



April 16, 2024

**New Mexico Oil Conservation Division**

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

**RE: Remediation Work Plan**

CTB 90 (Caballo 23)  
Lea County, New Mexico  
Western Refining Pipeline LLC  
NMOCD Incident Number: nAPP2408539690

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Western Refining Pipeline LLC (Western), presents this *Remediation Work Plan* associated with a release discovered at the CTB 90 (Caballo 23) well pad (Site). The Site is located on federal land managed by the Bureau of Land Management (BLM) in Unit J, Section 23, Township 25 South, Range 33 East in Lea County, New Mexico (Figure 1).

## **SITE BACKGROUND**

On March 15, 2024, Western discovered a release of 16 barrels (bbls) of crude oil during normal operations. Upon discovery, a vacuum truck was dispatched and approximately 1 bbl of crude oil was recovered. Western submitted a "Notification of Release" to the New Mexico Oil Conservation Division (NMOCD) on March 25, 2024, via the NMOCD Permitting database. The release was assigned NMOCD Incident Number nAPP2408539690.

## **SITE CHARACTERIZATION**

The Site is located on federal land in Lea County, New Mexico. As part of the Site investigation, local geology/hydrogeology and nearby sensitive receptors were assessed in accordance with Title 19, Chapter 15, Part 29, Sections 11 and 12 (19.15.29.11 and 12) of the New Mexico Administrative Code (NMAC). This information is further discussed below.

## **POTENTIAL SENSITIVE RECEPTORS**

Potential nearby receptors were assessed through desktop reviews of United States Geological Survey (USGS) topographic maps, Federal Emergency Management Administration (FEMA) Geographic Information System (GIS) maps, New Mexico Office of the State Engineer (NMOSE) database, aerial photographs, and Site-specific observations.

The nearest significant watercourse to the Site is an unnamed riverine located approximately 7,630 feet north of the Site. The nearest data point for depth to groundwater to the Site is an NMOSE permitted water well (C-02373), located approximately 7,965 feet northwest of the Site (Appendix A). This well indicates the shallowest groundwater is approximately 185 feet below

ground surface (bgs) in this area. However, because the distance between the Site and this water well is greater than ½-mile, the depth to water below the Site is unknown.

The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any wetland. Wellhead protection areas, springs, and/or domestic/stock wells are not located within a ½-mile from the Site. The Site is not within a 100-year floodplain, overlying a subsurface mine, or located within an area underlain by unstable geology (area not designated as high potential karst by the BLM). Schools, hospitals, institutions, churches, and/or other occupied permanent residence or structures are not located within 300 feet of the Site. A Site receptor map is shown on Figure 1.

## SITE CLOSURE CRITERIA

Based on the information presented above and the unknown depth to water below the Site, the following Closure Criteria in accordance with the *Table I, Closure Criteria for Soils Impacted by a Release* (19.15.29.12 NMAC) should be applied for constituents of concern (COCs) at the Site:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH) as a combination of gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO): 100 mg/kg
- Chloride: 600 mg/kg

## SURFACE SAMPLING AND SURFACE DELINEATION ACTIVITIES

Following the discovery of the release, Ensolum mapped the surface extent of the impacts and collected three surface samples at the Site on March 15, 2024. Soil samples SS1 through SS3 were collected at the locations indicated on Figure 2. Soil samples were collected directly into laboratory-provided jars and immediately placed on ice. Samples were submitted to Eurofins Environment Testing (Eurofins) for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B, TPH-GRO, TPH-DRO, and TPH-MRO following EPA Method 8015M/D, and chloride following EPA Method 300.0.

## DELINEATION RESULTS AND CONCLUSIONS

Concentrations of total BTEX and total TPH exceeding the NMOCD Table I Closure Criteria were detected in samples collected from soil samples SS1, SS2, and SS3. A summary of the March 2024 analytical results is presented on Table 1 and is depicted on Figure 2. Complete laboratory reports are attached in Appendix B. Photographs collected during Site work are included in Appendix C.

Based on the soil analytical data collected at the Site and the volume of the release, petroleum hydrocarbon impacted soil is assumed to be present between the ground surface and up to a depth of approximately 2 feet bgs. The mapped surface expression of the release was 2,450 square feet. Based on this data, it is estimated 180 cubic yards of soil have been impacted by the Site release.

## REMEDIATION WORK PLAN

Because of the areal extent of impacts, volume of impacted soil, and remote location of the Site, soil shredding has been chosen as the remediation technique to address impacted soil at the Site. Soil shredding is an ex-situ and on-Site treatment of impacted soil through which impacted material is chemically treated using a chemical oxidant (generally hydrogen peroxide) applied to

the soil. Impacted material is excavated from the ground using standard construction techniques and placed onto a soil screening unit using a special shredding bucket. The impacted soil is conveyed by the screening unit and chemical treatment is applied simultaneously. The treated soil is then placed in 100 cubic yard stockpiles and allowed to process for 24 to 48 hours in order for the oxidant to degrade the petroleum hydrocarbon contaminants in the soil.

