



August 10, 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
Nocaster 19 Federal 004H
Incident Number NAPP2317131365
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 Nocaster 19 Federal 004H (Site). The purpose of the Site assessment, excavation, and soil sampling activities was to address impacted soil following a release of crude oil within the lined containment and overspray onto the well pad at the Site. Based on field observations, excavation activities, and soil sample laboratory analytical results, COG is submitting this *Closure Request*, requesting no further action and closure for Incident Number NAPP2317131365.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit P, Section 19, Township 23 South, Range 34 East, in Lea County, New Mexico (32.2841°, -103.5029°) and is associated with oil and gas exploration and production operations on State Land managed by the New Mexico State Land Office (NMSLO).

On June 11, 2023, an equipment malfunction caused the circulating line to rupture and release approximately 154.4729 barrels (bbls) of crude oil into the lined secondary containment and overspray onto the well pad. A vacuum truck was dispatched to the Site to recover free-standing fluids; approximately 153 bbls of crude oil were recovered from within the lined containment. COG reported the release immediately via email to the New Mexico Oil Conservation Division (NMOCD) and submitted a *Release Notification Form C-141* (Form C-141) on June 20, 2023. The release was assigned Incident Number NAPP2317131365.

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

SITE CHARACTERIZATION AND CLOSURE CRITERIA

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

Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater well with depth to groundwater is New Mexico Office of the State Engineer (NMOSE) well C-04665, located approximately 0.5 miles east of the Site. The groundwater well was drilled during September 2022 to a total depth of 120 feet bgs, and no groundwater was encountered. All wells used for depth to groundwater determination are presented on Figure 1. The referenced well records are included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is an emergent wetland, located approximately 2,164 feet southeast of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area). Site receptors are identified on Figure 1.

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

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

LINER INTEGRITY INSPECTION AND ASSESSMENT ACTIVITIES

A 48-hour advance notice of the liner inspection was provided via email to the NMOCD District I office on June 19, 2023. A liner integrity inspection was conducted by Ensolum personnel on June 22, 2023. Upon inspection, the liner was determined to be insufficient. One borehole (BH01) was advanced via hand auger at the location of the tear in the liner to assess for the presence or absence of impacted soil beneath the liner. Two discrete delineation soil samples (BH01/BH01A) were collected from the borehole at depths of 0.5 feet and 1-foot bgs, respectively. Four assessment soil samples (SS01 through SS04) were collected around the overspray release extent on the well pad at a depth of 0.5 feet bgs to confirm the lateral extent of the release. Three assessment soil samples (SS05 through SS07) were collected within the overspray release extent at a depth 0.5 feet bgs to assess for the presence or absence of impacted soil.

Soil from the assessment and delineation soil samples was field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. Field screening results and observations from the borehole were documented on a lithologic/sampling log, which is included as Appendix B. Borehole BH01 was

backfilled with the soil removed and COG repaired the tear in the liner following soil sampling activities. 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 C.

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

Laboratory analytical results for soil samples BH01 and BH01A, collected at depths of 0.5 feet and 1-foot bgs beneath the tear in the liner, indicated all COC concentrations were compliant with the most stringent Table I Closure Criteria and confirmed the absence of impacted soil beneath the liner. Laboratory analytical results for soil samples SS05 through SS07, collected within the overspray release extent, indicated TPH-GRO/TPH-DRO and/or TPH concentrations exceeded the Site Closure Criteria. Laboratory analytical results for soil samples SS01 through SS04, collected around the release extent, indicated all COC concentrations were compliant with the most stringent Table I Closure Criteria and successfully defined the lateral extent of the release. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Appendix D.

EXCAVATION ACTIVITIES AND LABORATORY ANALYTICAL RESULTS

On July 11, 2023, Ensolum personnel were at the Site to oversee excavation of the overspray area around assessment samples SS05 through SS07. Excavation activities were performed using a backhoe and transport vehicles. To direct excavation activities, soil was screened for VOCs and chloride. The excavation was completed to a depth of 1-foot bgs. Photographic documentation of the excavation activities is included in Appendix C.

Following removal of impacted soil, 5-point composite soil samples were collected every 200 square feet from the floor of the excavation extent. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples FS01 and FS02 were collected from the floor of the excavation at a depth of 1-foot bgs. Due to the shallow depth of the excavation, the sidewalls were incorporated into the floor samples. The soil samples were collected, handled, and analyzed following the same procedures as described above. The excavation extent and excavation soil sample locations are presented on Figure 3.

Laboratory analytical results for excavation floor samples FS01 and FS02 indicated all COC concentrations were compliant with the most stringent Table I Closure Criteria. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Appendix D.

The final excavation area measured approximately 285 square feet. A total of approximately 11 cubic yards of impacted soil was removed, transported, and properly disposed of at OWL Landfill Services, LLC in Jal, New Mexico.

COG Operating, LLC
Closure Request
Nocaster 19 Federal 004H

Page 4

CLOSURE REQUEST

Site assessment and excavation activities were conducted at the Site to address the June 11, 2023, produced water release within the lined containment and overspray onto the surrounding well pad. Following the failed liner integrity inspection at the Site, Ensolum personnel advanced one borehole (BH01) at the location of the tear in the liner to assess for the presence of absence of impacted soil. Laboratory analytical results for delineation soil samples, collected directly beneath the lined containment, indicated all COC concentrations were compliant with the most stringent Table I Site Closure Criteria. Impacted soil was excavated from the overspray release area on the well pad. Laboratory analytical results for the excavation soil samples indicated all COC concentrations were compliant with the most stringent Table I Site Closure Criteria. Additionally, the release was laterally delineated to the most stringent Table I Closure Criteria. Based on soil sample analytical results, no further remediation is required.

Initial response efforts and excavation of impacted soil have mitigated impacts at this Site. Depth to groundwater has been estimated 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. As such, COG respectfully requests closure for Incident Number NAPP2317131365. Notifications submitted to the NMOCD are included in Appendix E and the final Form C-141 is included in Appendix F.

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

Sincerely,

Ensolum, LLC



Hadlie Green
Project Geologist



Daniel R. Moir, PG
Senior Managing Geologist

cc: Jacob Laird, COG Operating, LLC
New Mexico State Land Office

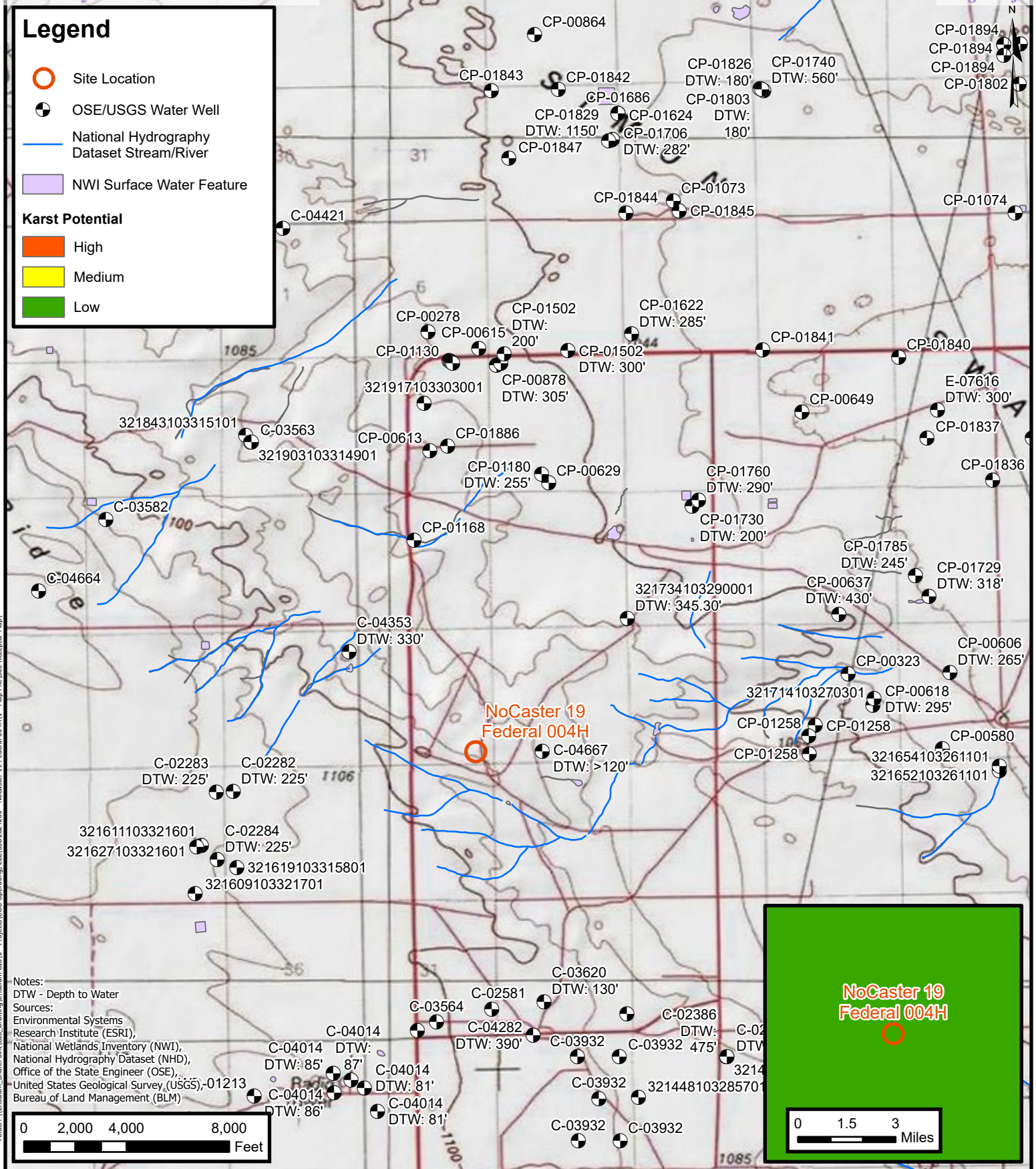
Appendices:

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	Lithologic/Soil Sampling Logs
Appendix C	Photographic Log
Appendix D	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix E	NMOCD Notifications
Appendix F	Final C-141





FIGURES

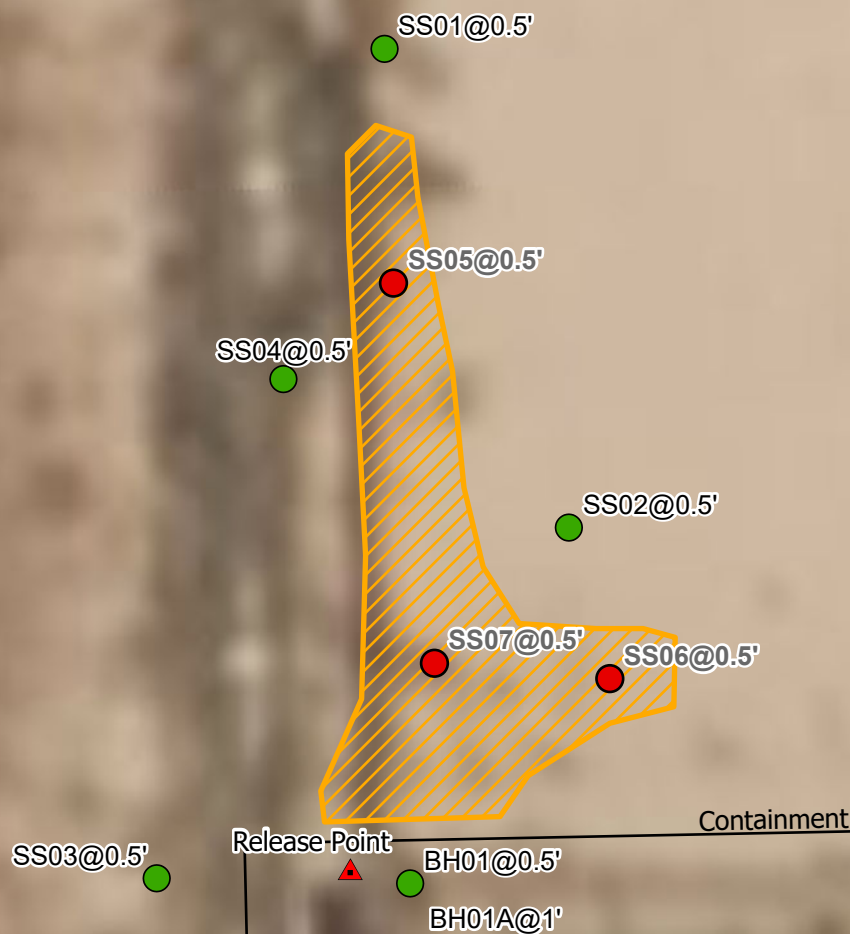


Site Receptor Map
COG Operating, LLC
Nocaster 19 Federal 004H
Incident Number: NAPP2317131365
Unit P, Sec 19, T23S, R34E
Lea County, New Mexico

FIGURE
1

Legend

- Assessment Soil Sample in Compliance with Closure Criteria
- Assessment Soil Sample with Concentrations Exceeding Closure Criteria
- ▲ Point of Release (POR)
- Release Extent
- Containment



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

0 2.5 5 10 15 20
 Feet

Sources: Environmental Systems Research Institute (ESRI)

Assessment Soil Sample Locations





COG Operating, LLC
 Nocaster 19 Federal 004H
 Incident Number: NAPP2317131365
 Unit P, Sec 19, T23S, R34E
 Lea County, New Mexico

FIGURE

2



Legend

-  Excavation Extent
-  Excavation soil samples in compliance with closure criteria
-  Point of Release (POR)
-  Containment



Release Point

Containment

Notes:
Sample ID @ Depth Below Ground Surface.

