
Total Containers:			remperature:	1	1:0		SIDE	015)	802									1		NaOH+Ascorbic Acid: SAPC			
Sample Ide	ntificati	ion	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	CHLORIDES	TPH (8015)	BTEX (8021											Sample	e Comments
5505			S	01/23/23	1130	.5'	C	1	1	V	V							ļ.,				nnma	2272 ANIC
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					<u> </u>																		
Total 200.7 / 6		200.8 / 6			8RCRA 13														Se .	Ag SiC Ha: 16	) <sub>2</sub> Na 631 /	a Sr TI Sn 245.1 / 7470	U V ZN 1 / 7471
Circle Method(s) a	nd Me	tai(s) to b	e analy	zed	ICLP / S	OFLF 60	IU: OK	CKA	30 P	2 Dg	De (	ou or	JU UU	רטו/	ALL IAIC	141 36	- 79			19. 10	55.7	2 .0.11 1 110	

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
1	Vall Marte	Angrala Stut	1-24.23 084	4		
3	Mayriw C			4		
5				6		Revised Date: 08/25/2020 Rev. 2020

## **Login Sample Receipt Checklist**

 Client: Ensolum
 Job Number: 890-3942-1

 SDG Number: 03D2024104

Login Number: 3942 List Source: Eurofins Carlsbad

List Number: 1

Creator: Stutzman, Amanda

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

## **Login Sample Receipt Checklist**

Job Number: 890-3942-1 SDG Number: 03D2024104

Login Number: 3942
List Source: Eurofins Midland
List Number: 2
List Creation: 01/25/23 12:13 PM

Creator: Rodriguez, Leticia

Client: Ensolum

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	N/A	

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<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Josh Adams Ensolum 601 N. Marienfeld St. Suite 400 Midland, Texas 79701

Generated 2/5/2023 9:38:32 AM

# **JOB DESCRIPTION**

Redtail State Com 1H SDG NUMBER 03D2024104

## **JOB NUMBER**

890-3943-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

# **Eurofins Carlsbad**

## **Job Notes**

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

## **Authorization**

Generated 2/5/2023 9:38:32 AM

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

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Client: Ensolum

Project/Site: Redtail State Com 1H

Laboratory Job ID: 890-3943-1

SDG: 03D2024104

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## **Definitions/Glossary**

Job ID: 890-3943-1 Client: Ensolum Project/Site: Redtail State Com 1H

SDG: 03D2024104

**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** 

F2 MS/MSD RPD exceeds control limits

U Indicates the analyte was analyzed for but not detected.

**HPLC/IC** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

**Glossary** 

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" Minimum Detectable Activity (Radiochemistry) MDA

MDC Minimum Detectable Concentration (Radiochemistry) MDL Method Detection Limit

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

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)

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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

**TNTC** Too Numerous To Count

### **Case Narrative**

Job ID: 890-3943-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

Job ID: 890-3943-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3943-1

#### Receipt

The sample was received on 1/24/2023 8:44 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C

#### **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: SS06 (890-3943-1).

#### **GC VOA**

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

#### GC Semi VOA

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-45337 and analytical batch 880-45443 was 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.

#### HPLC/IC

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

Matrix: Solid

Lab Sample ID: 890-3943-1

# **Client Sample Results**

Client: Ensolum Job ID: 890-3943-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: SS06

Date Collected: 01/23/23 11:35 Date Received: 01/24/23 08:44

Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/04/23 10:30	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/04/23 10:30	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/04/23 10:30	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		02/03/23 09:22	02/04/23 10:30	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/04/23 10:30	,
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		02/03/23 09:22	02/04/23 10:30	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	89		70 - 130			02/03/23 09:22	02/04/23 10:30	1
1,4-Difluorobenzene (Surr)	88		70 - 130			02/03/23 09:22	02/04/23 10:30	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			02/05/23 10:21	1
	ei Kanue Organ	ICS IDRUI II	(a(c)					
		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte		Qualifier	•	Unit mg/Kg	<u>D</u>	Prepared	Analyzed 02/05/23 09:31	
Analyte Total TPH	Result   <49.9	Qualifier U	<b>RL</b> 49.9		<u>D</u>	Prepared		
Analyte Total TPH Method: SW846 8015B NM - Die:	Result <49.9 sel Range Orga	Qualifier U	<b>RL</b> 49.9		<u>D</u>	Prepared Prepared		1
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	Result <49.9 sel Range Orga	Qualifier U unics (DRO) Qualifier	RL 49.9 (GC)	mg/Kg			02/05/23 09:31	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <49.9  sel Range Orga Result	Qualifier U unics (DRO) Qualifier U	RL 49.9 (GC)	mg/Kg		Prepared	02/05/23 09:31  Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result <49.9  sel Range Orga Result <49.9	Qualifier U unics (DRO) Qualifier U	RL 49.9  (GC)  RL 49.9	mg/Kg  Unit  mg/Kg		Prepared 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 14:52	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result	Qualifier U unics (DRO) Qualifier U U	RL 49.9  (GC)  RL 49.9  49.9	mg/Kg  Unit  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 14:52 02/04/23 14:52	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate	Result	Qualifier U unics (DRO) Qualifier U U	RL 49.9 (GC) RL 49.9 49.9	mg/Kg  Unit  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 14:52 02/04/23 14:52	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result	Qualifier U unics (DRO) Qualifier U U	RL 49.9  (GC)  RL 49.9  49.9  49.9  Limits	mg/Kg  Unit  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23 Prepared	02/05/23 09:31  Analyzed 02/04/23 14:52 02/04/23 14:52 02/04/23 14:52  Analyzed	Dil Fac
Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result   <49.9	Qualifier U  Inics (DRO) Qualifier U  U  Qualifier	RL 49.9 (GC) RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23  Prepared 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 14:52 02/04/23 14:52  02/04/23 14:52  Analyzed 02/04/23 14:52	Dil Fac
Method: SW846 8015 NM - Diese Analyte Total TPH  Method: SW846 8015B NM - Diese Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl  Method: EPA 300.0 - Anions, Ion Analyte	Result	Qualifier U  Inics (DRO) Qualifier U  U  Qualifier	RL 49.9 (GC) RL 49.9 49.9 49.9 Limits 70 - 130 70 - 130	mg/Kg  Unit  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23  Prepared 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 14:52 02/04/23 14:52  02/04/23 14:52  Analyzed 02/04/23 14:52	Dil Fac

## **Surrogate Summary**

Client: Ensolum Job ID: 890-3943-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Rec
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3940-A-1-C MS	Matrix Spike	106	107	
890-3940-A-1-D MSD	Matrix Spike Duplicate	90	106	
890-3943-1	SS06	89	88	
LCS 880-45336/1-A	Lab Control Sample	86	104	
LCSD 880-45336/2-A	Lab Control Sample Dup	95	106	
MB 880-45336/5-A	Method Blank	64 S1-	95	
Surrogate Legend				
BFB = 4-Bromofluorobenz	zene (Surr)			
DFBZ = 1,4-Difluorobenze	ene (Surr)			

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

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3923-A-3-E MS	Matrix Spike	107	86	
890-3923-A-3-F MSD	Matrix Spike Duplicate	123	98	
890-3943-1	SS06	79	73	
LCS 880-45337/2-A	Lab Control Sample	107	92	
LCSD 880-45337/3-A	Lab Control Sample Dup	125	107	
MB 880-45337/1-A	Method Blank	112	110	
Surrogate Legend				

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Project/Site: Redtail State Com 1H

Client: Ensolum

Job ID: 890-3943-1

SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-45336/5-A

Lab Sample ID: LCS 880-45336/1-A

**Matrix: Solid** Analysis Batch: 45307

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 45336

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		02/03/23 09:22	02/03/23 12:40	1
I and the second								

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	64	S1-	70 - 130	 02/03/23 09:22	02/03/23 12:40	1
1,4-Difluorobenzene (Surr)	95		70 - 130	02/03/23 09:22	02/03/23 12:40	1

**Client Sample ID: Lab Control Sample** 

70 - 130

70 - 130

98

Prep Type: Total/NA

Prep Batch: 45336

Analysis Batch: 45307 LCS LCS Spike Analyte Added Result Qualifier Unit %Rec Limits Benzene 0.100 0.1031 mg/Kg 103 70 - 130 Toluene 0.100 0.09751 mg/Kg 98 70 - 130 0.100 97 Ethylbenzene 0.09723 mg/Kg 70 - 130

0.1957

0.09666

mg/Kg

mg/Kg

0.200

0.100

o-Xylene LCS LCS

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-45336/2-A

**Matrix: Solid** 

m-Xylene & p-Xylene

**Matrix: Solid** 

Analysis Batch: 45307

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

Prep Type: Total/NA

Prep Batch: 45336

	Spike	LCSD	LCSD				%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.1071		mg/Kg		107	70 - 130	4	35	
Toluene	0.100	0.1057		mg/Kg		106	70 - 130	8	35	
Ethylbenzene	0.100	0.1042		mg/Kg		104	70 - 130	7	35	
m-Xylene & p-Xylene	0.200	0.2107		mg/Kg		105	70 - 130	7	35	
o-Xylene	0.100	0.1090		mg/Kg		109	70 - 130	12	35	

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		70 - 130
1.4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: 890-3940-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 45307

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

Prep Batch: 45336

_	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00201	U	0.0998	0.1231		mg/Kg		123	70 - 130	
Toluene	<0.00201	U	0.0998	0.1255		mg/Kg		126	70 - 130	

Prep Batch: 45336

Prep Type: Total/NA

Prep Batch: 45337

## QC Sample Results

Job ID: 890-3943-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Lab Sample ID: 890-3940-A-1-C MS Client Sample ID: Matrix Spike Prep Type: Total/NA

**Matrix: Solid** Analysis Batch: 45307

Sample Sample Spike MS MS %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits <0.00201 U 0.0998 0.1243 125 70 - 130 Ethylbenzene mg/Kg m-Xylene & p-Xylene < 0.00402 U 0.200 0.2459 mg/Kg 123 70 - 130 <0.00201 U 0.0998 0.1246 70 - 130 o-Xylene mg/Kg 125

MS MS Surrogate %Recovery Qualifier Limits 70 - 130 4-Bromofluorobenzene (Surr) 106 1,4-Difluorobenzene (Surr) 107 70 - 130

Lab Sample ID: 890-3940-A-1-D MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Analysis Batch: 45307									Prep	Batch:	45336
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00201	U	0.100	0.1021		mg/Kg		102	70 - 130	19	35
Toluene	<0.00201	U	0.100	0.09949		mg/Kg		99	70 - 130	23	35
Ethylbenzene	<0.00201	U	0.100	0.09971		mg/Kg		100	70 - 130	22	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1993		mg/Kg		99	70 - 130	21	35
o-Xylene	<0.00201	U	0.100	0.09513		mg/Kg		95	70 - 130	27	35

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

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

Lab Sample ID: MB 880-45337/1-A Client Sample ID: Method Blank **Matrix: Solid** Prep Type: Total/NA

Analysis Batch: 45443

мв мв

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1
C10-C28)								
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1

MB MB %Recovery Dil Fac Qualifier Limits Prepared Analyzed Surrogate 1-Chlorooctane 112 70 - 130 02/03/23 09:23 02/04/23 08:56 110 70 - 130 02/03/23 09:23 02/04/23 08:56 o-Terphenyl