Once treated, 5-point composite samples will be collected for analysis from each 100 cubic yard stockpile. The 5-point composite samples will be collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Samples will be submitted to Eurofins using the handling procedures described above and will be analyzed for TPH and BTEX constituents. Based on the delineation results described above, chloride will not be analyzed during confirmation soil sampling. Assuming soil is compliant with the NMOCD Table I Closure Criteria, the soil will be ultimately used to backfill the open excavation. Any stockpiles exceeding the applicable Closure Criteria will be allowed to process for a longer period of time and/or be retreated until Closure Criteria are met. Once Closure Criteria has been met and the excavation has been backfilled, the area will be reseeded with BLM approved BLM Seed Mix #2.

In addition, as soil is removed from the excavation, the excavation sidewalls and floors will be field screened using a photoionization detector (PID). Once field screening indicates impacted soil has been removed, 5-point composite samples will be collected from the sidewalls and floor of the excavation at a frequency of one sample per 200 square feet. The 5-point composite samples will be collected in the same manner described above. Samples will also be collected and submitted to Eurofins using the techniques described above and will again be analyzed for TPH and BTEX constituents.

## SCHEDULE

Within 90 days of NMOCD and BLM approval of this *Remediation Work Plan* and pending contractor availability, Western will complete the remediation work as described above. Western will notify the NMOCD and BLM of any delays in this schedule.

We appreciate the opportunity to provide this *Remediation Work Plan* to the NMOCD. If you should have any questions or comments regarding this document, please contact the undersigned.

Sincerely,  
**Ensolum, LLC**



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Senior Managing Geologist  
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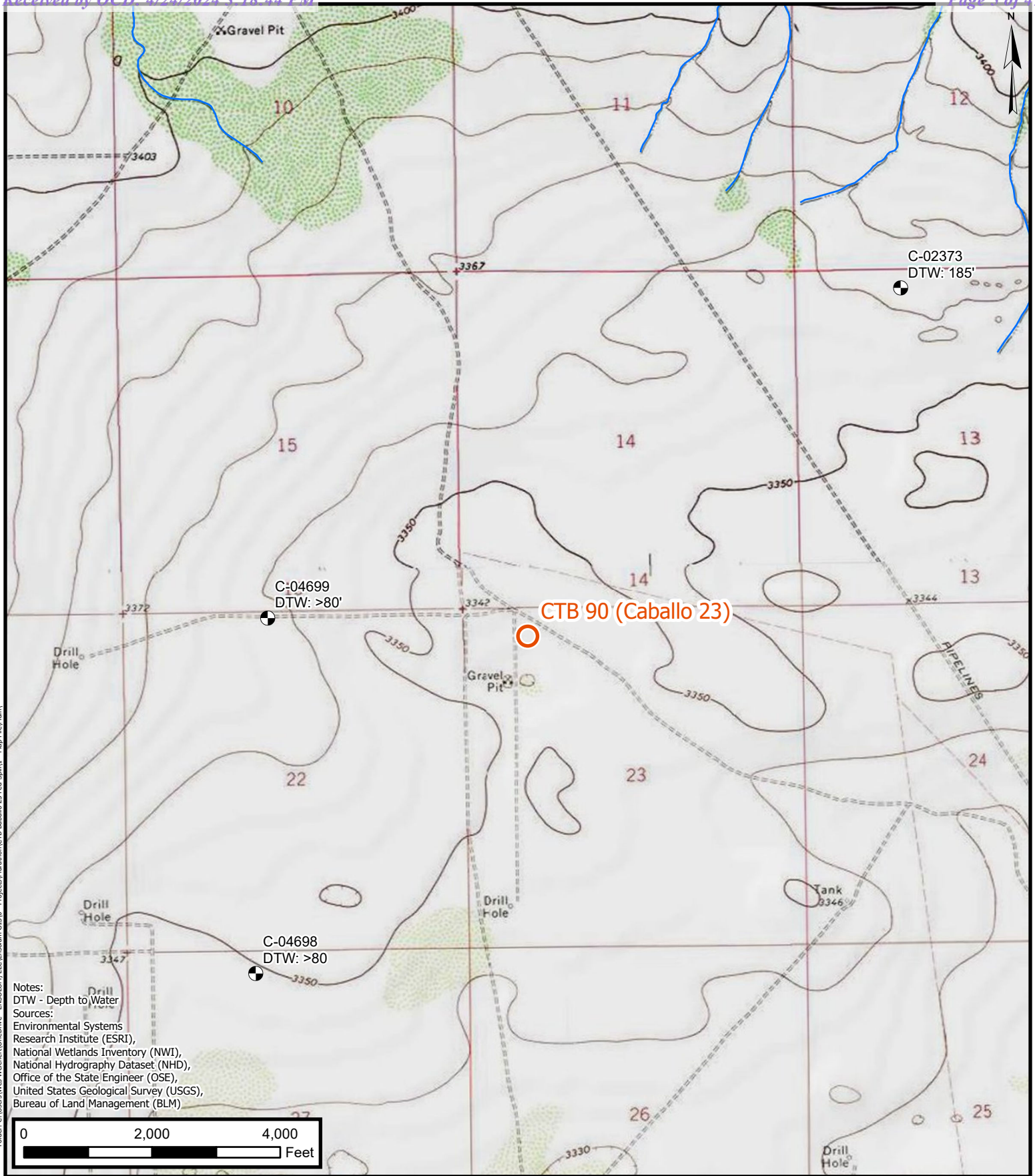
## Attachments:

- Figure 1: Site Receptor Map
- Figure 2: Delineation Soil Sample Locations
  
- Table 1: Soil Sample Analytical Results
  
- Appendix A: Point of Diversion Summary
- Appendix B: Laboratory Analytical Reports
- Appendix C: Photographic Log

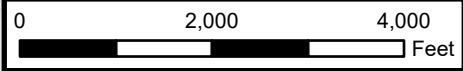


FIGURES





Notes:  
DTW - Depth to Water  
Sources:  
Environmental Systems  
Research Institute (ESRI),  
National Wetlands Inventory (NWI),  
National Hydrography Dataset (NHD),  
Office of the State Engineer (OSE),  
United States Geological Survey (USGS),  
Bureau of Land Management (BLM)



## Site Receptor Map

Western Refining Pipeline LLC.

CTB 90 (Caballo 23)

Incident Number: nAPP2408539690

Unit J, Sec 23, T25S, R33E

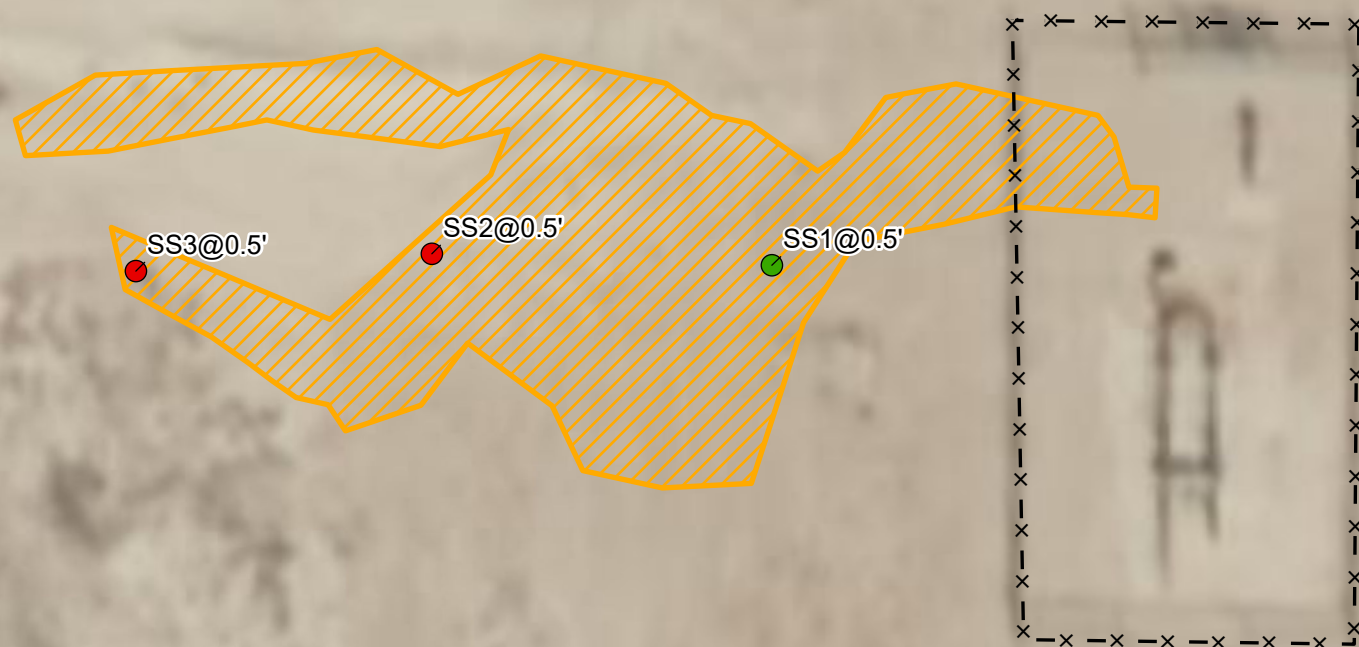
Lea County, New Mexico, United States

FIGURE

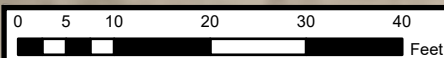
1

**Legend**

- Surface Soil Sample in Compliance with Closure Criteria
- Surface Soil Sample Exceeding Closure Criteria
- Release Extent
- × — Fence



Notes:  
Sample ID @ Depth Below Ground Surface.