0 2.5 5 10 15 20
Feet

Sources: Environmental Systems Research Institute (ESRI)

**Excavation Soil Sample Locations**

COG Operating, LLC
Nocaster 19 Federal 004H
Incident Number: NAPP2317131365
Unit P, Sec 19, T23S, R34E
Lea County, New Mexico

FIGURE**3**



TABLES



TABLE I
SOIL SAMPLE ANALYTICAL RESULTS
 Nocaster 19 Federal 004H
 COG Operating, LLC
 Lea County, New Mexico

Sample Designation	Date	Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Assessment Soil Samples										
SS01	06/22/2023	0.5	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	43
SS02	06/22/2023	0.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	52.2
SS03	06/22/2023	0.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	54.9
SS04	06/22/2023	0.5	<0.00200	<0.00400	<49.9	<49.9	<49.9	<49.9	<49.9	27.8
SS05	06/22/2023	0.5	<0.0199	11.4	606	2,370	313	2,976	3,290	52.4
SS06	06/22/2023	0.5	<0.0202	2.05	184	1,840	219	2,024	2,240	38.6
SS07	06/22/2023	0.5	0.225	57	2130	3,920	<50.0	6,050	6,050	195
Liner Delineation Soil Samples										
BH01	07/11/2023	0.5	<0.00200	<0.00400	<50.2	<50.2	<50.2	<50.2	<50.2	34.3
BH01A	07/11/2023	1	<0.00201	<0.00402	<49.8	<49.8	<49.8	<49.8	<49.8	48.8
Excavation Soil Samples										
FS01	07/11/2023	1	<0.00202	<0.00404	<49.6	97.3	<49.6	97	97.3	52.1
FS02	07/11/2023	1	<0.00200	<0.00401	<49.6	<49.6	<49.6	<49.6	<49.6	63.7

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

NMAC: New Mexico Administrative Code

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

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

Grey text represents samples that have been excavated



APPENDIX A

Referenced Well Records



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) C-4667-POD1		WELL TAG ID NO.		OSE FILE NO(S). C-04665		
	WELL OWNER NAME(S) COG OPERATING LLC				PHONE (OPTIONAL) 575-988-2043		
	WELL OWNER MAILING ADDRESS 2208 W MAIN ST				CITY STATE ZIP ARTESIA NM 88210		
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 17	SECONDS 2.55	N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND	
	LONGITUDE -103	29	40.16	W	* DATUM REQUIRED: WGS 84		
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE KING TUT FEDERAL 001H							
2. DRILLING & CASING INFORMATION	LICENSE NO. WD-1184		NAME OF LICENSED DRILLER RUSSELL SOUTHERLAND			NAME OF WELL DRILLING COMPANY WEST TEXAS WATER WELL SERVICE	
	DRILLING STARTED 9/15/2022	DRILLING ENDED 09/15/2022	DEPTH OF COMPLETED WELL (FT) 120	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)		
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input checked="" type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A		
	DRILLING FLUID: <input checked="" type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES - SPECIFY:						
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:						
	DEPTH (feet bgl) FROM TO		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)
				NO CASING IN HOLE			
3. ANNULAR MATERIAL	DEPTH (feet bgl) FROM TO		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT	
				N/A			

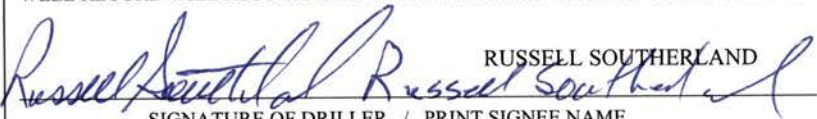
FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 04/30/19)

FILE NO. C-04667 Pod1	POD NO. 1	TRN NO. 733232
LOCATION 23S. 34E. 20. 3. 4. 3	WELL TAG ID NO. NA	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL	DEPTH (feet bgl)		THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER- BEARING ZONES (gpm)
	FROM	TO				
	0	17		CALICHE	Y ✓ N	
	17	60		SAND	Y ✓ N	
	60	120		RED SANDY CLAY	Y ✓ N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:					TOTAL ESTIMATED WELL YIELD (gpm):	
<input type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input checked="" type="checkbox"/> OTHER - SPECIFY: DRY HOLE					0.00	

5. TEST, RIG SUPERVISION	WELL TEST	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.
	MISCELLANEOUS INFORMATION:	
	<div style="text-align: right;">OSE DIT OCT 3 2022 PM 4:37</div>	
	PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:	
	RUSSELL SOUTHERLAND	

6. SIGNATURE	BY SIGNING BELOW, I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED WELL. I ALSO CERTIFY THAT THE WELL TAG, IF REQUIRED, HAS BEEN INSTALLED AND THAT THIS WELL RECORD WILL ALSO BE FILED WITH THE PERMIT HOLDER WITHIN 30 DAYS AFTER THE COMPLETION OF WELL DRILLING.	
	 SIGNATURE OF DRILLER / PRINT SIGNEE NAME	09/15/2022 DATE

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 04/30/2019)

FILE NO. C-04667	POD NO. 1	TRN NO. 733232	
LOCATION 235. 34E. 20. 34.	WELL TAG ID NO. NA	PAGE 2 OF 2	



USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface


USGS Water Resources

Data Category:
Groundwater

Geographic Area:
United States

GO

Click to hideNews Bulletins

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

Groundwater levels for the Nation

 Important: [Next Generation Monitoring Location Page](#)

Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 321734103290001

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 321734103290001 23S.34E.16.333312

Lea County, New Mexico
Latitude 32°17'53", Longitude 103°28'59" NAD27
Land-surface elevation 3,478.00 feet above NGVD29
The depth of the well is 400 feet below land surface.
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Chinle Formation (231CHNL) local aquifer.

Output formats

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

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source of measurement
1971-01-13			D 62610		3133.95	NGVD29	1	Z		
1971-01-13			D 62611		3135.58	NAVD88	1	Z		
1971-01-13			D 72019	344.05			1	Z		
1976-12-16			D 62610		3130.62	NGVD29	1	Z		
1976-12-16			D 62611		3132.25	NAVD88	1	Z		
1976-12-16			D 72019	347.38			1	Z		
1981-03-30			D 62610		3132.60	NGVD29	1	Z		
1981-03-30			D 62611		3134.23	NAVD88	1	Z		
1981-03-30			D 72019	345.40			1	Z		
1986-03-21			D 62610		3130.20	NGVD29	1	Z		
1986-03-21			D 62611		3131.83	NAVD88	1	Z		
1986-03-21			D 72019	347.80			1	Z		
1996-03-08			D 62610		3132.70	NGVD29	1	S		
1996-03-08			D 62611		3134.33	NAVD88	1	S		
1996-03-08			D 72019	345.30			1	S		

Explanation

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

[Questions or Comments](#)[Automated retrievals](#)[Help](#)[Data Tips](#)[Explanation of terms](#)[Subscribe for system changes](#)[News](#)[Accessibility](#)[FOIA](#)[Privacy](#)[Policies and Notices](#)[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)**Title: Groundwater for USA: Water Levels****URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>**Page Contact Information: [USGS Water Data Support Team](#)

Page Last Modified: 2023-06-21 10:17:57 EDT


0.28 0.24 nadww01





APPENDIX B

Lithologic Soil Sampling Logs

 ENSOLUM								Sample Name: BH01		Date: 7/11/2023	
								Site Name: Nocaster 19 Federal 004H			
								Incident Number: NAPP2317131365			
								Job Number: 03D2024200			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: Peter Van Patten		Method: Hand Auger	
Coordinates: 32.283843,-103.503408								Hole Diameter:		Total Depth: 1.0'	
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 40% correction factors included. ND - Non Detect											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
Damp	ND	0.1	N	BH01	0.5	0	CHHE	Caliche: off white, light tan, no stain, no odor			
Damp	ND	0.3	N	BH01A	1.0	1	SP-SM	Sand: tan, light brown, medium to fine grain, poorly graded, some caliche, no stain, no odor TD at 1 foot bgs			



APPENDIX C

Photographic Log



Photographic Log

COG Operating, LLC

Nocaster 19 Federal 004H

Incident Number NAPP2317131365



Photograph: 1 Date: 6/11/2023
Description: Initial release discovery
View: Northwest



Photograph: 2 Date: 7/11/2023
Description: Delineation and excavation activities
View: North



Photograph: 3 Date: 7/11/2023
Description: Excavation activities
View: West



Photograph: 4 Date: 7/11/2023
Description: Excavation activities
View: South



APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation



Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Hadlie Green

Ensolum

601 N. Marienfeld St.

Suite 400

Midland, Texas 79701

Generated 6/30/2023 4:39:01 PM

JOB DESCRIPTION

No Caster 19 Federal 4h
SDG NUMBER 03D2024200

JOB NUMBER

890-4853-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad

Job Notes

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

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

Authorization



Generated
6/30/2023 4:39:01 PM

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

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Laboratory Job ID: 890-4853-1
SDG: 03D2024200

Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Client Sample Results	7
Surrogate Summary	13
QC Sample Results	14
QC Association Summary	21
Lab Chronicle	24
Certification Summary	27
Method Summary	28
Sample Summary	29
Chain of Custody	30
Receipt Checklists	31

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

Definitions/Glossary

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Qualifiers

GC VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Job ID: 890-4853-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-4853-1****Receipt**

The samples were received on 6/22/2023 4:46 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: SS01 (890-4853-1), SS02 (890-4853-2), SS03 (890-4853-3), SS04 (890-4853-4), SS05 (890-4853-5), SS06 (890-4853-6) and SS07 (890-4853-7).

GC VOA

Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-56423 and analytical batch 880-56415 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

Method 8021B: Surrogate recovery for the following sample was outside control limits: SS06 (890-4853-6). 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: (890-4851-A-12-B), (890-4851-A-12-C MS) and (890-4851-A-12-D MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: SS01 (890-4853-1), SS02 (890-4853-2), SS03 (890-4853-3), SS04 (890-4853-4), SS05 (890-4853-5) and SS06 (890-4853-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: The continuing calibration verification (CCV) associated with batch 880-56452 recovered below the lower control limit for Diesel Range Organics (Over C10-C28). An acceptable CCV was ran within the 12 hour window, therefore the data has been qualified and reported. The associated sample is impacted: (CCV 880-56452/31).