Lab Sample ID: LCS 880-45337/2-A Client Sample ID: Lab Control Sample

Analysis Batch: 45443

**Matrix: Solid** 

LCS LCS %Rec Spike Analyte Added Result Qualifier Unit %Rec Limits 999 90 903 4 70 \_ 130 Gasoline Range Organics mg/Kg (GRO)-C6-C10

878.2

mg/Kg

88

70 - 130

999

Diesel Range Organics (Over C10-C28)

Prep Type: Total/NA

Prep Batch: 45337

Client: Ensolum Job ID: 890-3943-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

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

Lab Sample ID: LCS 880-45337/2-A

**Matrix: Solid** 

Analysis Batch: 45443

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 45337

LCS LCS

%Recovery Qualifier Surrogate Limits 1-Chlorooctane 107 70 - 130 o-Terphenyl 92 70 - 130

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 45337

**Matrix: Solid** 

Lab Sample ID: LCSD 880-45337/3-A

Analysis Batch: 45443

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	999	910.9		mg/Kg		91	70 - 130	1	20
(GRO)-C6-C10									
Diesel Range Organics (Over	999	1007		mg/Kg		101	70 - 130	14	20
C10-C28)									

LCSD LCSD

Sample Sample

Sample Sample

<50.0 U F2

<50.0 U

Result Qualifier

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	125		70 - 130
o-Terphenyl	107		70 - 130

Lab Sample ID: 890-3923-A-3-E MS Client Sample ID: Matrix Spike

Me Me

MSD MSD

1297 F2

1003

Result Qualifier

Unit

mg/Kg

mg/Kg

**Matrix: Solid** 

**Analysis Batch: 45443** 

Prep Type: Total/NA

Prep Batch: 45337

	Campic	Campic	Opine	1110	1110				/01 <b>1CC</b>		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F2	1000	862.5		mg/Kg		84	70 - 130		
Diesel Range Organics (Over	<50.0	U	1000	883.8		mg/Kg		87	70 - 130		

Snike

C10-C28)

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	107		70 - 130
o-Terphenyl	86		70 - 130

Lab Sample ID: 890-3923-A-3-F MSD Client Sample ID: Matrix Spike Duplicate

Spike

Added

998

998

**Matrix: Solid** 

(GRO)-C6-C10

Analyte

Analysis Batch: 45443

Gasoline Range Organics

Diesel Range Organics (Over

Prep Type: Total/NA Prep Batch: 45337

70 - 130

RPD %Rec %Rec Limits **RPD** Limit 127 20 70 - 130 40

13

20

C10-C28)			
	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	123		70 - 130
o-Terphenyl	98		70 - 130

## QC Sample Results

Client: Ensolum Job ID: 890-3943-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Prep Type: Soluble** 

Client Sample ID: Matrix Spike

Client Sample ID: Matrix Spike Duplicate

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-44969/1-A

**Matrix: Solid** 

Analysis Batch: 45039

мв мв

Dil Fac Analyte Result Qualifier RL Unit D Prepared Analyzed Chloride <5.00 U 5.00 mg/Kg 01/30/23 09:11

Lab Sample ID: LCS 880-44969/2-A

**Matrix: Solid** 

**Analysis Batch: 45039** 

Spike LCS LCS %Rec Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 255.4 mg/Kg 102 90 - 110

Lab Sample ID: LCSD 880-44969/3-A

**Matrix: Solid** 

Analysis Batch: 45039

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 253.0 mg/Kg 101 90 - 110

Lab Sample ID: 890-3940-A-7-B MS

**Matrix: Solid** 

Analysis Batch: 45039

MS MS Sample Sample Spike %Rec Analyte Qualifier Added %Rec Result Result Qualifier Unit Limits Chloride 3430 2480 5784 90 - 110 mg/Kg

Lab Sample ID: 890-3940-A-7-C MSD

**Matrix: Solid** 

Analysis Batch: 45039

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit 2480 Chloride 3430 5766 mg/Kg 94 90 - 110 0 20

**Eurofins Carlsbad** 

Released to Imaging: 7/21/2023 2:39:28 PM

## **QC Association Summary**

Client: Ensolum Job ID: 890-3943-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

**GC VOA** 

Analysis Batch: 45307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3943-1	SS06	Total/NA	Solid	8021B	45336
MB 880-45336/5-A	Method Blank	Total/NA	Solid	8021B	45336
LCS 880-45336/1-A	Lab Control Sample	Total/NA	Solid	8021B	45336
LCSD 880-45336/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	45336
890-3940-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	45336
890-3940-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	45336

Prep Batch: 45336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3943-1	SS06	Total/NA	Solid	5035	
MB 880-45336/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-45336/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-45336/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3940-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3940-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 45528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3943-1	SS06	Total/NA	Solid	Total BTEX	

**GC Semi VOA** 

Prep Batch: 45337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3943-1	SS06	Total/NA	Solid	8015NM Prep	
MB 880-45337/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-45337/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-45337/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3923-A-3-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3923-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 45443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3943-1	SS06	Total/NA	Solid	8015B NM	45337
MB 880-45337/1-A	Method Blank	Total/NA	Solid	8015B NM	45337
LCS 880-45337/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	45337
LCSD 880-45337/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	45337
890-3923-A-3-E MS	Matrix Spike	Total/NA	Solid	8015B NM	45337
890-3923-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	45337

Analysis Batch: 45498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3943-1	SS06	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 44969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3943-1	SS06	Soluble	Solid	DI Leach	
MB 880-44969/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-44969/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-44969/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

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Page 12 of 20

# **QC Association Summary**

Client: Ensolum Job ID: 890-3943-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

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

## Leach Batch: 44969 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3940-A-7-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3940-A-7-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

#### **Analysis Batch: 45039**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3943-1	SS06	Soluble	Solid	300.0	44969
MB 880-44969/1-A	Method Blank	Soluble	Solid	300.0	44969
LCS 880-44969/2-A	Lab Control Sample	Soluble	Solid	300.0	44969
LCSD 880-44969/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	44969
890-3940-A-7-B MS	Matrix Spike	Soluble	Solid	300.0	44969
890-3940-A-7-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	44969

## **Lab Chronicle**

Client: Ensolum Job ID: 890-3943-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: SS06** Lab Sample ID: 890-3943-1

Matrix: Solid

Date Collected: 01/23/23 11:35 Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	45336	02/03/23 09:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45307	02/04/23 10:30	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45528	02/05/23 10:21	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45498	02/05/23 09:31	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	45337	02/03/23 09:23	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45443	02/04/23 14:52	AJ	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	44969	01/29/23 17:44	KS	EET MID
Soluble	Analysis	300.0		1			45039	01/30/23 11:35	CH	EET MID

#### **Laboratory References:**

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

# **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3943-1

Project/Site: Redtail State Com 1H SDG: 03D2024104

## **Laboratory: Eurofins Midland**

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

Authority	Pr	rogram	Identification Number	Expiration Date	
Texas	NI	ELAP	T104704400-22-25	06-30-23	
The following analytes the agency does not of	. ,	ut the laboratory is not certifi	ied by the governing authority. This list ma	ay include analytes fo	
Analysis Method	Prep Method	Matrix	Analyte		
8015 NM		Solid	Total TPH		
Total BTEX		Solid	Total BTEX		

## **Method Summary**

Client: Ensolum Job ID: 890-3943-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Method **Method Description** Protocol Laboratory 8021B Volatile Organic Compounds (GC) SW846 EET MID **Total BTEX Calculation** TAL SOP Total BTEX 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 **EET MID** Closed System Purge and Trap SW846 8015NM Prep Microextraction SW846 EET MID

#### **Protocol References:**

DI Leach

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

**Deionized Water Leaching Procedure** 

#### Laboratory References:

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

**Eurofins Carlsbad** 

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**EET MID** 

ASTM

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## **Sample Summary**

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 890-3943-1

SDG: 03D2024104

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3943-1	SS06	Solid	01/23/23 11:35	01/24/23 08:44	0.5'

Received by OCD: 5/1/2023 2:38:05 PM

2/5/2023

# eurofins

**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 N	lo:	

www.xenco.com

Project Manager:	Josh Adams				Bill to: (if	f different)		Kalei	Kalei Jennings					Work Order Comments									
Company Name:	Ensolum, LL	3			Compan	y Name:		Ensol	um, LL	.C						Prog	ram: t	JST/PS	T 🗌 F	PRP	Brow	vnfields 🗌 RRC	Superfund
Address:	601 N Marier	feld St S	uite 400		Address	:		601 N	Marie	nfeld S	St Suite	400			1	State of Project:   Reporting: Level II				_			
City, State ZIP:	Midland, TX	79701			City, Sta	ite ZIP:		Midla	nd, TX	79701				_									
Phone:	303-517-843	7		Email:	kjenning	gs@ens	olum	.com,	jadan	ns@e	nsolun	n.com				Deliv	erable	s: EDI			ADaP	Othe	r:
Project Name:	Redtail	State Co	om 1H	Turr	Around								ANA	LYSIS	REQ	UEST						Preserv	ative Codes
Project Number:		D202410		☑ Routine	Rush		Pres. Code															None: NO	DI Water: H <sub>2</sub> O
Project Location: Sampler's Name: PO #:		98, -103. na Falco		Due Date: TAT starts the		eived by	Ę.															Cool: Cool HCL: HC H <sub>2</sub> S0 <sub>4</sub> : H <sub>2</sub>	MeOH: Me HNO <sub>3</sub> : HN NaOH: Na
SAMPLE RECE Samples Received Cooler Custody Sea Sample Custody Sea Total Containers:	Intact: Yes	No N/A	Thermomer Correction Temperatur Corrected	Factor:	TON D		Paramete	DES (EPA: 300.0)	15)	1021		890	0-3943	3 Chain	hain of Custody		H <sub>3</sub> PO <sub>4</sub> : HP NaHSO <sub>4</sub> : NABIS Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub> Zn Acetate+NaOH: Z NaOH+Ascorbic Acid		O₃ iOH: Zn				
Sample Ide	ntification	Matrix	Date Sampled	Time Sampled	Depth	1	# of Cont	CHLORIDES	TPH (8015)	BTEX (8021												Sample	Comments
506		5	01/23/23	1/35	,5'	C.		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	V	J												nAPP77	33234048
Total 200.7 / 6				BRCRA 13I															Se			Na Sr Ti Sn U	

Circle Method(s) and Metal(s) to be analyzed 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
· allowater f	manda Steet	1-24-23 De	2/4		
3/			4		
5			6		Revised Date: 08/25/2020 Rev. 2020

## **Login Sample Receipt Checklist**

 Client: Ensolum
 Job Number: 890-3943-1

 SDG Number: 03D2024104

Login Number: 3943 List Source: Eurofins Carlsbad

List Number: 1

Creator: Stutzman, Amanda

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

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## **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3943-1 SDG Number: 03D2024104

Login Number: 3943
List Source: Eurofins Midland
List Number: 2
List Creation: 01/25/23 12:13 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	N/A	

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<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Josh Adams Ensolum 601 N. Marienfeld St. Suite 400 Midland, Texas 79701

Generated 2/5/2023 9:34:13 AM

# **JOB DESCRIPTION**

Redtail State Com 1H SDG NUMBER 03D2024104

# **JOB NUMBER**

890-3944-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220



# **Eurofins Carlsbad**

## **Job Notes**

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

# **Authorization**

Generated 2/5/2023 9:34:13 AM

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

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Client: Ensolum

Project/Site: Redtail State Com 1H

Laboratory Job ID: 890-3944-1

SDG: 03D2024104

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## **Definitions/Glossary**

Job ID: 890-3944-1 Client: Ensolum Project/Site: Redtail State Com 1H

SDG: 03D2024104

#### **Qualifiers**

**GC VOA** Qualifier

**Qualifier Description** F1 MS and/or MSD recovery exceeds control limits. F2 MS/MSD RPD exceeds control limits

S1-Surrogate recovery exceeds control limits, low biased.