Sources: Environmental Systems Research Institute (ESRI)



## Surface Soil Sample Locations

Western Refining Pipeline LLC.  
CTB 90 (Caballo 23)  
Incident Number: nAPP2408539690  
Unit J, Sec 23, T25S, R33E  
Lea County, New Mexico, United States

**FIGURE  
2**



TABLES



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
 CTB 90 (Caballo 23)  
 Marathon Petroleum  
 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	10,000
Delineation Surface Soil Samples										
SS1	3/15/2024	0.5	<0.0200	0.0471	<49.7 U	116	<49.7 U	116	116	72.1
SS2	3/15/2024	0.5	<b>63.1</b>	<b>928</b>	11,000	16,800	674	<b>27,800</b>	<b>28,500</b>	71.2
SS3	3/15/2024	0.5	<b>16.1</b>	<b>623</b>	10,900	17,900	787.0	<b>28,800</b>	<b>29,600</b>	51.1

**Notes:**

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

NMAC: New Mexico Administrative Code

&lt;": Laboratory Analytical result is less than reporting limit

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

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

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes



## APPENDIX A

### Point of Diversion Summary

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# New Mexico Office of the State Engineer

## Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 02373 S	1	2	1	13	25S	33E	638721	3556549*

Driller License: 421

Driller Company: GLENN'S WATER WELL SERVICE

Driller Name:

Drill Start Date: 09/08/1993

Drill Finish Date: 09/08/1993

Plug Date:

Log File Date:

PCW Rcv Date: 02/09/1996

Source: Shallow

Pump Type: SUBMER

Pipe Discharge Size: 2

Estimated Yield: 60 GPM

Casing Size: 6.63

Depth Well: 625 feet

Depth Water: 185 feet

Meter Number: 581

Meter Make: WATERSPECIAL

Meter Serial Number: 9549683

Meter Multiplier: 100.0000

Number of Dials: 6

Meter Type: Diversion

Unit of Measure: Gallons

Return Flow Percent:

Usage Multiplier:

Reading Frequency:

### Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount Online
03/31/1999	1999	2206	A	ms		0
06/30/1999	1999	2350	A	ms		0.186
09/30/1999	1999	4567	A	ms		2.858
01/06/2000	1999	6110	A	ms		1.989
05/01/2000	2000	9350	A	mb		0
06/30/2000	2000	10252	A	mb		0.277
10/13/2000	2000	16915	A	RPT		2.045
01/17/2001	2000	33917	A	RPT		5.218
05/17/2001	2001	39208	A	RPT		1.624
06/30/2001	2001	39212	A	RPT		0.001
09/30/2001	2001	48868	A	RPT		2.963
01/03/2002	2002	56680	A	RPT		2.397
06/30/2002	2002	70870	A	RPT		4.355
12/31/2002	2002	112683	A	RPT		12.832
03/31/2003	2003	134871	A	RPT		6.809
06/30/2003	2003	135029	A	RPT		0.048
09/30/2003	2003	139662	A	ab		1.422
12/31/2003	2003	145345	A	ab		1.744
04/05/2004	2004	162284	A	RPT		5.198
10/07/2004	2004	172774	A	tw		3.219
01/01/2005	2004	180237	A	RPT		2.290
04/01/2005	2005	183300	A	RPT		0.940
07/01/2005	2005	183613	A	RPT		0.096
10/10/2005	2005	185173	A	RPT		0.479
01/01/2006	2005	185386	A	RPT		0.065



03/31/2006	2006	186880	A	RPT	0.458
06/30/2006	2006	196667	A	tw	3.004
12/31/2006	2006	205842	A	tw	2.816
04/03/2007	2007	211071	A	RPT	1.605
07/01/2007	2007	211071	A	RPT	0
10/01/2007	2007	211071	A	RPT	0
12/03/2007	2007	211071	A	RPT	0
03/30/2008	2008	211071	A	RPT	0
06/30/2008	2008	211071	A	RPT	0
09/30/2008	2008	211071	A	RPT	0
12/30/2008	2008	211071	A	RPT	0
03/31/2010	2010	109594	R	RPT Meter Rollover	275.747
06/30/2010	2010	156195	A	tw	14.301
09/30/2010	2010	199335	A	RPT	13.239
12/31/2010	2010	231813	A	RPT	9.967
04/01/2011	2011	263630	A	RPT	9.764

**YTD Meter Amounts:		
Year	Amount	
1999	5.033	
2000	7.540	
2001	4.588	
2002	19.584	
2003	10.023	
2004	10.707	
2005	1.580	
2006	6.278	
2007	1.605	
2008	0	
2010	313.254	
2011	9.764	

\*UTM location was derived from PLSS - see Help

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

4/10/24 4:13 PM

POINT OF DIVERSION SUMMARY





## APPENDIX B

### Laboratory Analytical Reports & Chain of Custody Documentation

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Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Devin Hencmann  
Ensolum  
601 N. Marienfeld St.  
Suite 400  
Midland, Texas 79701

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## JOB DESCRIPTION

CTB 90 BABALLO 23 FED  
07A2015016

## JOB NUMBER

890-6368-1

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad NM 88220

See page two for job notes and contact information.

# Eurofins Carlsbad

## Job Notes

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

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

## Authorization



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

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Laboratory Job ID: 890-6368-1  
SDG: 07A2015016

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Definitions/Glossary

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

Qualifiers

GC VOA

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

GC Semi VOA

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

Glossary

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

## Case Narrative

Client: Ensolum  
Project: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1

Job ID: 890-6368-1

Eurofins Carlsbad

**Job Narrative**  
**890-6368-1**

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

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

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

**Receipt**

The samples were received on 3/18/2024 1:32 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C.

**Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: SS 1 (890-6368-1), SS 2 (890-6368-2) and SS 3 (890-6368-3).

**GC VOA**

Method 8021B: Surrogate recovery for the following samples were outside control limits: SS 1 (890-6368-1), SS 2 (890-6368-2) and SS 3 (890-6368-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Batch preparation batch 880-76120 and analytical batch 880-76264 is reported without a matrix spike/matrix spike duplicate (MS/MSD). The batch MS/MSD was originally performed on another client's sample, and this test was canceled at client request. This MS/MSD result does not have immediate bearing on any samples except for the actual sample spiked. The associated laboratory control sample (LCS) met acceptance criteria and provides long-term precision and accuracy for this batch.

Method 8021B: The following sample was diluted due to the nature of the sample matrix: SS 1 (890-6368-1). Elevated reporting limits (RLs) are provided.

Method 8021B: Surrogate recovery for the following samples were outside control limits: SS 2 (890-6368-2) and SS 3 (890-6368-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

**GC Semi VOA**

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-76094 and analytical batch 880-76143 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: SS 1 (890-6368-1), SS 2 (890-6368-2), SS 3 (890-6368-3), (880-40964-A-5-D MS) and (880-40964-A-5-E MSD). 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 880-76094 and analytical batch 880-76143 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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

**HPLC/IC**

Method 300\_ORGFM\_28D - Soluble: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-76083 and 880-76083 and analytical batch 880-76116 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.

Eurofins Carlsbad

Case Narrative

Client: Ensolum  
Project: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1

Job ID: 890-6368-1 (Continued) Eurofins Carlsbad

SS 1 (890-6368-1), SS 2 (890-6368-2), SS 3 (890-6368-3), (880-41060-A-2-B), (880-41060-A-2-C MS) and (880-41060-A-2-D MSD)

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

Eurofins Carlsbad



## Client Sample Results

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

Client Sample ID: SS 1

Lab Sample ID: 890-6368-1

Date Collected: 03/15/24 15:35

Matrix: Solid

Date Received: 03/18/24 13:32

Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0200	U	0.0200	mg/Kg		03/20/24 13:45	03/22/24 17:56	10
Toluene	<0.0200	U	0.0200	mg/Kg		03/20/24 13:45	03/22/24 17:56	10
Ethylbenzene	<0.0200	U	0.0200	mg/Kg		03/20/24 13:45	03/22/24 17:56	10
m-Xylene & p-Xylene	0.0471		0.0400	mg/Kg		03/20/24 13:45	03/22/24 17:56	10
o-Xylene	<0.0200	U	0.0200	mg/Kg		03/20/24 13:45	03/22/24 17:56	10
Xylenes, Total	0.0471		0.0400	mg/Kg		03/20/24 13:45	03/22/24 17:56	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	180	S1+	70 - 130	03/20/24 13:45	03/22/24 17:56	10
1,4-Difluorobenzene (Surr)	108		70 - 130	03/20/24 13:45	03/22/24 17:56	10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.0471		0.0400	mg/Kg			03/22/24 17:56	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	116		49.7	mg/Kg			03/21/24 22:48	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.7	U	49.7	mg/Kg		03/20/24 10:51	03/21/24 22:48	1
Diesel Range Organics (Over C10-C28)	116		49.7	mg/Kg		03/20/24 10:51	03/21/24 22:48	1
Oil Range Organics (Over C28-C36)	<49.7	U	49.7	mg/Kg		03/20/24 10:51	03/21/24 22:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	59	S1-	70 - 130	03/20/24 10:51	03/21/24 22:48	1
o-Terphenyl	56	S1-	70 - 130	03/20/24 10:51	03/21/24 22:48	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	72.1		4.96	mg/Kg			03/21/24 00:02	1

Client Sample ID: SS 2

Lab Sample ID: 890-6368-2

Date Collected: 03/15/24 15:40

Matrix: Solid

Date Received: 03/18/24 13:32

Sample Depth: 0.5'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	63.1		2.02	mg/Kg		03/25/24 10:58	03/25/24 15:16	1000
Toluene	334		2.02	mg/Kg		03/25/24 10:58	03/25/24 15:16	1000
Ethylbenzene	99.9		2.02	mg/Kg		03/25/24 10:58	03/25/24 15:16	1000
m-Xylene & p-Xylene	333		4.03	mg/Kg		03/25/24 10:58	03/25/24 15:16	1000
o-Xylene	97.9		2.02	mg/Kg		03/25/24 10:58	03/25/24 15:16	1000
Xylenes, Total	431		4.03	mg/Kg		03/25/24 10:58	03/25/24 15:16	1000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	176	S1+	70 - 130	03/20/24 13:45	03/22/24 19:39	100

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Client Sample Results

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

Client Sample ID: SS 2  
Date Collected: 03/15/24 15:40  
Date Received: 03/18/24 13:32  
Sample Depth: 0.5'