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: SS07 (890-4853-7). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-56505 and analytical batch 880-56535 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8015MOD_NM: The laboratory control sample duplicate (LCSD) for preparation batch 880-56505 and analytical batch 880-56535 recovered outside control limits for the following analytes: Gasoline Range Organics (GRO)-C6-C10. Since only an acceptable LCS is required per the method, the data has been qualified; therefore, the data have been reported.

Method 8015MOD_NM: The continuing calibration verification (CCV) associated with batch 880-56535 recovered below the lower control limit for Diesel Range Organics (Over C10-C28). An acceptable CCV was ran within the 12 hour window; therefore, the data have been reported. The associated sample is impacted: (CCV 880-56535/20).

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.

Case Narrative

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Job ID: 890-4853-1 (Continued)

Laboratory: Eurofins Carlsbad (Continued)

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

Client Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Client Sample ID: SS01

Lab Sample ID: 890-4853-1

Date Collected: 06/22/23 09:25

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U **	0.00201	mg/Kg		06/27/23 15:45	06/28/23 03:34	1
Toluene	<0.00201	U **	0.00201	mg/Kg		06/27/23 15:45	06/28/23 03:34	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		06/27/23 15:45	06/28/23 03:34	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		06/27/23 15:45	06/28/23 03:34	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		06/27/23 15:45	06/28/23 03:34	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		06/27/23 15:45	06/28/23 03:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130	06/27/23 15:45	06/28/23 03:34	1
1,4-Difluorobenzene (Surr)	112		70 - 130	06/27/23 15:45	06/28/23 03:34	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			06/28/23 16:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			06/29/23 09:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/26/23 09:18	06/28/23 16:45	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/26/23 09:18	06/28/23 16:45	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/26/23 09:18	06/28/23 16:45	1
Total TPH	<50.0	U	50.0	mg/Kg		06/26/23 09:18	06/28/23 16:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	163	S1+	70 - 130	06/26/23 09:18	06/28/23 16:45	1
o-Terphenyl	176	S1+	70 - 130	06/26/23 09:18	06/28/23 16:45	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	43.0		5.04	mg/Kg			06/27/23 01:05	1

Client Sample ID: SS02

Lab Sample ID: 890-4853-2

Date Collected: 06/22/23 09:30

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U **	0.00199	mg/Kg		06/27/23 15:45	06/28/23 03:55	1
Toluene	<0.00199	U **	0.00199	mg/Kg		06/27/23 15:45	06/28/23 03:55	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		06/27/23 15:45	06/28/23 03:55	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		06/27/23 15:45	06/28/23 03:55	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		06/27/23 15:45	06/28/23 03:55	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		06/27/23 15:45	06/28/23 03:55	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Client Sample ID: SS02

Lab Sample ID: 890-4853-2

Date Collected: 06/22/23 09:30

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130	06/27/23 15:45	06/28/23 03:55	1
1,4-Difluorobenzene (Surr)	92		70 - 130	06/27/23 15:45	06/28/23 03:55	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			06/28/23 16:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			06/29/23 09:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:09	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:09	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:09	1
Total TPH	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	150	S1+	70 - 130	06/26/23 09:18	06/28/23 17:09	1
o-Terphenyl	166	S1+	70 - 130	06/26/23 09:18	06/28/23 17:09	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	52.2		4.96	mg/Kg			06/27/23 01:23	1

Client Sample ID: SS03

Lab Sample ID: 890-4853-3

Date Collected: 06/22/23 09:35

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U **	0.00199	mg/Kg		06/27/23 15:45	06/28/23 04:15	1
Toluene	<0.00199	U **	0.00199	mg/Kg		06/27/23 15:45	06/28/23 04:15	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		06/27/23 15:45	06/28/23 04:15	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		06/27/23 15:45	06/28/23 04:15	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		06/27/23 15:45	06/28/23 04:15	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		06/27/23 15:45	06/28/23 04:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130	06/27/23 15:45	06/28/23 04:15	1
1,4-Difluorobenzene (Surr)	98		70 - 130	06/27/23 15:45	06/28/23 04:15	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			06/28/23 16:11	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Client Sample ID: SS03

Lab Sample ID: 890-4853-3

Date Collected: 06/22/23 09:35

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			06/29/23 09:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:34	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:34	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:34	1
Total TPH	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	141	S1+	70 - 130			06/26/23 09:18	06/28/23 17:34	1
o-Terphenyl	156	S1+	70 - 130			06/26/23 09:18	06/28/23 17:34	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	54.9		4.99	mg/Kg			06/27/23 01:29	1

Client Sample ID: SS04

Lab Sample ID: 890-4853-4

Date Collected: 06/22/23 09:40

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U **	0.00200	mg/Kg		06/27/23 15:45	06/28/23 04:36	1
Toluene	<0.00200	U **	0.00200	mg/Kg		06/27/23 15:45	06/28/23 04:36	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		06/27/23 15:45	06/28/23 04:36	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		06/27/23 15:45	06/28/23 04:36	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		06/27/23 15:45	06/28/23 04:36	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		06/27/23 15:45	06/28/23 04:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130			06/27/23 15:45	06/28/23 04:36	1
1,4-Difluorobenzene (Surr)	129		70 - 130			06/27/23 15:45	06/28/23 04:36	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			06/28/23 16:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			06/29/23 09:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:59	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:59	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:59	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Client Sample ID: SS04

Lab Sample ID: 890-4853-4

Date Collected: 06/22/23 09:40

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg		06/26/23 09:18	06/28/23 17:59	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	151	S1+	70 - 130			06/26/23 09:18	06/28/23 17:59	1
o-Terphenyl	161	S1+	70 - 130			06/26/23 09:18	06/28/23 17:59	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27.8		5.02	mg/Kg			06/27/23 01:34	1

Client Sample ID: SS05

Lab Sample ID: 890-4853-5

Date Collected: 06/22/23 09:50

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0199	U	0.0199	mg/Kg		06/29/23 10:49	06/30/23 00:38	10
Toluene	0.357	*+	0.100	mg/Kg		06/27/23 15:45	06/28/23 05:57	50
Ethylbenzene	1.99		0.100	mg/Kg		06/27/23 15:45	06/28/23 05:57	50
m-Xylene & p-Xylene	5.44		0.200	mg/Kg		06/27/23 15:45	06/28/23 05:57	50
o-Xylene	3.65		0.100	mg/Kg		06/27/23 15:45	06/28/23 05:57	50
Xylenes, Total	9.09		0.200	mg/Kg		06/27/23 15:45	06/28/23 05:57	50
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	129		70 - 130			06/27/23 15:45	06/28/23 05:57	50
1,4-Difluorobenzene (Surr)	89		70 - 130			06/27/23 15:45	06/28/23 05:57	50

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	11.4		0.200	mg/Kg			06/28/23 16:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	3290		50.0	mg/Kg			06/29/23 09:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	606		50.0	mg/Kg		06/26/23 09:18	06/28/23 18:24	1
Diesel Range Organics (Over C10-C28)	2370		50.0	mg/Kg		06/26/23 09:18	06/28/23 18:24	1
Oil Range Organics (Over C28-C36)	313		50.0	mg/Kg		06/26/23 09:18	06/28/23 18:24	1
Total TPH	3290		50.0	mg/Kg		06/26/23 09:18	06/28/23 18:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	183	S1+	70 - 130			06/26/23 09:18	06/28/23 18:24	1
o-Terphenyl	173	S1+	70 - 130			06/26/23 09:18	06/28/23 18:24	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Client Sample ID: SS05

Lab Sample ID: 890-4853-5

Date Collected: 06/22/23 09:50

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	52.4		5.05	mg/Kg			06/27/23 01:40	1

Client Sample ID: SS06

Lab Sample ID: 890-4853-6

Date Collected: 06/22/23 09:55

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0202	U	0.0202	mg/Kg		06/29/23 10:49	06/30/23 00:59	10
Toluene	0.176	+	0.100	mg/Kg		06/27/23 15:45	06/28/23 06:18	50
Ethylbenzene	0.408		0.100	mg/Kg		06/27/23 15:45	06/28/23 06:18	50
m-Xylene & p-Xylene	1.00		0.201	mg/Kg		06/27/23 15:45	06/28/23 06:18	50
o-Xylene	0.468		0.100	mg/Kg		06/27/23 15:45	06/28/23 06:18	50
Xylenes, Total	1.47		0.201	mg/Kg		06/27/23 15:45	06/28/23 06:18	50
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	125		70 - 130			06/27/23 15:45	06/28/23 06:18	50
1,4-Difluorobenzene (Surr)	87		70 - 130			06/27/23 15:45	06/28/23 06:18	50

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	2.05		0.201	mg/Kg			06/28/23 16:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	2240		49.8	mg/Kg			06/29/23 09:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	184		49.8	mg/Kg		06/26/23 09:18	06/28/23 18:48	1
Diesel Range Organics (Over C10-C28)	1840		49.8	mg/Kg		06/26/23 09:18	06/28/23 18:48	1
Oil Range Organics (Over C28-C36)	219		49.8	mg/Kg		06/26/23 09:18	06/28/23 18:48	1
Total TPH	2240		49.8	mg/Kg		06/26/23 09:18	06/28/23 18:48	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	157	S1+	70 - 130			06/26/23 09:18	06/28/23 18:48	1
o-Terphenyl	155	S1+	70 - 130			06/26/23 09:18	06/28/23 18:48	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	38.6		4.95	mg/Kg			06/27/23 01:58	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Client Sample ID: SS07

Lab Sample ID: 890-4853-7

Date Collected: 06/22/23 10:00

Matrix: Solid

Date Received: 06/22/23 16:46

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.225	*+	0.0998	mg/Kg		06/27/23 15:45	06/28/23 06:38	50
Toluene	10.3	*+	0.0998	mg/Kg		06/27/23 15:45	06/28/23 06:38	50
Ethylbenzene	9.10		0.0998	mg/Kg		06/27/23 15:45	06/28/23 06:38	50
m-Xylene & p-Xylene	26.9		0.200	mg/Kg		06/27/23 15:45	06/28/23 06:38	50
o-Xylene	10.5		0.0998	mg/Kg		06/27/23 15:45	06/28/23 06:38	50
Xylenes, Total	37.4		0.200	mg/Kg		06/27/23 15:45	06/28/23 06:38	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130	06/27/23 15:45	06/28/23 06:38	50
1,4-Difluorobenzene (Surr)	75		70 - 130	06/27/23 15:45	06/28/23 06:38	50

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	57.0		0.200	mg/Kg			06/28/23 16:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	6050		50.0	mg/Kg			06/29/23 16:35	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	2130	*+	50.0	mg/Kg		06/28/23 14:00	06/29/23 16:03	1
Diesel Range Organics (Over C10-C28)	3920		50.0	mg/Kg		06/28/23 14:00	06/29/23 16:03	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/28/23 14:00	06/29/23 16:03	1
Total TPH	6050		50.0	mg/Kg		06/28/23 14:00	06/29/23 16:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	160	S1+	70 - 130	06/28/23 14:00	06/29/23 16:03	1
o-Terphenyl	69	S1-	70 - 130	06/28/23 14:00	06/29/23 16:03	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	195		5.01	mg/Kg			06/27/23 02:04	1