Indicates the analyte was analyzed for but not detected.

**GC Semi VOA** 

Qualifier **Qualifier Description** F2 MS/MSD RPD exceeds control limits

Indicates the analyte was analyzed for but not detected.

HPLC/IC

U

Qualifier **Qualifier Description** 

U Indicates the analyte was analyzed for but not detected.

### **Glossary**

Abbreviation These commonly used abbreviations may or may not be present in this report. ¤ Listed under the "D" column to designate that the result is reported on a dry weight basis %R Percent Recovery CFL Contains Free Liquid CFU Colony Forming Unit Contains No Free Liquid **CNF** Duplicate Error Ratio (normalized absolute difference) DER

Dil Fac **Dilution Factor** 

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) Limit of Quantitation (DoD/DOE) LOQ

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

Method Detection Limit MDL

ML Minimum Level (Dioxin) MPN Most Probable Number MOI Method Quantitation Limit

NC Not Calculated

Not Detected at the reporting limit (or MDL or EDL if shown) ND

NEG Negative / Absent POS Positive / Present

**Practical Quantitation Limit PQL** 

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

Relative Error Ratio (Radiochemistry) **RER** 

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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

**TNTC** Too Numerous To Count

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### Case Narrative

Client: Ensolum

Job ID: 890-3944-1 Project/Site: Redtail State Com 1H SDG: 03D2024104

Job ID: 890-3944-1

**Laboratory: Eurofins Carlsbad** 

Narrative

Job Narrative 890-3944-1

#### Receipt

The sample was received on 1/24/2023 8:44 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C

## **Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: SS07 (890-3944-1).

### **GC VOA**

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-45339 and analytical batch 880-45309 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: SS07 (890-3944-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

#### GC Semi VOA

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-45337 and analytical batch 880-45443 was 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.

#### HPLC/IC

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

Matrix: Solid

Lab Sample ID: 890-3944-1

## **Client Sample Results**

Client: Ensolum Job ID: 890-3944-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Client Sample ID: SS07

Date Collected: 01/23/23 11:40 Date Received: 01/24/23 08:44

Sample Depth: 0.5'

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:50	02/03/23 12:46	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:50	02/03/23 12:46	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:50	02/03/23 12:46	1
m-Xylene & p-Xylene	<0.00399	U F1 F2	0.00399	mg/Kg		02/03/23 09:50	02/03/23 12:46	1
o-Xylene	<0.00200	U F1 F2	0.00200	mg/Kg		02/03/23 09:50	02/03/23 12:46	1
Xylenes, Total	<0.00399	U F1 F2	0.00399	mg/Kg		02/03/23 09:50	02/03/23 12:46	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	68	S1-	70 - 130			02/03/23 09:50	02/03/23 12:46	1
1,4-Difluorobenzene (Surr)	80		70 - 130			02/03/23 09:50	02/03/23 12:46	1
Method: TAL SOP Total BTEX - 1	Total BTEX Cald	culation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Method: SW846 8015 NM - Diese	el Range Organ	ics (DRO) (	GC)					
	•		•					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9		49.9	Unit mg/Kg	D	Prepared	Analyzed 02/05/23 09:31	
Total TPH	<49.9	U	49.9		<u>D</u>	Prepared		
Total TPH  Method: SW846 8015B NM - Dies	<49.9	U	49.9		<u>D</u>	Prepared Prepared		1
Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics	<49.9	nics (DRO) Qualifier	49.9 (GC)	mg/Kg		<u> </u>	02/05/23 09:31	1 Dil Fac
Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	<49.9 sel Range Orga Result	nics (DRO) Qualifier	49.9 (GC)	mg/Kg		Prepared	02/05/23 09:31  Analyzed	Dil Fac
	<49.9 sel Range Orga Result <49.9	Unics (DRO) Qualifier U	(GC) RL 49.9	mg/Kg  Unit  mg/Kg		Prepared 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 15:13	Dil Fac
Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	<49.9 sel Range Orga Result <49.9 <49.9	Unics (DRO) Qualifier U	(GC) RL 49.9 49.9	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 15:13 02/04/23 15:13	1 Dil Fac
Total TPH  Method: SW846 8015B NM - Dies Analyte  Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	<49.9 sel Range Orga Result <49.9 <49.9 <49.9	Unics (DRO) Qualifier U	(GC) RL 49.9 49.9 49.9	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 15:13 02/04/23 15:13	Dil Face 1 1 1 Dil Face
Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	<49.9 sel Range Orga Result <49.9 <49.9 <49.9 %Recovery	Unics (DRO) Qualifier U	49.9  (GC)  RL 49.9  49.9  49.9  Limits	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23 Prepared	02/05/23 09:31  Analyzed 02/04/23 15:13 02/04/23 15:13 02/04/23 15:13 Analyzed	Dil Fac
Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	<49.9 sel Range Orga Result <49.9 <49.9 <49.9  **Recovery 95 <85	U nics (DRO) Qualifier U U Qualifier	49.9  (GC)  RL 49.9  49.9  49.9  Limits  70 - 130  70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23  Prepared 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 15:13  02/04/23 15:13  Analyzed 02/04/23 15:13	Dil Fac
Total TPH  Method: SW846 8015B NM - Dies Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	\$\text{sel Range Orga Result} \\	U nics (DRO) Qualifier U U Qualifier	49.9  (GC)  RL 49.9  49.9  49.9  Limits  70 - 130  70 - 130	mg/Kg  Unit  mg/Kg  mg/Kg		Prepared 02/03/23 09:23 02/03/23 09:23 02/03/23 09:23  Prepared 02/03/23 09:23	02/05/23 09:31  Analyzed 02/04/23 15:13  02/04/23 15:13  Analyzed 02/04/23 15:13	

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## **Surrogate Summary**

Client: Ensolum Job ID: 890-3944-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate
		BFB1	DFBZ1	_
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3944-1	SS07	68 S1-	80	
890-3944-1 MS	SS07	64 S1-	88	
890-3944-1 MSD	SS07	119	100	
LCS 880-45339/1-A	Lab Control Sample	98	95	
LCSD 880-45339/2-A	Lab Control Sample Dup	104	95	
MB 880-45339/5-A	Method Blank	75	93	
Surrogate Legend				
BFB = 4-Bromofluorobenz	zene (Surr)			
DFBZ = 1,4-Difluorobenze	ene (Surr)			

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

Matrix: Solid Prep Type: Total/NA

		4004	070114	Percent Surrogate Recovery (Acceptance Limits)
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-3923-A-3-E MS	Matrix Spike	107	86	
890-3923-A-3-F MSD	Matrix Spike Duplicate	123	98	
890-3944-1	SS07	95	85	
LCS 880-45337/2-A	Lab Control Sample	107	92	
LCSD 880-45337/3-A	Lab Control Sample Dup	125	107	
MB 880-45337/1-A	Method Blank	112	110	

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

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Project/Site: Redtail State Com 1H

Client: Ensolum

Job ID: 890-3944-1 SDG: 03D2024104

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-45339/5-A

Lab Sample ID: LCS 880-45339/1-A

Matrix: Solid

**Matrix: Solid** 

Analysis Batch: 45309

Analysis Batch: 45309

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 45339

	INID	IVID						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:50	02/03/23 12:24	1
Toluene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:50	02/03/23 12:24	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:50	02/03/23 12:24	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		02/03/23 09:50	02/03/23 12:24	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		02/03/23 09:50	02/03/23 12:24	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		02/03/23 09:50	02/03/23 12:24	1

MB MB

MR MR

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		70 - 130	02/03/23 09:50	02/03/23 12:24	1
1,4-Difluorobenzene (Surr)	93		70 - 130	02/03/23 09:50	02/03/23 12:24	1

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 45339

LCS LCS Spike Analyte Added Result Qualifier Unit %Rec Limits Benzene 0.100 0.1035 mg/Kg 103 70 - 130 Toluene 0.100 0.09635 mg/Kg 96 70 - 130 0.100 0.09708 Ethylbenzene mg/Kg 97 70 - 130 0.200 0.2017 101 70 - 130 m-Xylene & p-Xylene mg/Kg 0.100 0.1095 70 - 130 o-Xylene mg/Kg 109

LCS LCS

Surrogate  4-Bromofluorobenzene (Surr)	%Recovery 0	Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

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

Matrix: Solid

Analysis Batch: 45309

Lab Sample ID: LCSD 880-45339/2-A

Prep Type: Total/NA Prep Batch: 45339

	Spike	LCSD	LCSD				%Rec		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.1043		mg/Kg		104	70 - 130	1	35	
Toluene	0.100	0.09819		mg/Kg		98	70 - 130	2	35	
Ethylbenzene	0.100	0.09855		mg/Kg		99	70 - 130	2	35	
m-Xylene & p-Xylene	0.200	0.2080		mg/Kg		104	70 - 130	3	35	
o-Xylene	0.100	0.1070		mg/Kg		107	70 - 130	2	35	

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1.4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: 890-3944-1 MS

Matrix: Solid

Analysis Batch: 45309

Client Sample ID: SS07
Prep Type: Total/NA

Prep Batch: 45339

-	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00200	U	0.0996	0.06961		mg/Kg		70	70 - 130	
Toluene	<0.00200	U	0.0996	0.08014		mg/Kg		80	70 - 130	

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## QC Sample Results

Job ID: 890-3944-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: 03D2024104

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

Lab Sample ID: 890-3944-1 MS **Matrix: Solid** 

Lab Sample ID: 890-3944-1 MSD

**Matrix: Solid** 

Analysis Batch: 45309

Analysis Batch: 45309

**Client Sample ID: SS07** Prep Type: Total/NA

Prep Batch: 45339

Sample Sample Spike MS MS %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits D Ethylbenzene <0.00200 U 0.0996 0.07706 77 70 - 130 mg/Kg U F1 F2 m-Xylene & p-Xylene <0.00399 0.199 0.1174 F1 mg/Kg 59 70 - 130 0.0996 <0.00200 U F1 F2 0.05641 F1 56 70 - 130 o-Xylene mg/Kg

MS MS

Surrogate %Recovery Qualifier Limits 70 - 130 4-Bromofluorobenzene (Surr) 64 1,4-Difluorobenzene (Surr) 88 70 - 130

> Client Sample ID: SS07 Prep Type: Total/NA

Prep Batch: 45339

RPD

Sample Sample Spike MSD MSD Result Qualifier RPD Limit Analyte babbA Result Qualifier Unit %Rec Limits Benzene <0.00200 U 0.100 0.09353 mg/Kg 93 70 - 130 29 35 0.09465 Toluene <0.00200 0.100 mg/Kg 94 70 - 130 17 35 Ethylbenzene <0.00200 0.100 0.1052 105 70 - 130 31 35 U mg/Kg 0.200 m-Xylene & p-Xylene <0.00399 U F1 F2 0.2304 F2 mg/Kg 115 70 - 130 65 35 <0.00200 U F1 F2 0.100 0.1150 F2 70 - 130 68 o-Xylene mg/Kg 114