Lab Sample ID: 890-6368-2  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)									
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1,4-Difluorobenzene (Surr)	67	S1-	70 - 130			03/20/24 13:45	03/22/24 19:39	100	
Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	928		4.03	mg/Kg			03/25/24 15:16	1	
Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	28500		248	mg/Kg			03/22/24 00:15	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	11000		248	mg/Kg		03/20/24 10:51	03/22/24 00:15	5	
Diesel Range Organics (Over C10-C28)	16800		248	mg/Kg		03/20/24 10:51	03/22/24 00:15	5	
Oil Range Organics (Over C28-C36)	674		248	mg/Kg		03/20/24 10:51	03/22/24 00:15	5	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	552	S1+	70 - 130			03/20/24 10:51	03/22/24 00:15	5	
o-Terphenyl	235	S1+	70 - 130			03/20/24 10:51	03/22/24 00:15	5	
Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	71.2		4.95	mg/Kg			03/21/24 00:09	1	

Client Sample ID: SS 3  
Date Collected: 03/15/24 15:45  
Date Received: 03/18/24 13:32  
Sample Depth: 0.5'

Lab Sample ID: 890-6368-3  
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	16.1		0.0992	mg/Kg		03/20/24 13:45	03/22/24 19:18	50	
Toluene	215		2.01	mg/Kg		03/25/24 10:58	03/25/24 16:40	1000	
Ethylbenzene	68.7		1.01	mg/Kg		03/25/24 10:58	03/25/24 14:55	500	
m-Xylene & p-Xylene	247		2.01	mg/Kg		03/25/24 10:58	03/25/24 14:55	500	
o-Xylene	76.3		1.01	mg/Kg		03/25/24 10:58	03/25/24 14:55	500	
Xylenes, Total	323		2.01	mg/Kg		03/25/24 10:58	03/25/24 14:55	500	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	212	S1+	70 - 130			03/20/24 13:45	03/22/24 19:18	50	
1,4-Difluorobenzene (Surr)	57	S1-	70 - 130			03/20/24 13:45	03/22/24 19:18	50	
Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	623		2.01	mg/Kg			03/25/24 16:40	1	

Client Sample Results

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

Client Sample ID: SS 3  
Date Collected: 03/15/24 15:45  
Date Received: 03/18/24 13:32  
Sample Depth: 0.5'

Lab Sample ID: 890-6368-3  
Matrix: Solid

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	29600		250	mg/Kg			03/22/24 00:36	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	10900		250	mg/Kg		03/20/24 10:51	03/22/24 00:36	5	
Diesel Range Organics (Over C10-C28)	17900		250	mg/Kg		03/20/24 10:51	03/22/24 00:36	5	
Oil Range Organics (Over C28-C36)	787		250	mg/Kg		03/20/24 10:51	03/22/24 00:36	5	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	610	S1+	70 - 130			03/20/24 10:51	03/22/24 00:36	5	
o-Terphenyl	257	S1+	70 - 130			03/20/24 10:51	03/22/24 00:36	5	
Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	51.1		4.97	mg/Kg			03/21/24 00:17	1	

Surrogate Summary

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-40948-A-1-E MS	Matrix Spike	102	105
880-40948-A-1-F MSD	Matrix Spike Duplicate	120	98
880-41103-A-1-B MS	Matrix Spike	96	104
880-41103-A-1-C MSD	Matrix Spike Duplicate	102	104
890-6368-1	SS 1	180 S1+	108
890-6368-2	SS 2	176 S1+	67 S1-
890-6368-3	SS 3	212 S1+	57 S1-
LCS 880-76120/1-A	Lab Control Sample	97	104
LCS 880-76470/1-A	Lab Control Sample	85	103
LCSD 880-76120/2-A	Lab Control Sample Dup	100	93
LCSD 880-76470/2-A	Lab Control Sample Dup	94	103
MB 880-76120/5-A	Method Blank	77	97
MB 880-76470/5-A	Method Blank	74	98
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)
880-40964-A-5-D MS	Matrix Spike	52 S1-	42 S1-
880-40964-A-5-E MSD	Matrix Spike Duplicate	53 S1-	45 S1-
890-6368-1	SS 1	59 S1-	56 S1-
890-6368-2	SS 2	552 S1+	235 S1+
890-6368-3	SS 3	610 S1+	257 S1+
MB 880-76094/1-A	Method Blank	129	148 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-76120/5-A  
Matrix: Solid  
Analysis Batch: 76264

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 76120

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		03/20/24 13:45	03/22/24 11:41	1
Toluene	<0.00199	U	0.00199	mg/Kg		03/20/24 13:45	03/22/24 11:41	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		03/20/24 13:45	03/22/24 11:41	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		03/20/24 13:45	03/22/24 11:41	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		03/20/24 13:45	03/22/24 11:41	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		03/20/24 13:45	03/22/24 11:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	77		70 - 130	03/20/24 13:45	03/22/24 11:41	1
1,4-Difluorobenzene (Surr)	97		70 - 130	03/20/24 13:45	03/22/24 11:41	1

Lab Sample ID: LCS 880-76120/1-A  
Matrix: Solid  
Analysis Batch: 76264

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 76120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.0998	0.1181		mg/Kg		118	70 - 130
Toluene	0.0998	0.1013		mg/Kg		101	70 - 130
Ethylbenzene	0.0998	0.1016		mg/Kg		102	70 - 130
m-Xylene & p-Xylene	0.200	0.1993		mg/Kg		100	70 - 130
o-Xylene	0.0998	0.09789		mg/Kg		98	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-76120/2-A  
Matrix: Solid  
Analysis Batch: 76264