Eurofins Carlsbad

Surrogate Summary

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-4853-1	SS01	96	112
890-4853-1 MS	SS01	109	96
890-4853-1 MSD	SS01	118	94
890-4853-2	SS02	90	92
890-4853-3	SS03	83	98
890-4853-4	SS04	104	129
890-4853-5	SS05	129	89
890-4853-6	SS06	125	87
890-4853-7	SS07	98	75
890-4872-A-1-D MS	Matrix Spike	103	98
890-4872-A-1-E MSD	Matrix Spike Duplicate	100	100
LCS 880-56423/1-A	Lab Control Sample	112	101
LCS 880-56572/1-A	Lab Control Sample	104	98
LCSD 880-56423/2-A	Lab Control Sample Dup	119	101
LCSD 880-56572/2-A	Lab Control Sample Dup	100	106
MB 880-56414/5-A	Method Blank	100	106
MB 880-56423/5-A	Method Blank	101	104
MB 880-56572/5-A	Method Blank	97	88
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-4851-A-12-C MS	Matrix Spike	279 S1+	297 S1+
890-4851-A-12-D MSD	Matrix Spike Duplicate	277 S1+	297 S1+
890-4853-1	SS01	163 S1+	176 S1+
890-4853-2	SS02	150 S1+	166 S1+
890-4853-3	SS03	141 S1+	156 S1+
890-4853-4	SS04	151 S1+	161 S1+
890-4853-5	SS05	183 S1+	173 S1+
890-4853-6	SS06	157 S1+	155 S1+
890-4853-7	SS07	160 S1+	69 S1-
890-4857-A-10-D MS	Matrix Spike	105	81
890-4857-A-10-E MSD	Matrix Spike Duplicate	104	80
LCS 880-56288/2-A	Lab Control Sample	99	110
LCS 880-56505/2-A	Lab Control Sample	117	102
LCSD 880-56288/3-A	Lab Control Sample Dup	83	94
LCSD 880-56505/3-A	Lab Control Sample Dup	114	99
MB 880-56288/1-A	Method Blank	102	112
MB 880-56505/1-A	Method Blank	119	108
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-56414/5-A

Matrix: Solid

Analysis Batch: 56415

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 56414

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		06/27/23 11:44	06/27/23 15:14	1
Toluene	<0.00200	U	0.00200	mg/Kg		06/27/23 11:44	06/27/23 15:14	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		06/27/23 11:44	06/27/23 15:14	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		06/27/23 11:44	06/27/23 15:14	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		06/27/23 11:44	06/27/23 15:14	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		06/27/23 11:44	06/27/23 15:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130	06/27/23 11:44	06/27/23 15:14	1
1,4-Difluorobenzene (Surr)	106		70 - 130	06/27/23 11:44	06/27/23 15:14	1

Lab Sample ID: MB 880-56423/5-A

Matrix: Solid

Analysis Batch: 56415

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 56423

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		06/27/23 15:45	06/28/23 03:05	1
Toluene	<0.00200	U	0.00200	mg/Kg		06/27/23 15:45	06/28/23 03:05	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		06/27/23 15:45	06/28/23 03:05	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		06/27/23 15:45	06/28/23 03:05	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		06/27/23 15:45	06/28/23 03:05	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		06/27/23 15:45	06/28/23 03:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130	06/27/23 15:45	06/28/23 03:05	1
1,4-Difluorobenzene (Surr)	104		70 - 130	06/27/23 15:45	06/28/23 03:05	1

Lab Sample ID: LCS 880-56423/1-A

Matrix: Solid

Analysis Batch: 56415

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 56423

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1434	*+	mg/Kg		143	70 - 130
Toluene	0.100	0.1396	*+	mg/Kg		140	70 - 130
Ethylbenzene	0.100	0.1228		mg/Kg		123	70 - 130
m-Xylene & p-Xylene	0.200	0.2416		mg/Kg		121	70 - 130
o-Xylene	0.100	0.1140		mg/Kg		114	70 - 130

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

Lab Sample ID: LCSD 880-56423/2-A

Matrix: Solid

Analysis Batch: 56415

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 56423

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1482	*+	mg/Kg		148	70 - 130	3	35

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

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

Lab Sample ID: LCSD 880-56423/2-A

Matrix: Solid

Analysis Batch: 56415

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 56423

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.1362	*+	mg/Kg		136	70 - 130	2	35
Ethylbenzene	0.100	0.1251		mg/Kg		125	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.2266		mg/Kg		113	70 - 130	6	35
o-Xylene	0.100	0.1101		mg/Kg		110	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	119		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 890-4853-1 MS

Matrix: Solid

Analysis Batch: 56415

Client Sample ID: SS01

Prep Type: Total/NA

Prep Batch: 56423

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U *	0.101	0.1218		mg/Kg		121	70 - 130
Toluene	<0.00201	U *	0.101	0.1185		mg/Kg		118	70 - 130
Ethylbenzene	<0.00201	U	0.101	0.1040		mg/Kg		103	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.202	0.2006		mg/Kg		100	70 - 130
o-Xylene	<0.00201	U	0.101	0.09584		mg/Kg		94	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,4-Difluorobenzene (Surr)	96		70 - 130

Lab Sample ID: 890-4853-1 MSD

Matrix: Solid

Analysis Batch: 56415

Client Sample ID: SS01

Prep Type: Total/NA

Prep Batch: 56423

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U *	0.100	0.1242		mg/Kg		124	70 - 130	2	35
Toluene	<0.00201	U *	0.100	0.1230		mg/Kg		123	70 - 130	4	35
Ethylbenzene	<0.00201	U	0.100	0.1083		mg/Kg		108	70 - 130	4	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2100		mg/Kg		105	70 - 130	5	35
o-Xylene	<0.00201	U	0.100	0.1011		mg/Kg		100	70 - 130	5	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	118		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: MB 880-56572/5-A

Matrix: Solid

Analysis Batch: 56626

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 56572

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		06/29/23 10:49	06/29/23 16:56	1
Toluene	<0.00200	U	0.00200	mg/Kg		06/29/23 10:49	06/29/23 16:56	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		06/29/23 10:49	06/29/23 16:56	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		06/29/23 10:49	06/29/23 16:56	1

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

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

Lab Sample ID: MB 880-56572/5-A

Matrix: Solid

Analysis Batch: 56626

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 56572

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	<0.00200	U	0.00200	mg/Kg		06/29/23 10:49	06/29/23 16:56	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		06/29/23 10:49	06/29/23 16:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	06/29/23 10:49	06/29/23 16:56	1
1,4-Difluorobenzene (Surr)	88		70 - 130	06/29/23 10:49	06/29/23 16:56	1

Lab Sample ID: LCS 880-56572/1-A

Matrix: Solid

Analysis Batch: 56626

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 56572

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1181		mg/Kg		118	70 - 130
Toluene	0.100	0.1256		mg/Kg		126	70 - 130
Ethylbenzene	0.100	0.1095		mg/Kg		109	70 - 130
m-Xylene & p-Xylene	0.200	0.2299		mg/Kg		115	70 - 130
o-Xylene	0.100	0.1093		mg/Kg		109	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: LCSD 880-56572/2-A

Matrix: Solid

Analysis Batch: 56626

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 56572

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1255		mg/Kg		125	70 - 130	6	35
Toluene	0.100	0.1198		mg/Kg		120	70 - 130	5	35
Ethylbenzene	0.100	0.1008		mg/Kg		101	70 - 130	8	35
m-Xylene & p-Xylene	0.200	0.2062		mg/Kg		103	70 - 130	11	35
o-Xylene	0.100	0.09945		mg/Kg		99	70 - 130	9	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: 890-4872-A-1-D MS

Matrix: Solid

Analysis Batch: 56626

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 56572

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.0992	0.1101		mg/Kg		111	70 - 130
Toluene	<0.00199	U	0.0992	0.1138		mg/Kg		115	70 - 130
Ethylbenzene	<0.00199	U	0.0992	0.09887		mg/Kg		100	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.198	0.2040		mg/Kg		103	70 - 130
o-Xylene	<0.00199	U	0.0992	0.09712		mg/Kg		98	70 - 130

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

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

Lab Sample ID: 890-4872-A-1-D MS
Matrix: Solid
Analysis Batch: 56626

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 56572

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: 890-4872-A-1-E MSD
Matrix: Solid
Analysis Batch: 56626

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 56572

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.101	0.1107		mg/Kg		110	70 - 130	1	35
Toluene	<0.00199	U	0.101	0.1110		mg/Kg		110	70 - 130	2	35
Ethylbenzene	<0.00199	U	0.101	0.09342		mg/Kg		93	70 - 130	6	35
m-Xylene & p-Xylene	<0.00398	U	0.202	0.1912		mg/Kg		95	70 - 130	6	35
o-Xylene	<0.00199	U	0.101	0.09089		mg/Kg		90	70 - 130	7	35

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

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

Lab Sample ID: MB 880-56288/1-A
Matrix: Solid
Analysis Batch: 56452

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 56288

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/26/23 09:18	06/28/23 08:41	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/26/23 09:18	06/28/23 08:41	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/26/23 09:18	06/28/23 08:41	1
Total TPH	<50.0	U	50.0	mg/Kg		06/26/23 09:18	06/28/23 08:41	1

	MB	MB						
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
1-Chlorooctane	102		70 - 130	06/26/23 09:18	06/28/23 08:41	1		
o-Terphenyl	112		70 - 130	06/26/23 09:18	06/28/23 08:41	1		

Lab Sample ID: LCS 880-56288/2-A
Matrix: Solid
Analysis Batch: 56452

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 56288

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C6-C10	1000	968.2		mg/Kg		97	70 - 130	
Diesel Range Organics (Over C10-C28)	1000	1183		mg/Kg		118	70 - 130	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	99		70 - 130
o-Terphenyl	110		70 - 130

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

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

Lab Sample ID: LCSD 880-56288/3-A

Matrix: Solid

Analysis Batch: 56452

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 56288

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	933.6		mg/Kg		93	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	1000	1170		mg/Kg		117	70 - 130	1	20
	LCSD	LCSD							
Surrogate	%Recovery	Qualifier	Limits						
1-Chlorooctane	83		70 - 130						
o-Terphenyl	94		70 - 130						

Lab Sample ID: 890-4851-A-12-C MS

Matrix: Solid

Analysis Batch: 56452

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 56288

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U F1	997	1415	F1	mg/Kg		140	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U F1	997	1659	F1	mg/Kg		166	70 - 130		
	MS	MS									
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane	279	S1+	70 - 130								
o-Terphenyl	297	S1+	70 - 130								

Lab Sample ID: 890-4851-A-12-D MSD

Matrix: Solid

Analysis Batch: 56452

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 56288

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U F1	999	1442	F1	mg/Kg		142	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.9	U F1	999	1658	F1	mg/Kg		166	70 - 130	0	20
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane	277	S1+	70 - 130								
o-Terphenyl	297	S1+	70 - 130								

Lab Sample ID: MB 880-56505/1-A

Matrix: Solid

Analysis Batch: 56535

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 56505

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/28/23 14:00	06/29/23 08:22	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/28/23 14:00	06/29/23 08:22	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/28/23 14:00	06/29/23 08:22	1
Total TPH	<50.0	U	50.0	mg/Kg		06/28/23 14:00	06/29/23 08:22	1

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

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

Lab Sample ID: MB 880-56505/1-A
Matrix: Solid
Analysis Batch: 56535

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 56505

	MB	MB								
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil	Fac			
1-Chlorooctane	119		70 - 130	06/28/23 14:00	06/29/23 08:22	1				
o-Terphenyl	108		70 - 130	06/28/23 14:00	06/29/23 08:22	1				

Lab Sample ID: LCS 880-56505/2-A
Matrix: Solid
Analysis Batch: 56535

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 56505

			Spike	LCS	LCS				%Rec		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1150		mg/Kg		115	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	968.2		mg/Kg		97	70 - 130		
Surrogate	LCS	LCS									
	%Recovery	Qualifier	Limits								
1-Chlorooctane	117		70 - 130								
o-Terphenyl	102		70 - 130								

Lab Sample ID: LCSD 880-56505/3-A
Matrix: Solid
Analysis Batch: 56535

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 56505

			Spike	LCSD	LCSD				%Rec		RPD	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10			1000	1315	*+	mg/Kg		132	70 - 130	13	20	
Diesel Range Organics (Over C10-C28)			1000	1008		mg/Kg		101	70 - 130	4	20	
Surrogate	LCSD	LCSD										
	%Recovery	Qualifier	Limits									
1-Chlorooctane	114		70 - 130									
o-Terphenyl	99		70 - 130									

Lab Sample ID: 890-4857-A-10-D MS
Matrix: Solid
Analysis Batch: 56535

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 56505

	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *+	999	996.5		mg/Kg		100	70 - 130		
Diesel Range Organics (Over C10-C28)	735	F1	999	1002	F1	mg/Kg		27	70 - 130		
Surrogate	MS	MS									
	%Recovery	Qualifier	Limits								
1-Chlorooctane	105		70 - 130								
o-Terphenyl	81		70 - 130								