MSD MSD

Surrogate Qualifier Limits %Recovery 70 - 130 4-Bromofluorobenzene (Surr) 119 1,4-Difluorobenzene (Surr) 100 70 - 130

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

Lab Sample ID: MB 880-45337/1-A

**Matrix: Solid** 

Analysis Batch: 45443

Client Sample ID: Method Blank

Prep Type: Total/NA Prep Batch: 45337

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/03/23 09:23	02/04/23 08:56	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	l Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130	02/03/23 09	:23 02/04/23 08:56	1
o-Terphenyl	110		70 - 130	02/03/23 09	:23 02/04/23 08:56	1

Lab Sample ID: LCS 880-45337/2-A

**Matrix: Solid** 

Analysis Batch: 45443

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

Prep Batch: 45337

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	999	903.4		mg/Kg		90	70 - 130	
(GRO)-C6-C10								
Diesel Range Organics (Over	999	878.2		mg/Kg		88	70 - 130	
C10-C28)								

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Job ID: 890-3944-1 Client: Ensolum Project/Site: Redtail State Com 1H

SDG: 03D2024104

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

LCS LCS

Lab Sample ID: LCS 880-45337/2-A

**Matrix: Solid** 

Analysis Batch: 45443

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 45337

Surrogate

%Recovery Qualifier Limits 1-Chlorooctane 107 70 - 130 o-Terphenyl 92 70 - 130

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 45337

Lab Sample ID: LCSD 880-45337/3-A **Matrix: Solid** 

Lab Sample ID: 890-3923-A-3-E MS

Analysis Batch: 45443

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit 999 910.9 91 70 - 13020 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 999 1007 101 mg/Kg 70 - 13020 14 C10-C28)

LCSD LCSD

Surrogate %Recovery Qualifier Limits 125 70 - 130 1-Chlorooctane 107 70 - 130 o-Terphenyl

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 45337

Sample Sample MS MS Spike Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits Gasoline Range Organics <50.0 U F2 1000 862.5 mg/Kg 84 70 - 130 (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 1000 883.8 mg/Kg 87 70 - 130

C10-C28)

**Matrix: Solid** 

**Analysis Batch: 45443** 

MS MS

%Recovery Qualifier Surrogate Limits 70 - 130 1-Chlorooctane 107 o-Terphenyl 86 70 - 130

Lab Sample ID: 890-3923-A-3-F MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Analysis Batch: 45443

Prep Type: Total/NA

%Rec

Prep Batch: 45337

Sample Sample MSD MSD RPD Spike Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits **RPD** Limit U F2 998 1297 F2 Gasoline Range Organics <50.0 127 70 - 130 40 20 mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over <50.0 U 998 1003 mg/Kg 99 70 - 130 13 20

C10-C28)

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	123		70 - 130
o-Terphenyl	98		70 - 130

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Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Client Sample ID: SS07** 

Client Sample ID: SS07

**Prep Type: Soluble** 

**Prep Type: Soluble** 

Client: Ensolum Job ID: 890-3944-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-44970/1-A

Matrix: Solid

Analysis Batch: 45040

MB MB

 Analyte
 Result Chloride
 Qualifier
 RL VInit
 Unit Mg/Kg
 Prepared Dil Fac VINITATION VINITATI

Lab Sample ID: LCS 880-44970/2-A

Matrix: Solid

Analysis Batch: 45040

Spike LCS LCS %Rec Added %Rec Analyte Result Qualifier Unit D Limits Chloride 250 253.2 mg/Kg 101 90 - 110

Lab Sample ID: LCSD 880-44970/3-A

Matrix: Solid

Analysis Batch: 45040

LCSD LCSD %Rec RPD Spike Analyte Added Result Qualifier Unit %Rec Limits **RPD** Limit Chloride 250 253.6 90 - 110 mg/Kg 101

Lab Sample ID: 890-3944-1 MS

Matrix: Solid

Analysis Batch: 45040

MS MS Sample Sample Spike %Rec Analyte Result Qualifier Added Qualifier Unit %Rec Result Limits Chloride 5.79 253 235.7 91 90 - 110 mg/Kg

Lab Sample ID: 890-3944-1 MSD

Matrix: Solid

Analysis Batch: 45040

Sample Sample Spike MSD MSD %Rec RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 253 5.79 238.0 mg/Kg 92 90 - 110 20

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## **QC Association Summary**

Client: Ensolum Job ID: 890-3944-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

**GC VOA** 

Analysis Batch: 45309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3944-1	SS07	Total/NA	Solid	8021B	45339
MB 880-45339/5-A	Method Blank	Total/NA	Solid	8021B	45339
LCS 880-45339/1-A	Lab Control Sample	Total/NA	Solid	8021B	45339
LCSD 880-45339/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	45339
890-3944-1 MS	SS07	Total/NA	Solid	8021B	45339
890-3944-1 MSD	SS07	Total/NA	Solid	8021B	45339

Prep Batch: 45339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3944-1	SS07	Total/NA	Solid	5035	
MB 880-45339/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-45339/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-45339/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3944-1 MS	SS07	Total/NA	Solid	5035	
890-3944-1 MSD	SS07	Total/NA	Solid	5035	

Analysis Batch: 45464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3944-1	SS07	Total/NA	Solid	Total BTEX	

**GC Semi VOA** 

Prep Batch: 45337

Lab Sample ID	Client Sample ID	Prep Type	Matrix		rep Batch
890-3944-1	SS07	Total/NA	Solid	8015NM Prep	
MB 880-45337/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-45337/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-45337/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3923-A-3-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3923-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 45443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3944-1	SS07	Total/NA	Solid	8015B NM	45337
MB 880-45337/1-A	Method Blank	Total/NA	Solid	8015B NM	45337
LCS 880-45337/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	45337
LCSD 880-45337/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	45337
890-3923-A-3-E MS	Matrix Spike	Total/NA	Solid	8015B NM	45337
890-3923-A-3-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	45337

Analysis Batch: 45499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3944-1	SS07	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 44970

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3944-1	SS07	Soluble	Solid	DI Leach	<u> </u>
MB 880-44970/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-44970/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-44970/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

**Eurofins Carlsbad** 

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# **QC Association Summary**

Client: Ensolum Job ID: 890-3944-1 Project/Site: Redtail State Com 1H

SDG: 03D2024104

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

## Leach Batch: 44970 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3944-1 MS	SS07	Soluble	Solid	DI Leach	
890-3944-1 MSD	SS07	Soluble	Solid	DI Leach	

### **Analysis Batch: 45040**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3944-1	SS07	Soluble	Solid	300.0	44970
MB 880-44970/1-A	Method Blank	Soluble	Solid	300.0	44970
LCS 880-44970/2-A	Lab Control Sample	Soluble	Solid	300.0	44970
LCSD 880-44970/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	44970
890-3944-1 MS	SS07	Soluble	Solid	300.0	44970
890-3944-1 MSD	SS07	Soluble	Solid	300.0	44970

## **Lab Chronicle**

Client: Ensolum Job ID: 890-3944-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

**Client Sample ID: SS07** 

Lab Sample ID: 890-3944-1

Matrix: Solid

EET MID

EET MID

Date Collected: 01/23/23 11:40 Date Received: 01/24/23 08:44

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	45339	02/03/23 09:50	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	45309	02/03/23 12:46	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			45464	02/04/23 10:12	AJ	EET MID
Total/NA	Analysis	8015 NM		1			45499	02/05/23 09:31	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	45337	02/03/23 09:23	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	45443	02/04/23 15:13	AJ	EET MID

4.95 g

50 mL

44970

45040

01/29/23 17:45

01/30/23 09:35

KS

СН

### Laboratory References:

Soluble

Soluble

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

DI Leach

300.0

Leach

Analysis

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# **Accreditation/Certification Summary**

Client: Ensolum Job ID: 890-3944-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

# Laboratory: Eurofins Midland

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

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

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

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

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EET MID

**EET MID** 

SW846

ASTM

## **Method Summary**

Client: Ensolum Job ID: 890-3944-1
Project/Site: Redtail State Com 1H SDG: 03D2024104

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

#### **Protocol References:**

8015NM Prep

DI Leach

ASTM = ASTM International

EPA = US Environmental Protection Agency

Microextraction

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Deionized Water Leaching Procedure** 

### Laboratory References:

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

**Eurofins Carlsbad** 

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## Sample Summary

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 890-3944-1

SDG: 03D2024104

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3944-1	SS07	Solid	01/23/23 11:40	01/24/23 08:44	0.5'

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Received by OCD: 5/1/2023 2:38:05 PM

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 -	PE 4	0.	-		-

Josh Adams

Project Manager:

**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

Kalei Jennings

Bill to: (if different)

Work Order No:				,
www.xenco.com	Page _		_ of	1
Work Order Co	mments			
UST/PST PRPB Brownf	ields 🗌 R	RC 🗌	Supe	rfund [
Level II D Level III D PST/I	UST [] TI	RRP []	Lev	el IV

Company Name:	Enso	lum, LLC				Compan	y Name	):	Ensol	lum, LL	.C					- I	•			Ш	KP [	Brow	inelas   Ki	C ☐ Superio	ina 🖂
Address:	601 N	Marienf	eld St S	uite 400		Address	:		601 N	501 N Marienfeld St Suite 400 Midland, TX 79701					State of Project:										
City, State ZIP:	Midla	nd, TX 7	9701			City, Sta	te ZIP:		Midla						Reporting: Level II										
Phone:	303-5	517-8437			Email	kjennin	ings@ensolum.com, jadams@ensolum.com				Deliverables: EDD ADaPT Other:					her:									
Project Name:		Redtail S	State Co	m 1H	Turi	n Around								ANAL	YSIS F	REQL	EST						Prese	rvative Code	\$
Project Number:		03D	202410	4	✓ Routine	☐ Rush	1	Pres. Code															None: NO	DI Water	: H₂O
Project Location:		32.3398	8, -103.6	388	Due Date:											1							Cool: Cool	MeOH: M	
Sampler's Name: PO #:		Juliann	a Falcor	nata	TAT starts the			و								 	j 10 <b>11 11 1</b> 0	 	İ		l		HCL: HC H <sub>2</sub> S0 <sub>4</sub> : H <sub>2</sub>	HNO <sub>3</sub> : HI NaOH: N	
SAMPLE RECE Samples Received I Cooler Custody Sea	ntact:	Yes No	No	Yes No Thermomet Correction F		Toro-		Parameters	(EPA: 300.0)														H <sub>3</sub> PO <sub>4</sub> : HP NaHSO <sub>4</sub> : NA Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : Na		
Sample Custody Se Total Containers:	als:	Yes No	N/A	Temperatur Corrected T	e Reading: emperature:	4	2		RIDES	(8015)	(8021	-	890-3	944 C	hain of	f Custody		_	1	Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: S			С		
Sample Ide	ntificat	ion	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp		SHLO	F/	ВТЕХ												Samp	le Comment	s
5507			5	01 23 23	1140	25'	C		V	1	V												mpzi	337390'	18
																							la Sa Ti Sa		

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

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.

17	Relinquished by (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	allowate	Arrange State	1-24-23 DS4	4		
8				4		
5				6		
Ę_		<u> </u>				Revised Date: 08/25/2020 Rev.