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 76120

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1276		mg/Kg		127	70 - 130	8	35
Toluene	0.100	0.1105		mg/Kg		110	70 - 130	9	35
Ethylbenzene	0.100	0.1100		mg/Kg		110	70 - 130	8	35
m-Xylene & p-Xylene	0.201	0.2152		mg/Kg		107	70 - 130	8	35
o-Xylene	0.100	0.1062		mg/Kg		106	70 - 130	8	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: 880-41103-A-1-B MS  
Matrix: Solid  
Analysis Batch: 76264

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 76120

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.101	0.1044		mg/Kg		104	70 - 130
Toluene	<0.00200	U	0.101	0.09086		mg/Kg		90	70 - 130

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## QC Sample Results

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

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

Lab Sample ID: 880-41103-A-1-B MS

Matrix: Solid

Analysis Batch: 76264

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 76120

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier		Result	Qualifier				Limits	
Ethylbenzene	<0.00200	U	0.101	0.09290		mg/Kg		92	70 - 130	
m-Xylene & p-Xylene	<0.00400	U	0.202	0.1837		mg/Kg		91	70 - 130	
o-Xylene	<0.00200	U	0.101	0.09054		mg/Kg		90	70 - 130	
		MS	MS							
Surrogate		%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)		96		70 - 130						
1,4-Difluorobenzene (Surr)		104		70 - 130						

Lab Sample ID: 880-41103-A-1-C MSD

Matrix: Solid

Analysis Batch: 76264

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 76120

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier		Result	Qualifier				Limits		RPD	Limit
Benzene	<0.00200	U	0.0990	0.1116		mg/Kg		113	70 - 130		7	35
Toluene	<0.00200	U	0.0990	0.09573		mg/Kg		96	70 - 130		5	35
Ethylbenzene	<0.00200	U	0.0990	0.09658		mg/Kg		98	70 - 130		4	35
m-Xylene & p-Xylene	<0.00400	U	0.198	0.1897		mg/Kg		96	70 - 130		3	35
o-Xylene	<0.00200	U	0.0990	0.09355		mg/Kg		94	70 - 130		3	35
		MSD	MSD									
Surrogate		%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)		102		70 - 130								
1,4-Difluorobenzene (Surr)		104		70 - 130								

Lab Sample ID: MB 880-76470/5-A

Matrix: Solid

Analysis Batch: 76416

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 76470

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Benzene	<0.00200	U	0.00200	mg/Kg		03/25/24 10:58	03/25/24 11:34	1
Toluene	<0.00200	U	0.00200	mg/Kg		03/25/24 10:58	03/25/24 11:34	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/25/24 10:58	03/25/24 11:34	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		03/25/24 10:58	03/25/24 11:34	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/25/24 10:58	03/25/24 11:34	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		03/25/24 10:58	03/25/24 11:34	1
		MB	MB					
Surrogate		%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)		74		70 - 130	03/25/24 10:58	03/25/24 11:34	1	
1,4-Difluorobenzene (Surr)		98		70 - 130	03/25/24 10:58	03/25/24 11:34	1	

Lab Sample ID: LCS 880-76470/1-A

Matrix: Solid

Analysis Batch: 76416

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 76470

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	
							Limits	
Benzene	0.100	0.1042		mg/Kg		104	70 - 130	
Toluene	0.100	0.08713		mg/Kg		87	70 - 130	
Ethylbenzene	0.100	0.08121		mg/Kg		81	70 - 130	
m-Xylene & p-Xylene	0.200	0.1595		mg/Kg		80	70 - 130	

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## QC Sample Results

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

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

Lab Sample ID: LCS 880-76470/1-A  
Matrix: Solid  
Analysis Batch: 76416

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 76470

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
o-Xylene	0.100	0.07840		mg/Kg		78	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	85		70 - 130				
1,4-Difluorobenzene (Surr)	103		70 - 130				

Lab Sample ID: LCSD 880-76470/2-A  
Matrix: Solid  
Analysis Batch: 76416

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 76470

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09800		mg/Kg		98	70 - 130	6	35
Toluene	0.100	0.08723		mg/Kg		87	70 - 130	0	35
Ethylbenzene	0.100	0.08214		mg/Kg		82	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.1626		mg/Kg		81	70 - 130	2	35
o-Xylene	0.100	0.08061		mg/Kg		81	70 - 130	3	35
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	94		70 - 130						
1,4-Difluorobenzene (Surr)	103		70 - 130						

Lab Sample ID: 880-40948-A-1-E MS  
Matrix: Solid  
Analysis Batch: 76416

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 76470

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.0996	0.09590		mg/Kg		96	70 - 130
Toluene	<0.00199	U	0.0996	0.09390		mg/Kg		93	70 - 130
Ethylbenzene	<0.00199	U	0.0996	0.09641		mg/Kg		97	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1976		mg/Kg		99	70 - 130
o-Xylene	<0.00199	U	0.0996	0.09634		mg/Kg		97	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	102		70 - 130						
1,4-Difluorobenzene (Surr)	105		70 - 130						