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

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

Lab Sample ID: 890-4857-A-10-E MSD

Matrix: Solid

Analysis Batch: 56535

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 56505

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *	999	1013		mg/Kg		101	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	735	F1	999	1052	F1	mg/Kg		32	70 - 130	5	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	104		70 - 130								
o-Terphenyl	80		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-56336/1-A

Matrix: Solid

Analysis Batch: 56372

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			06/27/23 00:48	1

Lab Sample ID: LCS 880-56336/2-A

Matrix: Solid

Analysis Batch: 56372

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	250.5		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 880-56336/3-A

Matrix: Solid

Analysis Batch: 56372

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	249.3		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-4853-1 MS

Matrix: Solid

Analysis Batch: 56372

Client Sample ID: SS01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	43.0		252	304.3		mg/Kg		104	90 - 110

Lab Sample ID: 890-4853-1 MSD

Matrix: Solid

Analysis Batch: 56372

Client Sample ID: SS01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	43.0		252	302.4		mg/Kg		103	90 - 110	1	20

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

GC VOA

Prep Batch: 56414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-56414/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 56415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-1	SS01	Total/NA	Solid	8021B	56423
890-4853-2	SS02	Total/NA	Solid	8021B	56423
890-4853-3	SS03	Total/NA	Solid	8021B	56423
890-4853-4	SS04	Total/NA	Solid	8021B	56423
890-4853-5	SS05	Total/NA	Solid	8021B	56423
890-4853-6	SS06	Total/NA	Solid	8021B	56423
890-4853-7	SS07	Total/NA	Solid	8021B	56423
MB 880-56414/5-A	Method Blank	Total/NA	Solid	8021B	56414
MB 880-56423/5-A	Method Blank	Total/NA	Solid	8021B	56423
LCS 880-56423/1-A	Lab Control Sample	Total/NA	Solid	8021B	56423
LCSD 880-56423/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	56423
890-4853-1 MS	SS01	Total/NA	Solid	8021B	56423
890-4853-1 MSD	SS01	Total/NA	Solid	8021B	56423

Prep Batch: 56423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-1	SS01	Total/NA	Solid	5035	
890-4853-2	SS02	Total/NA	Solid	5035	
890-4853-3	SS03	Total/NA	Solid	5035	
890-4853-4	SS04	Total/NA	Solid	5035	
890-4853-5	SS05	Total/NA	Solid	5035	
890-4853-6	SS06	Total/NA	Solid	5035	
890-4853-7	SS07	Total/NA	Solid	5035	
MB 880-56423/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-56423/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-56423/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4853-1 MS	SS01	Total/NA	Solid	5035	
890-4853-1 MSD	SS01	Total/NA	Solid	5035	

Analysis Batch: 56514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-1	SS01	Total/NA	Solid	Total BTEX	
890-4853-2	SS02	Total/NA	Solid	Total BTEX	
890-4853-3	SS03	Total/NA	Solid	Total BTEX	
890-4853-4	SS04	Total/NA	Solid	Total BTEX	
890-4853-5	SS05	Total/NA	Solid	Total BTEX	
890-4853-6	SS06	Total/NA	Solid	Total BTEX	
890-4853-7	SS07	Total/NA	Solid	Total BTEX	

Prep Batch: 56572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-5	SS05	Total/NA	Solid	5035	
890-4853-6	SS06	Total/NA	Solid	5035	
MB 880-56572/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-56572/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-56572/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4872-A-1-D MS	Matrix Spike	Total/NA	Solid	5035	

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

GC VOA (Continued)

Prep Batch: 56572 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4872-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 56626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-5	SS05	Total/NA	Solid	8021B	56572
890-4853-6	SS06	Total/NA	Solid	8021B	56572
MB 880-56572/5-A	Method Blank	Total/NA	Solid	8021B	56572
LCS 880-56572/1-A	Lab Control Sample	Total/NA	Solid	8021B	56572
LCSD 880-56572/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	56572
890-4872-A-1-D MS	Matrix Spike	Total/NA	Solid	8021B	56572
890-4872-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	56572

GC Semi VOA

Prep Batch: 56288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-1	SS01	Total/NA	Solid	8015NM Prep	
890-4853-2	SS02	Total/NA	Solid	8015NM Prep	
890-4853-3	SS03	Total/NA	Solid	8015NM Prep	
890-4853-4	SS04	Total/NA	Solid	8015NM Prep	
890-4853-5	SS05	Total/NA	Solid	8015NM Prep	
890-4853-6	SS06	Total/NA	Solid	8015NM Prep	
MB 880-56288/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-56288/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-56288/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-4851-A-12-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-4851-A-12-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 56452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-1	SS01	Total/NA	Solid	8015B NM	56288
890-4853-2	SS02	Total/NA	Solid	8015B NM	56288
890-4853-3	SS03	Total/NA	Solid	8015B NM	56288
890-4853-4	SS04	Total/NA	Solid	8015B NM	56288
890-4853-5	SS05	Total/NA	Solid	8015B NM	56288
890-4853-6	SS06	Total/NA	Solid	8015B NM	56288
MB 880-56288/1-A	Method Blank	Total/NA	Solid	8015B NM	56288
LCS 880-56288/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	56288
LCSD 880-56288/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	56288
890-4851-A-12-C MS	Matrix Spike	Total/NA	Solid	8015B NM	56288
890-4851-A-12-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	56288

Prep Batch: 56505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-7	SS07	Total/NA	Solid	8015NM Prep	
MB 880-56505/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-56505/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-56505/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-4857-A-10-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-4857-A-10-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

GC Semi VOA

Analysis Batch: 56535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-7	SS07	Total/NA	Solid	8015B NM	56505
MB 880-56505/1-A	Method Blank	Total/NA	Solid	8015B NM	56505
LCS 880-56505/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	56505
LCSD 880-56505/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	56505
890-4857-A-10-D MS	Matrix Spike	Total/NA	Solid	8015B NM	56505
890-4857-A-10-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	56505

Analysis Batch: 56552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-1	SS01	Total/NA	Solid	8015 NM	
890-4853-2	SS02	Total/NA	Solid	8015 NM	
890-4853-3	SS03	Total/NA	Solid	8015 NM	
890-4853-4	SS04	Total/NA	Solid	8015 NM	
890-4853-5	SS05	Total/NA	Solid	8015 NM	
890-4853-6	SS06	Total/NA	Solid	8015 NM	
890-4853-7	SS07	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 56336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-1	SS01	Soluble	Solid	DI Leach	
890-4853-2	SS02	Soluble	Solid	DI Leach	
890-4853-3	SS03	Soluble	Solid	DI Leach	
890-4853-4	SS04	Soluble	Solid	DI Leach	
890-4853-5	SS05	Soluble	Solid	DI Leach	
890-4853-6	SS06	Soluble	Solid	DI Leach	
890-4853-7	SS07	Soluble	Solid	DI Leach	
MB 880-56336/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-56336/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-56336/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-4853-1 MS	SS01	Soluble	Solid	DI Leach	
890-4853-1 MSD	SS01	Soluble	Solid	DI Leach	

Analysis Batch: 56372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4853-1	SS01	Soluble	Solid	300.0	56336
890-4853-2	SS02	Soluble	Solid	300.0	56336
890-4853-3	SS03	Soluble	Solid	300.0	56336
890-4853-4	SS04	Soluble	Solid	300.0	56336
890-4853-5	SS05	Soluble	Solid	300.0	56336
890-4853-6	SS06	Soluble	Solid	300.0	56336
890-4853-7	SS07	Soluble	Solid	300.0	56336
MB 880-56336/1-A	Method Blank	Soluble	Solid	300.0	56336
LCS 880-56336/2-A	Lab Control Sample	Soluble	Solid	300.0	56336
LCSD 880-56336/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	56336
890-4853-1 MS	SS01	Soluble	Solid	300.0	56336
890-4853-1 MSD	SS01	Soluble	Solid	300.0	56336

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Client Sample ID: SS01
Date Collected: 06/22/23 09:25
Date Received: 06/22/23 16:46

Lab Sample ID: 890-4853-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	56423	06/27/23 15:45	SM	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	56415	06/28/23 03:34	SM	EET MID
Total/NA	Analysis	Total BTEX		1			56514	06/28/23 16:11	SM	EET MID
Total/NA	Analysis	8015 NM		1			56552	06/29/23 09:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	56288	06/26/23 09:18	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	56452	06/28/23 16:45	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	56336	06/26/23 10:29	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	56372	06/27/23 01:05	CH	EET MID

Client Sample ID: SS02
Date Collected: 06/22/23 09:30
Date Received: 06/22/23 16:46

Lab Sample ID: 890-4853-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	56423	06/27/23 15:45	SM	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	56415	06/28/23 03:55	SM	EET MID
Total/NA	Analysis	Total BTEX		1			56514	06/28/23 16:11	SM	EET MID
Total/NA	Analysis	8015 NM		1			56552	06/29/23 09:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	56288	06/26/23 09:18	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	56452	06/28/23 17:09	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	56336	06/26/23 10:29	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	56372	06/27/23 01:23	CH	EET MID

Client Sample ID: SS03
Date Collected: 06/22/23 09:35
Date Received: 06/22/23 16:46

Lab Sample ID: 890-4853-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	56423	06/27/23 15:45	SM	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	56415	06/28/23 04:15	SM	EET MID
Total/NA	Analysis	Total BTEX		1			56514	06/28/23 16:11	SM	EET MID
Total/NA	Analysis	8015 NM		1			56552	06/29/23 09:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	56288	06/26/23 09:18	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	56452	06/28/23 17:34	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	56336	06/26/23 10:29	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	56372	06/27/23 01:29	CH	EET MID

Client Sample ID: SS04
Date Collected: 06/22/23 09:40
Date Received: 06/22/23 16:46

Lab Sample ID: 890-4853-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	56423	06/27/23 15:45	SM	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	56415	06/28/23 04:36	SM	EET MID
Total/NA	Analysis	Total BTEX		1			56514	06/28/23 16:11	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Client Sample ID: SS04

Lab Sample ID: 890-4853-4

Date Collected: 06/22/23 09:40

Matrix: Solid

Date Received: 06/22/23 16:46

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			56552	06/29/23 09:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	56288	06/26/23 09:18	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	56452	06/28/23 17:59	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	56336	06/26/23 10:29	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	56372	06/27/23 01:34	CH	EET MID

Client Sample ID: SS05

Lab Sample ID: 890-4853-5

Date Collected: 06/22/23 09:50

Matrix: Solid

Date Received: 06/22/23 16:46

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	56572	06/29/23 10:49	EL	EET MID
Total/NA	Analysis	8021B		10	5 mL	5 mL	56626	06/30/23 00:38	SM	EET MID
Total/NA	Prep	5035			4.99 g	5 mL	56423	06/27/23 15:45	SM	EET MID
Total/NA	Analysis	8021B		50	5 mL	5 mL	56415	06/28/23 05:57	SM	EET MID
Total/NA	Analysis	Total BTEX		1			56514	06/28/23 16:11	SM	EET MID
Total/NA	Analysis	8015 NM		1			56552	06/29/23 09:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	56288	06/26/23 09:18	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	56452	06/28/23 18:24	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	56336	06/26/23 10:29	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	56372	06/27/23 01:40	CH	EET MID

Client Sample ID: SS06

Lab Sample ID: 890-4853-6

Date Collected: 06/22/23 09:55

Matrix: Solid

Date Received: 06/22/23 16:46

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	56572	06/29/23 10:49	EL	EET MID
Total/NA	Analysis	8021B		10	5 mL	5 mL	56626	06/30/23 00:59	SM	EET MID
Total/NA	Prep	5035			4.98 g	5 mL	56423	06/27/23 15:45	SM	EET MID
Total/NA	Analysis	8021B		50	5 mL	5 mL	56415	06/28/23 06:18	SM	EET MID
Total/NA	Analysis	Total BTEX		1			56514	06/28/23 16:11	SM	EET MID
Total/NA	Analysis	8015 NM		1			56552	06/29/23 09:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	56288	06/26/23 09:18	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	56452	06/28/23 18:48	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	56336	06/26/23 10:29	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	56372	06/27/23 01:58	CH	EET MID