## **Login Sample Receipt Checklist**

 Client: Ensolum
 Job Number: 890-3944-1

 SDG Number: 03D2024104

Login Number: 3944 List Source: Eurofins Carlsbad

List Number: 1

Creator: Stutzman, Amanda

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

## **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 890-3944-1

SDG Number: 03D2024104

List Source: Eurofins Midland List Creation: 01/25/23 12:13 PM

List Number: 2

Login Number: 3944

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	N/A	

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<6mm (1/4").

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Josh Adams Ensolum 601 N. Marienfeld St. Suite 400 Midland, Texas 79701

Generated 12/16/2022 8:53:15 AM

# **JOB DESCRIPTION**

Redtail State Com 1H SDG NUMBER Lea County NM

# **JOB NUMBER**

880-22248-1

Eurofins Midland 1211 W. Florida Ave Midland TX 79701

# **Eurofins Midland**

## **Job Notes**

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

# **Authorization**

Generated 12/16/2022 8:53:15 AM

Authorized for release by Jessica Kramer, Project Manager <u>Jessica.Kramer@et.eurofinsus.com</u> (432)704-5440 3:15 AM

13

Client: Ensolum
Project/Site: Redtail State Com 1H
Laboratory Job ID: 880-22248-1
SDG: Lea County NM

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## **Definitions/Glossary**

Job ID: 880-22248-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: Lea County NM

**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** 

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

**HPLC/IC** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

**Glossary** 

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

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery CFL Contains Free Liquid CFU Colony Forming Unit **CNF** Contains No Free Liquid

DFR Duplicate Error Ratio (normalized absolute difference)

Dil Fac **Dilution Factor** 

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

Decision Level Concentration (Radiochemistry) DLC

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

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

Method Detection Limit MDL Minimum Level (Dioxin) MPN Most Probable Number MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present PQL Practical Quantitation Limit

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

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

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

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

**TNTC** Too Numerous To Count

**Eurofins Midland** 

### **Case Narrative**

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 880-22248-1

SDG: Lea County NM

Job ID: 880-22248-1

**Laboratory: Eurofins Midland** 

Narrative

Job Narrative 880-22248-1

#### Receipt

The samples were received on 12/2/2022 1:44 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

#### **GC VOA**

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-41765 and analytical batch 880-41865 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: SS01 (880-22248-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-41765 and analytical batch 880-41865 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.

#### GC Semi VOA

Method 8015MOD NM: Surrogate recovery for the following samples were outside control limits: SS03 (880-22248-3) and (MB 880-41297/1-A). Evidence of matrix interferences is not obvious.

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

#### HPLC/IC

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

Sample Depth: 0.5'

## **Client Sample Results**

Client: Ensolum Job ID: 880-22248-1
Project/Site: Redtail State Com 1H SDG: Lea County NM

Client Sample ID: SS01

Lab Sample ID: 880-22248-1

Date Collected: 12/02/22 10:55
Date Received: 12/02/22 13:44
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		12/13/22 15:23	12/15/22 23:03	1
Toluene	<0.00198	U	0.00198	mg/Kg		12/13/22 15:23	12/15/22 23:03	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		12/13/22 15:23	12/15/22 23:03	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		12/13/22 15:23	12/15/22 23:03	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		12/13/22 15:23	12/15/22 23:03	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		12/13/22 15:23	12/15/22 23:03	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	66	S1-	70 - 130			12/13/22 15:23	12/15/22 23:03	1
1,4-Difluorobenzene (Surr)	68	S1-	70 - 130			12/13/22 15:23	12/15/22 23:03	1

Method: TAL SOP Total BTEX - To	otal BTEX Calc	ulation						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			12/16/22 09:39	1

Method: SW846 8015 NM - Diesel Ra	ange Organi	cs (DRO) (0	BC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			12/09/22 20:41	1

Method: SW846 8015B NM - Dies	sel Range Orga	ınics (DRO)	(GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/07/22 15:29	12/09/22 17:38	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/07/22 15:29	12/09/22 17:38	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/07/22 15:29	12/09/22 17:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130			12/07/22 15:29	12/09/22 17:38	1

Method: MCAWW 300.0 - Anions,	lon Chromatography - 9	Soluble					
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.8	5.01	mg/Kg			12/12/22 00:00	1

70 - 130

108

Client Sample ID: SS02 Lab Sample ID: 880-22248-2

Date Collected: 12/02/22 11:00 Date Received: 12/02/22 13:44

Sample Depth: 0.5'

o-Terphenyl

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/13/22 15:23	12/15/22 23:23	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/13/22 15:23	12/15/22 23:23	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/13/22 15:23	12/15/22 23:23	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		12/13/22 15:23	12/15/22 23:23	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/13/22 15:23	12/15/22 23:23	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		12/13/22 15:23	12/15/22 23:23	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130			12/13/22 15:23	12/15/22 23:23	

**Eurofins Midland** 

12/07/22 15:29

12/09/22 17:38

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**Matrix: Solid** 

## **Client Sample Results**

Client: Ensolum Job ID: 880-22248-1 Project/Site: Redtail State Com 1H SDG: Lea County NM

**Client Sample ID: SS02** Lab Sample ID: 880-22248-2 Matrix: Solid

Date Collected: 12/02/22 11:00 Date Received: 12/02/22 13:44

Sample Depth: 0.5'

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

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	99	70 - 130	12/13/22 15:23	12/15/22 23:23	1

Method: TAI	SOP Total BTEX - Total BTEX Calculation

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401 U	0.00401	mg/Kg			12/16/22 09:39	1

1		
Method: SW846 8015 NM -	Discal Dance Occasion	(DDO) (CC)
I WETDOO'S WAAH AU15 NIVI .	. Diesei Ranne Ornanics	(I)R()) ((=(.)

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	214	49.9	mg/Kg			12/09/22 20:41	1

Method: SW846 8015B NM - Diesel Range Or	ganics (DRO)	(GC)
Michiga Offoro Colod Min - Dieser Range Of	garries (Dito)	(00)

	•	, , ,	,					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/07/22 15:29	12/09/22 17:59	1
Diesel Range Organics (Over C10-C28)	71.4		49.9	mg/Kg		12/07/22 15:29	12/09/22 17:59	1
Oll Range Organics (Over C28-C36)	143		49.9	mg/Kg		12/07/22 15:29	12/09/22 17:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	111		70 - 130	12/07/22 15:2	9 12/09/22 17:59	1
o-Terphenyl	117		70 - 130	12/07/22 15:2	9 12/09/22 17:59	1

Analyte	Result	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.3	5.02	mg/Kg			12/12/22 00:06	1

**Client Sample ID: SS03** Lab Sample ID: 880-22248-3

Date Collected: 12/02/22 11:05 Date Received: 12/02/22 13:44

Sample Depth: 0.5'

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

Welliou. Syvo46 6021B - Voial	ne Organic Comp	iounus (GC	)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/13/22 15:23	12/15/22 23:44	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/13/22 15:23	12/15/22 23:44	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/13/22 15:23	12/15/22 23:44	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		12/13/22 15:23	12/15/22 23:44	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/13/22 15:23	12/15/22 23:44	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		12/13/22 15:23	12/15/22 23:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130			12/13/22 15:23	12/15/22 23:44	1
1,4-Difluorobenzene (Surr)	94		70 - 130			12/13/22 15:23	12/15/22 23:44	1

Mothod: T	AI SUD:	Total RTEY	- Total RT	FX Calculation

motilod: IAE OOI Total BTEA	Total BIEX Galoa	idilon					
Analyte	Result Q	Qualifier RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399 U	0 00399	ma/Ka			12/16/22 09:39	1

**Eurofins Midland** 

**Matrix: Solid** 

Matrix: Solid

Lab Sample ID: 880-22248-3

12/09/22 18:19

12/07/22 15:29

## **Client Sample Results**

Client: Ensolum Job ID: 880-22248-1
Project/Site: Redtail State Com 1H SDG: Lea County NM

**Client Sample ID: SS03** 

Date Collected: 12/02/22 11:05 Date Received: 12/02/22 13:44

Sample Depth: 0.5'

o-Terphenyl

Method: SW846 8015 NM - Diese	l Range Organ	ics (DRO) (	GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			12/09/22 20:41	1
- Method: SW846 8015B NM - Dies	el Range Orga	nics (DRO)	(GC)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		12/07/22 15:29	12/09/22 18:19	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		12/07/22 15:29	12/09/22 18:19	1
C10-C28)								
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/07/22 15:29	12/09/22 18:19	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	31	S1-	70 - 130			12/07/22 15:29	12/09/22 18:19	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble								
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	39.4		4.98	mg/Kg			12/09/22 11:30	1

70 - 130

31 S1-

3

6

8

3

11

12

## **Surrogate Summary**

Client: Ensolum

Job ID: 880-22248-1

Project/Site: Redtail State Com 1H

SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
880-22248-1	SS01	66 S1-	68 S1-	
880-22248-2	SS02	109	99	
880-22248-3	SS03	108	94	
LCS 880-41765/1-A	Lab Control Sample	101	98	
LCSD 880-41765/2-A	Lab Control Sample Dup	102	93	
MB 880-41759/5-A	Method Blank	98	86	
MB 880-41765/5-A	Method Blank	94	91	

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

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

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
880-22248-1	SS01	104	108	
880-22248-2	SS02	111	117	
880-22248-3	SS03	31 S1-	31 S1-	
LCS 880-41297/2-A	Lab Control Sample	92	95	
LCSD 880-41297/3-A	Lab Control Sample Dup	88	91	
MB 880-41297/1-A	Method Blank	102	140 S1+	
Surrogate Legend				

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

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## **QC Sample Results**

Client: Ensolum

Job ID: 880-22248-1

Project/Site: Redtail State Com 1H

SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-41759/5-A

Matrix: Solid Analysis Batch: 41865 Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41759

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/13/22 13:43	12/15/22 11:39	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/13/22 13:43	12/15/22 11:39	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/13/22 13:43	12/15/22 11:39	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/13/22 13:43	12/15/22 11:39	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/13/22 13:43	12/15/22 11:39	1
Xylenes, Total	< 0.00400	U	0.00400	mg/Kg		12/13/22 13:43	12/15/22 11:39	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130	12/13/22 13:43	12/15/22 11:39	1
1,4-Difluorobenzene (Surr)	86		70 - 130	12/13/22 13:43	12/15/22 11:39	1

Lab Sample ID: MB 880-41765/5-A

Matrix: Solid

Client Sample ID: Method Blank

Prep Type: Total/NA

Analysis Batch: 41865

Prep Type: Total/NA
Prep Batch: 41765
MB MB

Analyte Result Qualifier RL Unit Prepared Analyzed Dil Fac Benzene <0.00200 U 0.00200 mg/Kg 12/13/22 15:23 12/15/22 22:20 Toluene <0.00200 U 0.00200 mg/Kg 12/13/22 15:23 12/15/22 22:20 12/15/22 22:20 Ethylbenzene <0.00200 U 0.00200 mg/Kg 12/13/22 15:23 0.00400 12/13/22 15:23 12/15/22 22:20 m-Xylene & p-Xylene <0.00400 U mg/Kg <0.00200 U 0.00200 12/15/22 22:20 o-Xylene mg/Kg 12/13/22 15:23 12/13/22 15:23 Xylenes, Total <0.00400 U 0.00400 mg/Kg 12/15/22 22:20

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130	12/13/22 15:23	12/15/22 22:20	1
1,4-Difluorobenzene (Surr)	91		70 - 130	12/13/22 15:23	12/15/22 22:20	1