Client Sample ID: SS07

Lab Sample ID: 890-4853-7

Date Collected: 06/22/23 10:00

Matrix: Solid

Date Received: 06/22/23 16:46

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	56423	06/27/23 15:45	SM	EET MID
Total/NA	Analysis	8021B		50	5 mL	5 mL	56415	06/28/23 06:38	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Client Sample ID: SS07
Date Collected: 06/22/23 10:00
Date Received: 06/22/23 16:46

Lab Sample ID: 890-4853-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total BTEX		1			56514	06/28/23 16:11	SM	EET MID
Total/NA	Analysis	8015 NM		1			56552	06/29/23 16:35	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	56505	06/28/23 14:00	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	56535	06/29/23 16:03	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	56336	06/26/23 10:29	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	56372	06/27/23 02:04	CH	EET MID

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

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: No Caster 19 Federal 4h

Job ID: 890-4853-1
SDG: 03D2024200

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-4853-1	SS01	Solid	06/22/23 09:25	06/22/23 16:46	0.5
890-4853-2	SS02	Solid	06/22/23 09:30	06/22/23 16:46	0.5
890-4853-3	SS03	Solid	06/22/23 09:35	06/22/23 16:46	0.5
890-4853-4	SS04	Solid	06/22/23 09:40	06/22/23 16:46	0.5
890-4853-5	SS05	Solid	06/22/23 09:50	06/22/23 16:46	0.5
890-4853-6	SS06	Solid	06/22/23 09:55	06/22/23 16:46	0.5
890-4853-7	SS07	Solid	06/22/23 10:00	06/22/23 16:46	0.5

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



Environment Testing
Xenco

Chain of Custody

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

Work Order No: _____

www.xenco.com Page 1 of 1

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

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

Project Name:		NoCaster 19 Federal 4H		Turn Around		ANALYSIS REQUEST												Preservative Codes				
Project Number:		03D2024200		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush														None: NO DI Water: H ₂ O				
Project Location:		32.2841,-103.5029		Due Date:														Cool: Cool MeOH: Me				
Sampler's Name:		Peter Van Patten		TAT starts the day received by the lab, if received by 4:30pm														HCL: HC HNO ₃ : HN				
PO #:																		H ₂ SO ₄ : H ₂ NaOH: Na				
SAMPLE RECEIPT		Temp Blank: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Wet Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No														H ₃ PO ₄ : HP				
Samples Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Thermometer ID: 11111111														NaHSO ₄ : NABIS				
Cooler Custody Seals:		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Correction Factor: -0.2														Na ₂ S ₂ O ₃ : NaSO ₃				
Sample Custody Seals:		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Temperature Reading: 4.2														Zn Acetate+NaOH: Zn				
Total Containers:				Corrected Temperature: 4.0														NaOH+Ascorbic Acid: SAPC				
Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)											Sample Comments	
SS01		Soil	6/22/2023	925	0.5	Comp	1	x	x	x												
SS02		Soil	6/22/2023	930	0.5	Comp	1	x	x	x												
SS03		Soil	6/22/2023	935	0.5	Comp	1	x	x	x												
SS04		Soil	6/22/2023	940	0.5	Comp	1	x	x	x												
SS05		Soil	6/22/2023	950	0.5	Comp	1	x	x	x												
SS06		Soil	6/22/2023	955	0.5	Comp	1	x	x	x												
SS07		Soil	6/22/2023	1000	0.5	Comp	1	x	x	x												

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Peter Van Patten	Oliver	6-22-23 11:46			
3					
5					

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4853-1

SDG Number: 03D2024200

Login Number: 4853

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4853-1

SDG Number: 03D2024200

Login Number: 4853

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 06/26/23 08:47 AM

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



Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

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

Generated 7/25/2023 11:10:24 AM

JOB DESCRIPTION

Nocaster 19 Federal 004H
SDG NUMBER 03D2024200

JOB NUMBER

890-4925-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad

Job Notes

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

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

Authorization



Generated
7/25/2023 11:10:24 AM

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

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Laboratory Job ID: 890-4925-1
SDG: 03D2024200

Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Client Sample Results	6
Surrogate Summary	10
QC Sample Results	11
QC Association Summary	16
Lab Chronicle	18
Certification Summary	20
Method Summary	21
Sample Summary	22
Chain of Custody	23
Receipt Checklists	24

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

Definitions/Glossary

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Job ID: 890-4925-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-4925-1****Receipt**

The samples were received on 7/11/2023 1:57 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.2°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH01 (890-4925-1), BH01A (890-4925-2), SS01 (890-4925-3) and SS02 (890-4925-4).

GC VOA

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-57701 recovered above the upper control limit for Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 880-57701/64).

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-57655 and analytical batch 880-57701 recovered outside control limits for the following analytes: Benzene.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-57701 recovered above the upper control limit for Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: (CCV 880-57701/82) and (CCV 880-57701/95).

Method 8021B: Surrogate recovery for the following samples were outside control limits: BH01 (890-4925-1), BH01A (890-4925-2), SS01 (890-4925-3), SS02 (890-4925-4), (LCS 880-57655/1-A), (LCSD 880-57655/2-A), (MB 880-57655/5-A), (890-4934-A-41-B MS) and (890-4934-A-41-C MSD). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (890-4934-A-41-D). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-58306/20), (CCV 880-58306/31) and (CCV 880-58306/5). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (890-4921-A-1-H MS) and (890-4921-A-1-I MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-57822 and analytical batch 880-58306 was outside the upper control limits.

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

HPLC/IC

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

Client Sample Results

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Client Sample ID: BH01

Lab Sample ID: 890-4925-1

Date Collected: 07/11/23 09:15

Matrix: Solid

Date Received: 07/11/23 13:57

Sample Depth: 0.5

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U *1	0.00200	mg/Kg		07/14/23 08:26	07/16/23 01:41	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/14/23 08:26	07/16/23 01:41	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/14/23 08:26	07/16/23 01:41	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		07/14/23 08:26	07/16/23 01:41	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/14/23 08:26	07/16/23 01:41	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		07/14/23 08:26	07/16/23 01:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	221	S1+	70 - 130	07/14/23 08:26	07/16/23 01:41	1
1,4-Difluorobenzene (Surr)	71		70 - 130	07/14/23 08:26	07/16/23 01:41	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			07/17/23 14:47	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.2	U	50.2	mg/Kg			07/25/23 11:35	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	50.2	mg/Kg		07/17/23 10:30	07/24/23 17:10	1
Diesel Range Organics (Over C10-C28)	<50.2	U	50.2	mg/Kg		07/17/23 10:30	07/24/23 17:10	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2	mg/Kg		07/17/23 10:30	07/24/23 17:10	1
Total TPH	<50.2	U	50.2	mg/Kg		07/17/23 10:30	07/24/23 17:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130	07/17/23 10:30	07/24/23 17:10	1
o-Terphenyl	104		70 - 130	07/17/23 10:30	07/24/23 17:10	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	34.3		4.99	mg/Kg			07/14/23 21:36	1

Client Sample ID: BH01A

Lab Sample ID: 890-4925-2

Date Collected: 07/11/23 09:20

Matrix: Solid

Date Received: 07/11/23 13:57

Sample Depth: 1.0

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U *1	0.00201	mg/Kg		07/14/23 08:26	07/16/23 03:24	1
Toluene	<0.00201	U	0.00201	mg/Kg		07/14/23 08:26	07/16/23 03:24	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		07/14/23 08:26	07/16/23 03:24	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		07/14/23 08:26	07/16/23 03:24	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		07/14/23 08:26	07/16/23 03:24	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		07/14/23 08:26	07/16/23 03:24	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Client Sample ID: BH01A

Lab Sample ID: 890-4925-2

Date Collected: 07/11/23 09:20

Matrix: Solid

Date Received: 07/11/23 13:57

Sample Depth: 1.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	180	S1+	70 - 130	07/14/23 08:26	07/16/23 03:24	1
1,4-Difluorobenzene (Surr)	80		70 - 130	07/14/23 08:26	07/16/23 03:24	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			07/17/23 14:47	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			07/25/23 11:35	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		07/19/23 10:18	07/24/23 17:32	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		07/19/23 10:18	07/24/23 17:32	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		07/19/23 10:18	07/24/23 17:32	1
Total TPH	<49.8	U	49.8	mg/Kg		07/19/23 10:18	07/24/23 17:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	126		70 - 130	07/19/23 10:18	07/24/23 17:32	1
o-Terphenyl	109		70 - 130	07/19/23 10:18	07/24/23 17:32	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	48.8		5.00	mg/Kg			07/14/23 21:51	1

Client Sample ID: SS01

Lab Sample ID: 890-4925-3

Date Collected: 07/11/23 10:30

Matrix: Solid

Date Received: 07/11/23 13:57

Sample Depth: 1.0

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U *1	0.00202	mg/Kg		07/14/23 08:26	07/16/23 03:49	1
Toluene	<0.00202	U	0.00202	mg/Kg		07/14/23 08:26	07/16/23 03:49	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		07/14/23 08:26	07/16/23 03:49	1
m-Xylene & p-Xylene	<0.00404	U	0.00404	mg/Kg		07/14/23 08:26	07/16/23 03:49	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		07/14/23 08:26	07/16/23 03:49	1
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		07/14/23 08:26	07/16/23 03:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	259	S1+	70 - 130	07/14/23 08:26	07/16/23 03:49	1
1,4-Difluorobenzene (Surr)	108		70 - 130	07/14/23 08:26	07/16/23 03:49	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404	mg/Kg			07/17/23 14:47	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Client Sample ID: SS01

Lab Sample ID: 890-4925-3

Date Collected: 07/11/23 10:30

Matrix: Solid

Date Received: 07/11/23 13:57

Sample Depth: 1.0

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	97.3		49.6	mg/Kg			07/25/23 11:35	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6	mg/Kg		07/19/23 10:18	07/24/23 17:54	1
Diesel Range Organics (Over C10-C28)	97.3		49.6	mg/Kg		07/19/23 10:18	07/24/23 17:54	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		07/19/23 10:18	07/24/23 17:54	1
Total TPH	97.3		49.6	mg/Kg		07/19/23 10:18	07/24/23 17:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130	07/19/23 10:18	07/24/23 17:54	1
o-Terphenyl	99		70 - 130	07/19/23 10:18	07/24/23 17:54	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	52.1		4.96	mg/Kg			07/14/23 21:56	1

Client Sample ID: SS02

Lab Sample ID: 890-4925-4

Date Collected: 07/11/23 10:45

Matrix: Solid

Date Received: 07/11/23 13:57

Sample Depth: 1.0

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U *1	0.00200	mg/Kg		07/14/23 08:26	07/16/23 04:15	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/14/23 08:26	07/16/23 04:15	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/14/23 08:26	07/16/23 04:15	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		07/14/23 08:26	07/16/23 04:15	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/14/23 08:26	07/16/23 04:15	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		07/14/23 08:26	07/16/23 04:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	254	S1+	70 - 130	07/14/23 08:26	07/16/23 04:15	1
1,4-Difluorobenzene (Surr)	112		70 - 130	07/14/23 08:26	07/16/23 04:15	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			07/17/23 14:47	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.6	U	49.6	mg/Kg			07/25/23 11:35	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6	mg/Kg		07/19/23 10:18	07/24/23 18:17	1
Diesel Range Organics (Over C10-C28)	<49.6	U	49.6	mg/Kg		07/19/23 10:18	07/24/23 18:17	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		07/19/23 10:18	07/24/23 18:17	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Client Sample ID: SS02
Date Collected: 07/11/23 10:45
Date Received: 07/11/23 13:57
Sample Depth: 1.0