Lab Sample ID: LCS 880-41765/1-A

Matrix: Solid

Analysis Batch: 41865

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

Prep Batch: 41765

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.09473		mg/Kg		95	70 - 130	
Toluene	0.100	0.08692		mg/Kg		87	70 - 130	
Ethylbenzene	0.100	0.08320		mg/Kg		83	70 - 130	
m-Xylene & p-Xylene	0.200	0.1830		mg/Kg		91	70 - 130	
o-Xylene	0.100	0.09306		mg/Kg		93	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	101	70 - 130
1.4-Difluorobenzene (Surr)	98	70 - 130

Lab Sample ID: LCSD 880-41765/2-A

Matrix: Solid

Analysis Batch: 41865

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
B B ( ) 44-0-

Prep Batch: 41765

	Spike	LCSD LC	SD			%Rec		RPD
Analyte	Added		ualifier Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.1009	mg/Kg		101	70 - 130	6	35

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### QC Sample Results

Client: Ensolum Job ID: 880-22248-1 Project/Site: Redtail State Com 1H SDG: Lea County NM

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

Lab Sample ID: LCSD 880-41765/2-A **Matrix: Solid** 

**Analysis Batch: 41865** 

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

Prep Type: Total/NA Prep Batch: 41765

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Toluene	0.100	0.09311		mg/Kg		93	70 - 130	7	35
Ethylbenzene	0.100	0.09067		mg/Kg		91	70 - 130	9	35
m-Xylene & p-Xylene	0.200	0.1981		mg/Kg		99	70 - 130	8	35
o-Xylene	0.100	0.1003		mg/Kg		100	70 - 130	7	35

LCSD LCSD

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

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

Lab Sample ID: MB 880-41297/1-A

**Matrix: Solid** 

Analysis Batch: 41416

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41297

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Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		12/07/22 15:29	12/09/22 09:49	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		12/07/22 15:29	12/09/22 09:49	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/07/22 15:29	12/09/22 09:49	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	102		70 - 130	12/07/22 15:29	12/09/22 09:49	1
o-Terphenyl	140	S1+	70 - 130	12/07/22 15:29	12/09/22 09:49	1

Lab Sample ID: LCS 880-41297/2-A

**Matrix: Solid** 

**Analysis Batch: 41416** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 41297

	Spike	LCS	LCS				%Rec
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Gasoline Range Organics	1000	890.6		mg/Kg		89	70 - 130
(GRO)-C6-C10							
Diesel Range Organics (Over	1000	865.8		mg/Kg		87	70 - 130
C10-C28)							

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	92		70 - 130
o-Terphenyl	95		70 - 130

Lab Sample ID: LCSD 880-41297/3-A

**Matrix: Solid Analysis Batch: 41416**  Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41297

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	1000	837.9		mg/Kg		84	70 - 130	6	20
(GRO)-C6-C10									
Diesel Range Organics (Over	1000	863.4		mg/Kg		86	70 - 130	0	20
C10-C28)									

**Eurofins Midland** 

## QC Sample Results

Job ID: 880-22248-1 Client: Ensolum Project/Site: Redtail State Com 1H SDG: Lea County NM

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

LCSD LCSD

Lab Sample ID: LCSD 880-41297/3-A

**Matrix: Solid** 

Analysis Batch: 41416

Client Sample ID: Lab Control Sample Dup

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

%Rec

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Prep Type: Soluble** 

Client Sample ID: SS03

**Prep Type: Soluble** 

Prep Batch: 41297

Surrogate %Recovery Qualifier Limits 1-Chlorooctane 88 70 - 130 o-Terphenyl 91 70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-40994/1-A

**Matrix: Solid** 

Analysis Batch: 41276

MB MB

Analyte Result Qualifier RL Unit Prepared Analyzed Dil Fac Chloride <5.00 5.00 mg/Kg 12/09/22 11:10

LCS LCS

Lab Sample ID: LCS 880-40994/2-A

**Matrix: Solid** 

**Analysis Batch: 41276** 

Spike Added Qualifier Analyte Result Unit D %Rec Limits Chloride 250 262.5 105 90 - 110 mg/Kg

Lab Sample ID: LCSD 880-40994/3-A

**Matrix: Solid** 

Analysis Batch: 41276

Spike LCSD LCSD %Rec RPD Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 263.2 105 90 - 110 mg/Kg

Lab Sample ID: 880-22248-3 MS

**Matrix: Solid** 

**Analysis Batch: 41276** 

Sample Sample Spike MS MS %Rec Result Qualifier Added Result Qualifier %Rec Limits Analyte Unit D 249 284.9 99 Chloride 39.4 mg/Kg 90 - 110

Lab Sample ID: 880-22248-3 MSD

**Matrix: Solid** 

**Analysis Batch: 41276** 

Sample Sample Spike MSD MSD %Rec RPD Result Qualifier Added Analyte Result Qualifier Unit %Rec Limits RPD Limit Chloride 39.4 249 285.6 mg/Kg

Lab Sample ID: MB 880-41241/1-A

Released to Imaging: 7/21/2023 2:39:28 PM

**Matrix: Solid** 

**Analysis Batch: 41536** 

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Analyte Qualifier RL Unit Prepared Analyzed Dil Fac 5.00 Chloride <5.00 mg/Kg 12/11/22 21:38

**Eurofins Midland** 

**Client Sample ID: SS03 Prep Type: Soluble** 

**Prep Type: Soluble** 

Client Sample ID: Method Blank

## **QC Sample Results**

Client: Ensolum Job ID: 880-22248-1 Project/Site: Redtail State Com 1H SDG: Lea County NM

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 880-41241/2-A Client Sample ID: Lab Control Sample **Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 41536

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	250	258.2		mg/Kg		103	90 - 110	

Lab Sample ID: LCSD 880-41241/3-A **Client Sample ID: Lab Control Sample Dup Matrix: Solid Prep Type: Soluble** Analysis Batch: 41536

Spike LCSD LCSD %Rec RPD Limit Added Result Qualifier Limits RPD Analyte Unit D %Rec Chloride 250 258.7 mg/Kg 103 90 - 110 0

**Eurofins Midland** 

# **QC Association Summary**

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 880-22248-1 SDG: Lea County NM

### **GC VOA**

### Prep Batch: 41759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-41759/5-A	Method Blank	Total/NA	Solid	5035	

### Prep Batch: 41765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-22248-1	SS01	Total/NA	Solid	5035	
880-22248-2	SS02	Total/NA	Solid	5035	
880-22248-3	SS03	Total/NA	Solid	5035	
MB 880-41765/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-41765/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-41765/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

### Analysis Batch: 41865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-22248-1	SS01	Total/NA	Solid	8021B	41765
880-22248-2	SS02	Total/NA	Solid	8021B	41765
880-22248-3	SS03	Total/NA	Solid	8021B	41765
MB 880-41759/5-A	Method Blank	Total/NA	Solid	8021B	41759
MB 880-41765/5-A	Method Blank	Total/NA	Solid	8021B	41765
LCS 880-41765/1-A	Lab Control Sample	Total/NA	Solid	8021B	41765
LCSD 880-41765/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	41765

### Analysis Batch: 42004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-22248-1	SS01	Total/NA	Solid	Total BTEX	
880-22248-2	SS02	Total/NA	Solid	Total BTEX	
880-22248-3	SS03	Total/NA	Solid	Total BTEX	

### **GC Semi VOA**

### Prep Batch: 41297

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-22248-1	SS01	Total/NA	Solid	8015NM Prep	
880-22248-2	SS02	Total/NA	Solid	8015NM Prep	
880-22248-3	SS03	Total/NA	Solid	8015NM Prep	
MB 880-41297/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41297/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41297/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

### Analysis Batch: 41416

Lab Sample ID 880-22248-1	Client Sample ID SS01	Prep Type Total/NA	Matrix Solid	Method 8015B NM	Prep Batch 41297
880-22248-2	SS02	Total/NA	Solid	8015B NM	41297
880-22248-3	SS03	Total/NA	Solid	8015B NM	41297
MB 880-41297/1-A	Method Blank	Total/NA	Solid	8015B NM	41297
LCS 880-41297/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41297
LCSD 880-41297/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41297

### Analysis Batch: 41507

_					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-22248-1	SS01	Total/NA	Solid	8015 NM	
880-22248-2	SS02	Total/NA	Solid	8015 NM	

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## **QC Association Summary**

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 880-22248-1 SDG: Lea County NM

## GC Semi VOA (Continued)

### **Analysis Batch: 41507 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-22248-3	SS03	Total/NA	Solid	8015 NM	

### HPLC/IC

### Leach Batch: 40994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-22248-3	SS03	Soluble	Solid	DI Leach	
MB 880-40994/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-40994/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-40994/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-22248-3 MS	SS03	Soluble	Solid	DI Leach	
880-22248-3 MSD	SS03	Soluble	Solid	DI Leach	

### Leach Batch: 41241

Lab Sample ID 880-22248-1	Client Sample ID SS01	Prep Type Soluble	Matrix Solid	Method DI Leach	Prep Batch
880-22248-2	SS02	Soluble	Solid	DI Leach	
MB 880-41241/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41241/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41241/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

### **Analysis Batch: 41276**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-22248-3	SS03	Soluble	Solid	300.0	40994
MB 880-40994/1-A	Method Blank	Soluble	Solid	300.0	40994
LCS 880-40994/2-A	Lab Control Sample	Soluble	Solid	300.0	40994
LCSD 880-40994/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	40994
880-22248-3 MS	SS03	Soluble	Solid	300.0	40994
880-22248-3 MSD	SS03	Soluble	Solid	300.0	40994

### Analysis Batch: 41536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-22248-1	SS01	Soluble	Solid	300.0	41241
880-22248-2	SS02	Soluble	Solid	300.0	41241
MB 880-41241/1-A	Method Blank	Soluble	Solid	300.0	41241
LCS 880-41241/2-A	Lab Control Sample	Soluble	Solid	300.0	41241
LCSD 880-41241/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41241

**Eurofins Midland** 

### **Lab Chronicle**

Client: Ensolum Job ID: 880-22248-1 Project/Site: Redtail State Com 1H SDG: Lea County NM

**Client Sample ID: SS01** Lab Sample ID: 880-22248-1 Date Collected: 12/02/22 10:55

Matrix: Solid

Date Received: 12/02/22 13:44

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	5035			41765	MNR	EET MID	12/13/22 15:23
Total/NA	Analysis	8021B		1	41865	MNR	EET MID	12/15/22 23:03
Total/NA	Analysis	Total BTEX		1	42004	SM	EET MID	12/16/22 09:39
Total/NA	Analysis	8015 NM		1	41507	AJ	EET MID	12/09/22 20:41
Total/NA	Prep	8015NM Prep			41297	DM	EET MID	12/07/22 15:29
Total/NA	Analysis	8015B NM		1	41416	AJ	EET MID	12/09/22 17:38
Soluble	Leach	DI Leach			41241	KS	EET MID	12/07/22 10:02
Soluble	Analysis	300.0		1	41536	CH	EET MID	12/12/22 00:00