Lab Sample ID: 890-4925-4
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<49.6	U	49.6	mg/Kg		07/19/23 10:18	07/24/23 18:17	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	127		70 - 130			07/19/23 10:18	07/24/23 18:17	1	
o-Terphenyl	108		70 - 130			07/19/23 10:18	07/24/23 18:17	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	63.7		5.01	mg/Kg			07/14/23 22:01	1	

Surrogate Summary

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-4925-1	BH01	221 S1+	71
890-4925-2	BH01A	180 S1+	80
890-4925-3	SS01	259 S1+	108
890-4925-4	SS02	254 S1+	112
890-4934-A-41-B MS	Matrix Spike	213 S1+	85
890-4934-A-41-C MSD	Matrix Spike Duplicate	224 S1+	72
LCS 880-57655/1-A	Lab Control Sample	197 S1+	72
LCSD 880-57655/2-A	Lab Control Sample Dup	197 S1+	93
MB 880-57617/5-A	Method Blank	94	78
MB 880-57655/5-A	Method Blank	115	60 S1-
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-4921-A-1-H MS	Matrix Spike	13 S1-	10 S1-
890-4921-A-1-I MSD	Matrix Spike Duplicate	13 S1-	10 S1-
890-4925-1	BH01	119	104
890-4925-2	BH01A	126	109
890-4925-3	SS01	113	99
890-4925-4	SS02	127	108
LCS 880-57822/2-A	Lab Control Sample	96	87
LCSD 880-57822/3-A	Lab Control Sample Dup	94	84
MB 880-57822/1-A	Method Blank	134 S1+	123
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-57617/5-A

Matrix: Solid

Analysis Batch: 57701

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 57617

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/13/23 13:36	07/15/23 08:05	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/13/23 13:36	07/15/23 08:05	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/13/23 13:36	07/15/23 08:05	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		07/13/23 13:36	07/15/23 08:05	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/13/23 13:36	07/15/23 08:05	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		07/13/23 13:36	07/15/23 08:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130	07/13/23 13:36	07/15/23 08:05	1
1,4-Difluorobenzene (Surr)	78		70 - 130	07/13/23 13:36	07/15/23 08:05	1

Lab Sample ID: MB 880-57655/5-A

Matrix: Solid

Analysis Batch: 57701

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 57655

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/14/23 08:26	07/15/23 21:24	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/14/23 08:26	07/15/23 21:24	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/14/23 08:26	07/15/23 21:24	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		07/14/23 08:26	07/15/23 21:24	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/14/23 08:26	07/15/23 21:24	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		07/14/23 08:26	07/15/23 21:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130	07/14/23 08:26	07/15/23 21:24	1
1,4-Difluorobenzene (Surr)	60	S1-	70 - 130	07/14/23 08:26	07/15/23 21:24	1

Lab Sample ID: LCS 880-57655/1-A

Matrix: Solid

Analysis Batch: 57701

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 57655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07178		mg/Kg		72	70 - 130
Toluene	0.100	0.1171		mg/Kg		117	70 - 130
Ethylbenzene	0.100	0.1226		mg/Kg		123	70 - 130
m-Xylene & p-Xylene	0.200	0.2238		mg/Kg		112	70 - 130
o-Xylene	0.100	0.1089		mg/Kg		109	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	197	S1+	70 - 130
1,4-Difluorobenzene (Surr)	72		70 - 130

Lab Sample ID: LCSD 880-57655/2-A

Matrix: Solid

Analysis Batch: 57701

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 57655

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1222	*1	mg/Kg		122	70 - 130	52	35

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

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

Lab Sample ID: LCSD 880-57655/2-A

Matrix: Solid

Analysis Batch: 57701

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 57655

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.1164		mg/Kg		116	70 - 130	1	35
Ethylbenzene	0.100	0.1256		mg/Kg		126	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.2298		mg/Kg		115	70 - 130	3	35
o-Xylene	0.100	0.1175		mg/Kg		117	70 - 130	8	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	197	S1+	70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: 890-4934-A-41-B MS

Matrix: Solid

Analysis Batch: 57701

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 57655

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00198	U *1	0.0994	0.1164		mg/Kg		117	70 - 130
Toluene	<0.00198	U	0.0994	0.1119		mg/Kg		113	70 - 130
Ethylbenzene	<0.00198	U	0.0994	0.1144		mg/Kg		115	70 - 130
m-Xylene & p-Xylene	<0.00396	U	0.199	0.2096		mg/Kg		104	70 - 130
o-Xylene	<0.00198	U	0.0994	0.1113		mg/Kg		111	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	213	S1+	70 - 130
1,4-Difluorobenzene (Surr)	85		70 - 130

Lab Sample ID: 890-4934-A-41-C MSD

Matrix: Solid

Analysis Batch: 57701

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 57655

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00198	U *1	0.100	0.09210		mg/Kg		92	70 - 130	23	35
Toluene	<0.00198	U	0.100	0.09373		mg/Kg		94	70 - 130	18	35
Ethylbenzene	<0.00198	U	0.100	0.09897		mg/Kg		99	70 - 130	14	35
m-Xylene & p-Xylene	<0.00396	U	0.200	0.1839		mg/Kg		91	70 - 130	13	35
o-Xylene	<0.00198	U	0.100	0.09715		mg/Kg		97	70 - 130	14	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	224	S1+	70 - 130
1,4-Difluorobenzene (Surr)	72		70 - 130

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

Lab Sample ID: MB 880-57822/1-A

Matrix: Solid

Analysis Batch: 58306

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 57822

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/17/23 10:30	07/24/23 08:51	1

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

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

Lab Sample ID: MB 880-57822/1-A

Matrix: Solid

Analysis Batch: 58306

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 57822

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/17/23 10:30	07/24/23 08:51	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/17/23 10:30	07/24/23 08:51	1
Total TPH	<50.0	U	50.0	mg/Kg		07/17/23 10:30	07/24/23 08:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	134	S1+	70 - 130	07/17/23 10:30	07/24/23 08:51	1
o-Terphenyl	123		70 - 130	07/17/23 10:30	07/24/23 08:51	1

Lab Sample ID: LCS 880-57822/2-A

Matrix: Solid

Analysis Batch: 58306

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 57822

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	935.9		mg/Kg		94	70 - 130
Diesel Range Organics (Over C10-C28)	1000	888.1		mg/Kg		89	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	96		70 - 130
o-Terphenyl	87		70 - 130

Lab Sample ID: LCSD 880-57822/3-A

Matrix: Solid

Analysis Batch: 58306

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 57822

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	924.4		mg/Kg		92	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	1000	881.3		mg/Kg		88	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	94		70 - 130
o-Terphenyl	84		70 - 130

Lab Sample ID: 890-4921-A-1-H MS

Matrix: Solid

Analysis Batch: 58306

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 57822

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	990	1075		mg/Kg		109	70 - 130
Diesel Range Organics (Over C10-C28)	<50.2	U	990	999.7		mg/Kg		99	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	13	S1-	70 - 130

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

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

Lab Sample ID: 890-4921-A-1-H MS
Matrix: Solid
Analysis Batch: 58306

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 57822

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	10	S1-	70 - 130

Lab Sample ID: 890-4921-A-1-I MSD
Matrix: Solid
Analysis Batch: 58306

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 57822

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	990	1080		mg/Kg		109	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	<50.2	U	990	1028		mg/Kg		102	70 - 130	3	20
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane	13	S1-	70 - 130								
<i>o</i> -Terphenyl	10	S1-	70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-57587/1-A
Matrix: Solid
Analysis Batch: 57704

Client Sample ID: Method Blank
Prep Type: Soluble

	MB	MB								
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac		
Chloride	<5.00	U	5.00	mg/Kg			07/14/23 21:20	1		

Lab Sample ID: LCS 880-57587/2-A
Matrix: Solid
Analysis Batch: 57704

Client Sample ID: Lab Control Sample
Prep Type: Soluble

	Spike	LCS	LCS				%Rec		
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	250	252.6		mg/Kg		101	90 - 110		

Lab Sample ID: LCSD 880-57587/3-A
Matrix: Solid
Analysis Batch: 57704

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

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	250	253.5		mg/Kg		101	90 - 110	0	20

Lab Sample ID: 890-4925-1 MS
Matrix: Solid
Analysis Batch: 57704

Client Sample ID: BH01
Prep Type: Soluble

	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	34.3		250	283.3		mg/Kg		100	90 - 110		

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-4925-1 MSD							Client Sample ID: BH01					
Matrix: Solid							Prep Type: Soluble					
Analysis Batch: 57704												
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit	
Chloride	34.3		250	283.9		mg/Kg		100	90 - 110	0	20	

QC Association Summary

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

GC VOA

Prep Batch: 57617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-57617/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 57655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4925-1	BH01	Total/NA	Solid	5035	
890-4925-2	BH01A	Total/NA	Solid	5035	
890-4925-3	SS01	Total/NA	Solid	5035	
890-4925-4	SS02	Total/NA	Solid	5035	
MB 880-57655/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-57655/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-57655/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4934-A-41-B MS	Matrix Spike	Total/NA	Solid	5035	
890-4934-A-41-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 57701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4925-1	BH01	Total/NA	Solid	8021B	57655
890-4925-2	BH01A	Total/NA	Solid	8021B	57655
890-4925-3	SS01	Total/NA	Solid	8021B	57655
890-4925-4	SS02	Total/NA	Solid	8021B	57655
MB 880-57617/5-A	Method Blank	Total/NA	Solid	8021B	57617
MB 880-57655/5-A	Method Blank	Total/NA	Solid	8021B	57655
LCS 880-57655/1-A	Lab Control Sample	Total/NA	Solid	8021B	57655
LCSD 880-57655/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	57655
890-4934-A-41-B MS	Matrix Spike	Total/NA	Solid	8021B	57655
890-4934-A-41-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	57655

Analysis Batch: 57865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4925-1	BH01	Total/NA	Solid	Total BTEX	
890-4925-2	BH01A	Total/NA	Solid	Total BTEX	
890-4925-3	SS01	Total/NA	Solid	Total BTEX	
890-4925-4	SS02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 57822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4925-1	BH01	Total/NA	Solid	8015NM Prep	
890-4925-2	BH01A	Total/NA	Solid	8015NM Prep	
890-4925-3	SS01	Total/NA	Solid	8015NM Prep	
890-4925-4	SS02	Total/NA	Solid	8015NM Prep	
MB 880-57822/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-57822/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-57822/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-4921-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-4921-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 58306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4925-1	BH01	Total/NA	Solid	8015B NM	57822

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

GC Semi VOA (Continued)

Analysis Batch: 58306 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4925-2	BH01A	Total/NA	Solid	8015B NM	57822
890-4925-3	SS01	Total/NA	Solid	8015B NM	57822
890-4925-4	SS02	Total/NA	Solid	8015B NM	57822
MB 880-57822/1-A	Method Blank	Total/NA	Solid	8015B NM	57822
LCS 880-57822/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	57822
LCSD 880-57822/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	57822
890-4921-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	57822
890-4921-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	57822

Analysis Batch: 58473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4925-1	BH01	Total/NA	Solid	8015 NM	
890-4925-2	BH01A	Total/NA	Solid	8015 NM	
890-4925-3	SS01	Total/NA	Solid	8015 NM	
890-4925-4	SS02	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 57587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4925-1	BH01	Soluble	Solid	DI Leach	
890-4925-2	BH01A	Soluble	Solid	DI Leach	
890-4925-3	SS01	Soluble	Solid	DI Leach	
890-4925-4	SS02	Soluble	Solid	DI Leach	
MB 880-57587/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-57587/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-57587/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-4925-1 MS	BH01	Soluble	Solid	DI Leach	
890-4925-1 MSD	BH01	Soluble	Solid	DI Leach	

Analysis Batch: 57704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4925-1	BH01	Soluble	Solid	300.0	57587
890-4925-2	BH01A	Soluble	Solid	300.0	57587
890-4925-3	SS01	Soluble	Solid	300.0	57587
890-4925-4	SS02	Soluble	Solid	300.0	57587
MB 880-57587/1-A	Method Blank	Soluble	Solid	300.0	57587
LCS 880-57587/2-A	Lab Control Sample	Soluble	Solid	300.0	57587
LCSD 880-57587/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	57587
890-4925-1 MS	BH01	Soluble	Solid	300.0	57587
890-4925-1 MSD	BH01	Soluble	Solid	300.0	57587