**Client Sample ID: SS02** Lab Sample ID: 880-22248-2

Date Collected: 12/02/22 11:00 Matrix: Solid

Date Received: 12/02/22 13:44

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	5035			41765	MNR	EET MID	12/13/22 15:23
Total/NA	Analysis	8021B		1	41865	MNR	EET MID	12/15/22 23:23
Total/NA	Analysis	Total BTEX		1	42004	SM	EET MID	12/16/22 09:39
Total/NA	Analysis	8015 NM		1	41507	AJ	EET MID	12/09/22 20:41
Total/NA	Prep	8015NM Prep			41297	DM	EET MID	12/07/22 15:29
Total/NA	Analysis	8015B NM		1	41416	AJ	EET MID	12/09/22 17:59
Soluble	Leach	DI Leach			41241	KS	EET MID	12/07/22 10:02
Soluble	Analysis	300.0		1	41536	CH	EET MID	12/12/22 00:06

**Client Sample ID: SS03** Lab Sample ID: 880-22248-3 Date Collected: 12/02/22 11:05 **Matrix: Solid** 

Date Received: 12/02/22 13:44

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	5035			41765	MNR	EET MID	12/13/22 15:23
Total/NA	Analysis	8021B		1	41865	MNR	EET MID	12/15/22 23:44
Total/NA	Analysis	Total BTEX		1	42004	SM	EET MID	12/16/22 09:39
Total/NA	Analysis	8015 NM		1	41507	AJ	EET MID	12/09/22 20:41
Total/NA	Prep	8015NM Prep			41297	DM	EET MID	12/07/22 15:29
Total/NA	Analysis	8015B NM		1	41416	AJ	EET MID	12/09/22 18:19
Soluble	Leach	DI Leach			40994	SMC	EET MID	12/05/22 09:48
Soluble	Analysis	300.0		1	41276	CH	EET MID	12/09/22 11:30

Laboratory References:

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

**Eurofins Midland** 

## **Accreditation/Certification Summary**

Client: Ensolum Project/Site: Redtail State Com 1H

Job ID: 880-22248-1

SDG: Lea County NM

### **Laboratory: Eurofins Midland**

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

Authority		rogram	Identification Number	Expiration Date
Texas		ELAP	T104704400-22-24	06-30-23
The following analytes the agency does not of		ut the laboratory is not certifi	ed by the governing authority. This list ma	ay include analytes for
Analysis Method	Prep Method	Matrix	Analyte	
8015 NM		Solid	Total TPH	
Total RTEY		Solid	Total RTEY	

## **Method Summary**

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 880-22248-1

SDG: Lea County NM

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

#### **Protocol References:**

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

#### Laboratory References:

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

**Eurofins Midland** 

## Sample Summary

Client: Ensolum

Project/Site: Redtail State Com 1H

Job ID: 880-22248-1

SDG: Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	
880-22248-1	SS01	Solid	12/02/22 10:55	12/02/22 13:44	C
880-22248-2	SS02	Solid	12/02/22 11:00	12/02/22 13:44	0
880-22248-3	SS03	Solid	12/02/22 11:05	12/02/22 13:44	0.5

- 0

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**O** 

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12

13

14

Received by OCD: 5/1/2023 2:38:05 PM

Page 20 of 21













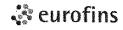












**Environment Testing** Xenco

# **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

Nork Order No	: 22248

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Project Manager	Josh Adams Bill (o: (if different)				Kalei Jennings					Work Order Comments																
Company Name:	Enso	lum, LLC	,			Compar	y Name	);	Ensol	um Ll	_C						Prog	ram U	ST/PS	T   F	PRP	Brow	nfields	RRC	Superf	und 🗆
Address.	601 N	l Marient	eld St S	uite 400		Address		Contracted to account	601 N	Marie	enfeld	St Suit	e 400				Program UST/PST PRP Brownfields RRC Superfund State of Project									
City, State ZIP	Mıdla	nd, TX 7	9701	······		City, Sta	te ZIP	and the state of t	Mıdla	nd TX	7970	1					Repo	rting L	evel II	Le	vel III	PS	T/UST [	TRRP	Leve	el IV 🔲
Phone:	303 5	17 8437			Email:	kjennin	gs@er	solun	n com						Other:											
Project Name:		Redtail S	State Co	om 1H	Turr	ı Around	<del>,</del>			Carentee and	granen non c	di carperdii		ANA	LYSIS	DE/	nice:	- ( 1888		<b>1 ( 1 ( 1 1</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 11 <b>218</b> 110	18 1881 BIRBI	I (1 <b>12 8</b> )		4-00
Project Number			✓ Routine	Duch		Pres. Code			(manufaction)	T -	entropy design	20.10.00											200	98		
Project Location	Lea County, NM		Due Date.			vode		_		-				-	+	·								r H₂O		
Sampler's Name:				TAT starts th	e day rece	eived by																			Vie	
PO#:							eived by 4 30pm											_880	)-222	48 Ch	ain of	Custo	ody			IN Na
SAMPLE RECE	PT	Temp	Blank.	Yes No	Wet Ice.	Yes	) <sub>No</sub>	i i									İ				1	1	H₃PO₄	ЧD		'a
Samples Received In	ntact:	Yes	No	Thermomete	er ID:	T_Nm	-007	La mar	300 0)														1 "	NABIS		
Cooler Custody Seal	s.	Yes No	o N/A	Correction F	actor			S.	3														1	NaSO <sub>3</sub>		
Sample Custody Sea	als:	Yes No	o <b>N</b> /A	Temperature	e Reading	24	,		(EPA														1	ate+NaOH	7n	
Total Containers. Corrected Ten		emperature.				DES	15	021												1	Ascorbic A		·c			
Sample Ider	ıtificati	on	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	CHLORIDES	TPH (8015)	BTEX (8021													mple Co	a Carlo a state	
SS0	)1		s	12/2/2022	1055	0 5'	Grab	1	X	X	X				1	$\vdash$	<del>                                     </del>	1				<del> </del>	tara na artes	arana da mana da mana da mana da mana da mana da mana da mana da mana da mana da mana da mana da mana da mana d	<del>taring the state of the state </del>	
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SSO	3		s	12/2/2022	1105	0 5'	Grab	1	X	Х	X						<b>†</b>	1			f			ncident r	umher	.—1
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Total 200.7 / 60	010	200.8 / 6	5020:	8F	RCRA 13P	PM Tex	(as 11	AL S	h As	Ba F	Re R	Cd C	a Cr	Co. /	Cu Eo	Dh	Ma N	In Ma	Nh I	( Sc	Λα ς	<u> </u>	Ja Cr T	1 C- 11 1	, -	
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 <sub>2</sub> Na Sr Tl Sn U V Zn Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg 1631 / 245 1 / 7470 / 7471																										
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12/16/2022

## **Login Sample Receipt Checklist**

Client: Ensolum

Job Number: 880-22248-1

SDG Number: Lea County NM

List Source: Eurofins Midland

Login Number: 22248 List Number: 1

Creator: Kramer, Jessica

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



APPENDIX D

**NMOCD Notifications** 

From: Enviro, OCD, EMNRD

To: Kalei Jennings

Cc: Nobui, Jennifer, EMNRD; Bratcher, Michael, EMNRD

Subject: RE: [EXTERNAL] ConocoPhillips Company- Sampling Notification (Week of 01/09/2023)

**Date:** Thursday, January 5, 2023 10:53:23 AM

Attachments: <u>image005.jpg</u>

image006.png image007.png image008.png image009.png

### [ \*\*EXTERNAL EMAIL\*\*]

Kalei,

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

JH

Jocelyn Harimon • Environmental Specialist

Environmental Bureau
EMNRD - Oil Conservation Division
1220 South St. Francis Drive | Santa Fe, NM 87505
(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov

http://www.emnrd.nm.gov



From: Kalei Jennings <kjennings@ensolum.com>

Sent: Wednesday, January 4, 2023 5:12 PM

To: Enviro, OCD, EMNRD < OCD. Enviro@emnrd.nm.gov>

**Cc:** Hadlie Green <a href="mailto:hgreen@ensolum.com">hgreen@ensolum.com</a>>; Josh Adams <a href="mailto:jadams@ensolum.com">jadams@ensolum.com</a>>

Subject: [EXTERNAL] ConocoPhillips Company- Sampling Notification (Week of 01/09/2023)

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

All,

ConocoPhillips Company (COP) plans to complete final sampling activities at the following sites the week of January 9, 2023.

- Vast State 2H/ NAPP2231148750
- Redtail State Com 1H/ NAPP222233239048

Thank you,



From: Enviro, OCD, EMNRD
To: Kalei Jennings

Cc: Nobui, Jennifer, EMNRD; Bratcher, Michael, EMNRD

Subject: RE: [EXTERNAL] ConocoPhillips Company- Sampling Notification (Week of 01/16/2023)

**Date:** Thursday, January 12, 2023 9:32:55 AM

Attachments: <u>image005.jpg</u>

image006.png image007.png image008.png image009.png

### [ \*\*EXTERNAL EMAIL\*\*]

Kalei,

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

JH

Jocelyn Harimon • Environmental Specialist

Environmental Bureau
EMNRD - Oil Conservation Division
1220 South St. Francis Drive | Santa Fe, NM 87505
(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov

http://www.emnrd.nm.gov



From: Kalei Jennings < kjennings@ensolum.com> Sent: Wednesday, January 11, 2023 5:27 PM

To: Enviro, OCD, EMNRD < OCD. Enviro@emnrd.nm.gov>

Subject: [EXTERNAL] ConocoPhillips Company- Sampling Notification (Week of 01/16/2023)

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

All,

ConocoPhillips Company (COP) plans to complete final sampling activities at the following sites the week of January 16, 2023.

- Gold Coast 26 Federal 1 H/ NAPP2234636400
- Redtail State Com 1H/ NAPP222233239048

Thank you,



## Kalei Jennings Senior Scientist

817-683-2503 Ensolum, LLC From: <u>Kalei Jennings</u>
To: <u>Josh Adams</u>

Subject: FW: [EXTERNAL] ConocoPhillips Company- Sampling Notification (Week of 01/23/2023)

**Date:** Thursday, January 19, 2023 10:23:05 AM

Attachments: image005.jpg

image006.png image007.png image008.png image009.png

Please file in appropriate project folders.



### Kalei Jennings Senior Scientist 817-683-2503

Ensolum, LLC

From: Enviro, OCD, EMNRD < OCD. Enviro@emnrd.nm.gov>

**Sent:** Thursday, January 19, 2023 8:14 AM **To:** Kalei Jennings < kjennings@ensolum.com>

**Cc:** Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Nobui, Jennifer, EMNRD

<Jennifer.Nobui@emnrd.nm.gov>

Subject: RE: [EXTERNAL] ConocoPhillips Company- Sampling Notification (Week of 01/23/2023)

### [ \*\*EXTERNAL EMAIL\*\*]

Kalei,

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

JΗ

Jocelyn Harimon • Environmental Specialist

Environmental Bureau
EMNRD - Oil Conservation Division
1220 South St. Francis Drive | Santa Fe, NM 87505
(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov

http://www.emnrd.nm.gov



**From:** Kalei Jennings < <u>kiennings@ensolum.com</u>>

Sent: Wednesday, January 18, 2023 9:20 PM

**To:** Enviro, OCD, EMNRD < OCD. Enviro@emnrd.nm.gov>

**Subject:** [EXTERNAL] ConocoPhillips Company- Sampling Notification (Week of 01/23/2023)

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

All,

ConocoPhillips Company (COP) plans to complete final sampling activities at the following sites the week of January 23, 2023.