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Client Sample ID: BH01
Date Collected: 07/11/23 09:15
Date Received: 07/11/23 13:57

Lab Sample ID: 890-4925-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	57655	07/14/23 08:26	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	57701	07/16/23 01:41	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			57865	07/17/23 14:47	AJ	EET MID
Total/NA	Analysis	8015 NM		1			58473	07/25/23 11:35	SM	EET MID
Total/NA	Prep	8015NM Prep			9.97 g	10 mL	57822	07/17/23 10:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	58306	07/24/23 17:10	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	57587	07/13/23 10:49	KS	EET MID
Soluble	Analysis	300.0		1			57704	07/14/23 21:36	CH	EET MID

Client Sample ID: BH01A
Date Collected: 07/11/23 09:20
Date Received: 07/11/23 13:57

Lab Sample ID: 890-4925-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	57655	07/14/23 08:26	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	57701	07/16/23 03:24	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			57865	07/17/23 14:47	AJ	EET MID
Total/NA	Analysis	8015 NM		1			58473	07/25/23 11:35	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	57822	07/19/23 10:18	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	58306	07/24/23 17:32	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	57587	07/13/23 10:49	KS	EET MID
Soluble	Analysis	300.0		1			57704	07/14/23 21:51	CH	EET MID

Client Sample ID: SS01
Date Collected: 07/11/23 10:30
Date Received: 07/11/23 13:57

Lab Sample ID: 890-4925-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	57655	07/14/23 08:26	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	57701	07/16/23 03:49	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			57865	07/17/23 14:47	AJ	EET MID
Total/NA	Analysis	8015 NM		1			58473	07/25/23 11:35	SM	EET MID
Total/NA	Prep	8015NM Prep			10.08 g	10 mL	57822	07/19/23 10:18	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	58306	07/24/23 17:54	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	57587	07/13/23 10:49	KS	EET MID
Soluble	Analysis	300.0		1			57704	07/14/23 21:56	CH	EET MID

Client Sample ID: SS02
Date Collected: 07/11/23 10:45
Date Received: 07/11/23 13:57

Lab Sample ID: 890-4925-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	57655	07/14/23 08:26	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	57701	07/16/23 04:15	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			57865	07/17/23 14:47	AJ	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Client Sample ID: SS02
Date Collected: 07/11/23 10:45
Date Received: 07/11/23 13:57

Lab Sample ID: 890-4925-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			58473	07/25/23 11:35	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	57822	07/19/23 10:18	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	58306	07/24/23 18:17	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	57587	07/13/23 10:49	KS	EET MID
Soluble	Analysis	300.0		1			57704	07/14/23 22:01	CH	EET MID

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Laboratory: Eurofins Midland

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

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

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

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

Method Summary

Client: Ensolum
Project/Site: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

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: Nocaster 19 Federal 004H

Job ID: 890-4925-1
SDG: 03D2024200

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-4925-1	BH01	Solid	07/11/23 09:15	07/11/23 13:57	0.5
890-4925-2	BH01A	Solid	07/11/23 09:20	07/11/23 13:57	1.0
890-4925-3	SS01	Solid	07/11/23 10:30	07/11/23 13:57	1.0
890-4925-4	SS02	Solid	07/11/23 10:45	07/11/23 13:57	1.0

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



Environment Testing
Xenco

Chain of Custody

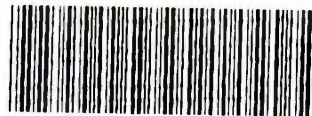
Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page 1 of 1

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

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

Project Name:		Turn Around		ANALYSIS REQUEST												Preservative Codes								
Project Number:	03D2024200	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code														None: NO	DI Water: H ₂ O						
Project Location:	32.2841, -103.5029	Due Date:															Cool: Cool	MeOH: Me						
Sampler's Name:	Peter Van Patten	TAT starts the day received by the lab, if received by 4:30pm															HCL: HC	HNO ₃ : HN						
PO #:																	H ₂ SO ₄ : H ₂	NaOH: Na						
SAMPLE RECEIPT		Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	 890-4925 Chain of Custody												H ₃ PO ₄ : HP						
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID:	17111007		H ₃ PO ₄ : HP																			
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor:	-0.2		NaHSO ₄ : NABIS																			
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Temperature Reading:	2.4		Na ₂ S ₂ O ₃ : NaSO ₃																			
Total Containers:		Corrected Temperature:	2.2		Zn Acetate+NaOH: Zn																			
																	NaOH+Ascorbic Acid: SAPC							
Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)													Sample Comments	
BH01		Soil	7/11/2023	915	0.5'	Comp	1	x	x	x														
BH01A		Soil	7/11/2023	920	1.0'	Comp	1	x	x	x														
SS01		Soil	7/11/2023	1030	1.0'	Comp	1	x	x	x														
SS02		Soil	7/11/2023	1045	1.0'	Comp	1	x	x	x														

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

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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>Peter Van Patten</i>	<i>Clare Culp</i>	7-11-23 1357			

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4925-1

SDG Number: 03D2024200

Login Number: 4925

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4925-1

SDG Number: 03D2024200

Login Number: 4925

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 07/13/23 11:48 AM

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



APPENDIX E

NMOCD Notifications

From: [Enviro, OCD, EMNRD](#)
To: [Hadlie Green](#)
Cc: [Bratcher, Michael, EMNRD](#)
Subject: RE: [EXTERNAL] COG - Containment Inspection - NoCaster 19 Federal 4H (Spill Date 6/11/2023)
Date: Tuesday, June 20, 2023 3:50:26 PM
Attachments: [image006.png](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)

[**EXTERNAL EMAIL**]

Hadlie

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: Hadlie Green <hgreen@ensolum.com>
Sent: Monday, June 19, 2023 2:38 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: Kalei Jennings <kjennings@ensolum.com>
Subject: [EXTERNAL] COG - Containment Inspection - NoCaster 19 Federal 4H (Spill Date 6/11/2023)

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

To Whom It May Concern,

Below is an email notification for liner inspection at COG Operating, LLC (COG) NoCaster 19 Federal 4H (Spill Date 6-11-2023). This is a notification that Ensolum is scheduled to inspect this lined containment on behalf of COG on Thursday, June 22, 2023. Please call with any questions or concerns.

GPS: 32.2841, -103.5029

Thank you,



Hadlie Green

Project Geologist

432-557-8895

hgreen@ensolum.com

Ensolum, LLC

in f 

From: [Buchanan, Michael, EMNRD](#)
To: [Hadlie Green](#); [Enviro, OCD, EMNRD](#); [Velez, Nelson, EMNRD](#)
Cc: [Kalei Jennings](#); [Peter Van Patten](#)
Subject: RE: [EXTERNAL] COP - Sampling Notification (Week of 7/10/2023)
Date: Wednesday, July 5, 2023 3:19:18 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.jpg](#)

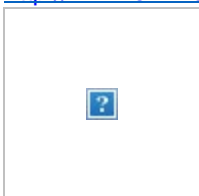
[**EXTERNAL EMAIL**]

Good afternoon,

Thank you for the notification. Please include a copy of this and all notifications in the C-141, remedial and/or closure reports to ensure the notifications are documented in the project file.

Regards,

Mike Buchanan • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
8801 Horizon Blvd. NE | Albuquerque, NM 87113
| michael.buchanan@emnrd.nm.gov
<http://www.emnrd.nm.gov/ocd>



From: Hadlie Green <hgreen@ensolum.com>
Sent: Wednesday, July 5, 2023 1:46 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: Kalei Jennings <kjennings@ensolum.com>; Peter Van Patten <pvanpatten@ensolum.com>
Subject: [EXTERNAL] COP - Sampling Notification (Week of 7/10/2023)

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

All,

ConocoPhillips Company (COP) plans to complete sampling activities at the following site the week of July 10, 2023.

- NoCaster 19 Federal 4H / NAPP2317131365
 - Sampling Date: 7/11/2023 @ 10:00 AM MST

Thank you,



Hadlie Green

Project Geologist

432-557-8895

hgreen@ensolum.com

Ensolum, LLC





APPENDIX F

Final C-141

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

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

Incident ID	NAPP2317131365
District RP	
Facility ID	fAPP2203775638
Application ID	

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Jacob Laird	Contact Telephone	(575) 703-5482
Contact email	Jacob.Laird@ConocoPhillips.com	Incident # (assigned by OCD)	NAPP2317131365
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.2841 Longitude -103.5029
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Nocaster 19 Federal 004H	Site Type	Tank Battery
Date Release Discovered	June 11, 2023	API# (if applicable)	30-025-41449

Unit Letter	Section	Township	Range	County
P	19	23S	34E	Lea

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

Nature and Volume of Release

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

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls)	154.4729	Volume Recovered (bbls)	153
<input type="checkbox"/> Produced Water	Volume Released (bbls)		Volume Recovered (bbls)	
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Condensate	Volume Released (bbls)		Volume Recovered (bbls)	
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)		Volume Recovered (Mcf)	
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)		Volume/Weight Recovered (provide units)	

Cause of Release


The release was caused by a leak to the circulating line due to equipment malfunction. The release occurred within a Falcon Lined facility and partially spilled onto the pad. A vacuum truck was dispatched to remove all freestanding fluids. Evaluation will have the spill area evaluated for any possible impact from the release.

Incident ID	NAPP2317131365
District RP	
Facility ID	fAPP2203775638
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? The volume released was greater than 25 barrels.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Immediate notice was given by Jacqui Harris via e-mail June 12, 2023 at 1:10 PM to ocd.enviro@state.nm.us.	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: 	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: Brittany N. Esparza	Title: Environmental Technician
Signature: 	Date: 6/20/2023
email: Brittany.Esparza@ConocoPhillips.com	Telephone: (432) 221-0398
<u>OCD Only</u>	
Received by: Shelly Wells	Date: 6/21/2023

Spill Calculation - On-Pad Surface Pool Spill

Page 3 of 3

Convert Irregular shape into a series of rectangles	Length (ft.)	Width (ft.)	Average Depth (in.)	Estimated <u>Pool</u> Area (sq. ft.)	Estimated volume of each pool area (bbl.)	Penetration allowance (ft.)	Total Estimated Volume of Spill (bbl.)
Rectangle A	100	30	3.6	3000.00	160.20	0.02	162.60
Rectangle B				0.00	0.00	0.00	0.00
Rectangle C				0.00	0.00	0.00	0.00
Rectangle D				0.00	0.00	0.00	0.00
Rectangle E				0.00	0.00	0.00	0.00
Rectangle F				0.00	0.00	0.00	0.00
Rectangle G				0.00	0.00	0.00	0.00
Rectangle H				0.00	0.00	0.00	0.00
Rectangle I				0.00	0.00	0.00	0.00
Rectangle J				0.00	0.00	0.00	0.00
Total Volume Release, Soil not impacted:							154.4729

Received by OCD: 6/20/2023 8:46:27 AM

Released to Imaging: 6/21/2023 11:48:38 AM

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 230538

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 230538
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	6/21/2023

Incident ID	NAPP2317131365
District RP	
Facility ID	fAPP2203775638
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>>100</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2317131365
District RP	
Facility ID	fAPP2203775638
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: __8/10/2023____

email: __Jacob.Laird@conocophillips.com____ Telephone: __575-703-5482____

OCD Only

Received by: Shelly Wells Date: 8/15/2023

Incident ID	NAPP2317131365
District RP	
Facility ID	fAPP2203775638
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Jacob Laird Title: Environmental Engineer

Signature: *Jacob Laird* Date: 8/10/2023

email: Jacob.Laird@conocophilips.com Telephone: 575-703-5482

OCD Only

Received by: Shelly Wells Date: 8/15/2023

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

Closure Approved by: *Nelson Velez* Date: 11/29/2023

Printed Name: Nelson Velez Title: 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
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 252084

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 252084
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Liner Inspection approved, Release Resolved.	11/29/2023