- Redtail State Com 1H/NAPP2233239048
- Wild Cobra/ NAPP2233946889
- Gold Coast/ NAPP2234636400

Thank you,



From: <u>Kalei Jennings</u>
To: <u>Hadlie Green</u>

Subject: FW: COG - Extension Request - Redtail State Com 001H (Incident Number NAPP2233239048)

**Date:** Thursday, February 16, 2023 4:26:03 PM

Attachments: image001.png

image002.png image003.png image004.png image005.png

Please save to folder.



### Kalei Jennings Senior Scientist 817-683-2503 Ensolum, LLC

From: Beauvais, Charles R < Charles.R.Beauvais@conocophillips.com>

**Sent:** Thursday, February 16, 2023 4:26 PM **To:** Kalei Jennings <a href="mailto:kjennings@ensolum.com">kjennings@ensolum.com</a>>

Subject: FW: COG - Extension Request - Redtail State Com 001H (Incident Number

NAPP2233239048)

### [ \*\*EXTERNAL EMAIL\*\*]

FYI

From: Beauvais, Charles R

Sent: Thursday, February 16, 2023 3:25 PM

**To:** Enviro, OCD, EMNRD < OCD. Enviro@state.nm.us >; EMNRD-OCD-District1spills < EMNRD-OCD-District1spills@state.nm.us >; CFO\_Spill, BLM\_NM < BLM\_NM\_CFO\_Spill@blm.gov >

**Cc:** Fejervary Morena, Gustavo A <<u>G.Fejervary@conocophillips.com</u>>; Esparza, Brittany <<u>Brittany.Esparza@conocophillips.com</u>>

**Subject:** COG - Extension Request - Redtail State Com 001H (Incident Number NAPP2233239048)

To Whom It May Concern,

#### Redtail State Com 001H (Incident Number NAPP2233239048)

COG Operating, LLC (COG) is requesting an extension for the current deadline of February 16, 2023, for submitting a remediation work plan or closure report required in 19.15.29.12.B.(1) NMAC for Redtail State Com 001H (Incident Number NAPP2233239048). The release was discovered on November 18, 2022. Initial site assessment activities have been completed and excavation activities are currently ongoing. In order to complete additional remediation activities and submit a

remediation work plan or closure report, COG requests a 90-day extension of this deadline until May 17, 2023.

Respectfully,

## Charles R. Beauvais II

Senior Environmental Engineer | GHG Reporting & Systems | ConocoPhillips
Permian Business Unit | L48 Environmental & SD
(M) 575-988-2043

Charles.R.Beauvais@conocophillips.com

Our work is never so urgent or important that we cannot take the time to do it safely and in an environmentally responsible manner.





APPENDIX E

Final C-141

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

State of New Mexico Energy Minerals and Natural Resources Department

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAPP2233239048
District RP	
Facility ID	fAPP2203857122
Application ID	

## **Release Notification**

## **Responsible Party**

Responsible Party	COG Operating, LLC	OGRID	229137			
Contact Name	Charles Beauvais	Contact Telephone	(575) 988-2043			
Contact email	Charles.R.Beauvais@ConocoPhillips.com	Incident # (assigned by OCD)	NAPP2233239048			
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701					

		<b>Location of R</b>	elease Sou	rce	
Latitude	32.3398		Longitude	-103.6388	
		(NAD 83 in decimal de	grees to 5 decimal p	places)	
Site Name	Podtail S	tata Cam 001H	Site Type	Flowline	

Site Name	Rediali Stat	e Com 001H	Site Type	Flowline
Date Release Discovere	d November	18, 2022	API# (if applicable)	
Unit Letter   Section	Township	Range	County	

l	Unit Letter	Section	Townsnip	Range	County
	Α	02	23S	32E	Lea

Surface Owner:  State  Federal  Private (Name:)
---

### Nature and Volume of Release

Material	(s) Released (Select all that apply and attach calculations or specific	justification for the volumes provided below)
Crude Oil	Volume Released (bbls) .41	Volume Recovered (bbls) 0
Produced Water	Volume Released (bbls) 40.59	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	■ Yes □ No
Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by a hole in flowline due to corrosion.

The release was off the pad. A vacuum truck was dispatched to remove all freestanding fluids. Evaluation will be made at the site to determine if we may commence remediation immediately or delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

Received by OCD: 5/1/2023 2:38:05 PMAM Form C-141 State of New Mexico Page 2 Oil Conservation Division

Page 239 of 245

Incident ID	NAPP2233239048
District RP	
Facility ID	fAPP2203857122
Application ID	

Was this a major	If YES, for what reason(s) does the resp	onsible party consider this a major release?			
release as defined by					
19.15.29.7(A) NMAC?					
■ Yes □ No					
If YES, was immediate n	otice given to the OCD? By whom? To v	whom? When and by what means (phone, email, etc)?			
Immediate notificati	on was given by Jacqui Harris o	n November 19, 2022 at 11:37 am to ocd.enviro@			
state.nm.us.					
	Initial F	Response			
The responsible	party must undertake the following actions immedian	ely unless they could create a safety hazard that would result in injury			
■ The source of the rele	aasa has haan stannad				
	as been secured to protect human health an	d the environment			
_ •	•				
		dikes, absorbent pads, or other containment devices.			
	ecoverable materials have been removed a				
If all the actions described	d above have <u>not</u> been undertaken, explair	why:			
Per 19.15.29.8 B. (4) NM	IAC the responsible party may commence	remediation immediately after discovery of a release. If remediation			
has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred					
within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.					
		e 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 o and/or regulations.	of a C-141 report does not relieve the operator of	f responsibility for compliance with any other federal, state, or local laws			
*	ny N. Esparza	Title: Environmental Technician			
Signature:	ny N. Esparza				
	za@ConocoPhillips.com	Date: 11/28/2022 Telephone: (432) 221-0398			
email:		Telephone: (102) 221 0000			
OCD Only					
		44/20/2022			
Received by:Jocelyr	n Harimon	Date: 11/28/2022			

Received	by OCD: 11/28/2022 10:53:20	AM Facility Nam	e & Well Number(s):	REDTAIL STATE COM 1H			Release Discov	very Date & Time: 11/18/202212:15:	00 PM NAPP2233239048/f4
Provide any known details about the event: F				POLY LINE ON WATER PU	POLY LINE ON WATER PUMP DISCHARGE BURST				
		Recovered Volume (bbl.) (if available, not included in volume calculations)	Method of Determination (dropdown)	Release Type (dropdown):		> 1/2" of Rain in Last 24 Hours (dropdown):	% Rainwater Recovered (not included in volume calculations, informational):		
BU:	Permian	Asset Area:	DBE - Asset Avg.	0	Gauged volume	Oil Mi	xture ~	No	0%
Known Volume (dropdown):  Released to Imaging: 11/28/2022 11:54:37 AM		Yes	Release On/Off Pad	Percentage of Oil if Spilled Fluid is a Mixture (%.)	Known Volume of Spill (bbl.)	Total Estimated Volume of Oil (bbl.)	Total Estimated Volume of Spilled Liquid other than Oil (bbl.)		
	0 0			~	Off-Pad V	1%	41	0.41	40.59

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720 District III 1000 Rio Brazos Rd., Aztec, NM 87410

Phone:(505) 334-6178 Fax:(505) 334-6170

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. **Santa Fe, NM 87505** 

CONDITIONS

Action 161554

### CONDITIONS

Operator:	OGRID:
COG OPERATING LLC	229137
600 W Illinois Ave	Action Number:
Midland, TX 79701	161554
	Action Type:
	[C-141] Release Corrective Action (C-141)

#### CONDITIONS

Created By	Condition	Condition Date
jharimon	None	11/28/2022

Mexico Page 242 of 245

Incident ID	NAPP2233239048
District RP	
Facility ID	fAPP2203857122
Application ID	

# **Site Assessment/Characterization**

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>&gt;100</u> (ft bgs)				
Did this release impact groundwater or surface water?	☐ Yes ⊠ No				
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ⊠ No				
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ⊠ No				
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ⊠ No				
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ⊠ No				
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ⊠ No				
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ⊠ No				
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ⊠ No				
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ⊠ No				
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ⊠ No				
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ⊠ No				
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	⊠ Yes □ No				
Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.					
Characterization Report Checklist: Each of the following items must be included in the report.					
<ul> <li>         \infty         Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring well         \infty         Field data     </li> </ul>	ls.				
☐ Data table of soil contaminant concentration data ☐ Depth to water determination					
Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release					
<ul> <li>☒ Boring or excavation logs</li> <li>☒ Photographs including date and GIS information</li> </ul>					
<ul> <li>         ∑ Photographs including date and GIS information     </li> <li>         ∑ Topographic/Aerial maps     </li> </ul>					
☐ Laboratory data including chain of custody					

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

Received by OCD: 5/1/2023 2:38:05 PM Form C-141 State of New Mexico Page 4 Oil Conservation Division

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Incident ID	NAPP2233239048
District RP	
Facility ID	fAPP2203857122
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.				
Printed Name:Jacob Laird	Title:Environmental Engineer			
Signature: Jacob Laird	Date:05/01/2023			
email:Jacob.Laird@conocophillips.com	Telephone:575-703-5482			
OCD Only				
Received by: Jocelyn Harimon	Date:05/01/2023			

e of New Mexico

Incident ID	NAPP2233239048
District RP	
Facility ID	fAPP2203857122
Application ID	

# Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachm	nent Checklist: Each of the follo	wing items must be incl	uded in the closure report.			
A scaled site and sam	pling diagram as described in 19.1	15.29.11 NMAC				
	Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)					
□ Laboratory analyses of the control of th	of final sampling (Note: appropriate	te ODC District office m	nust be notified 2 days prior to final sampling)			
Description of remedi	ation activities					
and regulations all operator may endanger public health should their operations have human health or the environ compliance with any other restore, reclaim, and re-veg accordance with 19.15.29.1 Printed Name:Jacob Lai Signature:	es are required to report and/or file in or the environment. The accepta e failed to adequately investigate a niment. In addition, OCD acceptar federal, state, or local laws and/or testate the impacted surface area to	c certain release notificate ance of a C-141 report by and remediate contaminance of a C-141 report do regulations. The respont the conditions that exist to the OCD when reclamate.  Title: _Environm	ny knowledge and understand that pursuant to OCD rultions and perform corrective actions for releases which by the OCD does not relieve the operator of liability attion that pose a threat to groundwater, surface water, we not relieve the operator of responsibility for insible party acknowledges they must substantially sted prior to the release or their final land use in attion and re-vegetation are complete.  In a liability for the release or their final land use in attion and re-vegetation are complete.  In a liability for the release or their final land use in attion and re-vegetation are complete.  In a liability for the release or their final land use in attion and re-vegetation are complete.  In a liability for the release or their final land use in attion and re-vegetation are complete.			
OCD Only						
Received by:Jocelyn	Harimon	Date:	05/01/2023			
remediate contamination the party of compliance with an	at poses a threat to groundwater, suny other federal, state, or local law	urface water, human heal	If their operations have failed to adequately investigate a lth, or the environment nor does not relieve the responsi			
Closure Approved by:	Nelson Velez	Date:	07/21/2023			
Printed Name:	Nelson Velez		Environmental Specialist – Adv			

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II 811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III 1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. **Santa Fe, NM 87505** 

CONDITIONS

Action 212302

### **CONDITIONS**

Operator:	OGRID:
COG OPERATING LLC	229137
600 W Illinois Ave	Action Number:
Midland, TX 79701	212302
	Action Type:
	[C-141] Release Corrective Action (C-141)

#### CONDITIONS

Created By	Condition	Condition Date
nvelez	None	7/21/2023