Lab Sample ID: 880-40948-A-1-F MSD  
Matrix: Solid  
Analysis Batch: 76416

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 76470

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.100	0.08068		mg/Kg		81	70 - 130	17	35
Toluene	<0.00199	U	0.100	0.09409		mg/Kg		92	70 - 130	0	35
Ethylbenzene	<0.00199	U	0.100	0.1014		mg/Kg		101	70 - 130	5	35
m-Xylene & p-Xylene	<0.00398	U	0.200	0.2184		mg/Kg		109	70 - 130	10	35
o-Xylene	<0.00199	U	0.100	0.1074		mg/Kg		107	70 - 130	11	35

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QC Sample Results

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

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

Lab Sample ID: 880-40948-A-1-F MSD  
Matrix: Solid  
Analysis Batch: 76416

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 76470

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	120		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

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

Lab Sample ID: MB 880-76094/1-A  
Matrix: Solid  
Analysis Batch: 76143

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 76094

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		03/20/24 10:51	03/21/24 18:25	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		03/20/24 10:51	03/21/24 18:25	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		03/20/24 10:51	03/21/24 18:25	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1-Chlorooctane	129		70 - 130	03/20/24 10:51	03/21/24 18:25	1
o-Terphenyl	148	S1+	70 - 130	03/20/24 10:51	03/21/24 18:25	1

Lab Sample ID: LCS 880-76094/2-A  
Matrix: Solid  
Analysis Batch: 76143

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 76094

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	906.4		mg/Kg		91	70 - 130
Diesel Range Organics (Over C10-C28)	1000	887.6		mg/Kg		89	70 - 130

Lab Sample ID: LCSD 880-76094/3-A  
Matrix: Solid  
Analysis Batch: 76143

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 76094

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	869.4		mg/Kg		87	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	1000	864.4		mg/Kg		86	70 - 130	3	20

Lab Sample ID: 880-40964-A-5-D MS  
Matrix: Solid  
Analysis Batch: 76143

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 76094

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.8	U F1	995	507.5	F1	mg/Kg		47	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U F1	995	406.9	F1	mg/Kg		37	70 - 130

QC Sample Results

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

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

Lab Sample ID: 880-40964-A-5-D MS  
Matrix: Solid  
Analysis Batch: 76143

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 76094

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	52	S1-	70 - 130
o-Terphenyl	42	S1-	70 - 130

Lab Sample ID: 880-40964-A-5-E MSD  
Matrix: Solid  
Analysis Batch: 76143

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 76094

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	<49.8	U F1	995	591.4	F1	mg/Kg		55	70 - 130	15	20
Diesel Range Organics (Over C10-C28)	<49.8	U F1	995	426.8	F1	mg/Kg		39	70 - 130	5	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	53	S1-	70 - 130
o-Terphenyl	45	S1-	70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-76083/1-A  
Matrix: Solid  
Analysis Batch: 76116

Client Sample ID: Method Blank  
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			03/20/24 20:35	1

Lab Sample ID: LCS 880-76083/2-A  
Matrix: Solid  
Analysis Batch: 76116

Client Sample ID: Lab Control Sample  
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	248.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-76083/3-A  
Matrix: Solid  
Analysis Batch: 76116

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	245.5		mg/Kg		98	90 - 110	1	20

Lab Sample ID: 880-41060-A-2-C MS  
Matrix: Solid  
Analysis Batch: 76116

Client Sample ID: Matrix Spike  
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2760	F1	2490	5581	F1	mg/Kg		113	90 - 110

QC Sample Results

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-41060-A-2-D MSD  
Matrix: Solid  
Analysis Batch: 76116

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2760	F1	2490	5537	F1	mg/Kg		112	90 - 110	1	20

QC Association Summary

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

GC VOA

Prep Batch: 76120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6368-1	SS 1	Total/NA	Solid	5035	
890-6368-2	SS 2	Total/NA	Solid	5035	
890-6368-3	SS 3	Total/NA	Solid	5035	
MB 880-76120/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-76120/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-76120/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-41103-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-41103-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 76264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6368-1	SS 1	Total/NA	Solid	8021B	76120
890-6368-2	SS 2	Total/NA	Solid	8021B	76120
890-6368-3	SS 3	Total/NA	Solid	8021B	76120
MB 880-76120/5-A	Method Blank	Total/NA	Solid	8021B	76120
LCS 880-76120/1-A	Lab Control Sample	Total/NA	Solid	8021B	76120
LCSD 880-76120/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	76120
880-41103-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	76120
880-41103-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	76120

Analysis Batch: 76416

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6368-2	SS 2	Total/NA	Solid	8021B	76470
890-6368-3	SS 3	Total/NA	Solid	8021B	76470
890-6368-3	SS 3	Total/NA	Solid	8021B	76470
MB 880-76470/5-A	Method Blank	Total/NA	Solid	8021B	76470
LCS 880-76470/1-A	Lab Control Sample	Total/NA	Solid	8021B	76470
LCSD 880-76470/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	76470
880-40948-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	76470
880-40948-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	76470

Analysis Batch: 76433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6368-1	SS 1	Total/NA	Solid	Total BTEX	
890-6368-2	SS 2	Total/NA	Solid	Total BTEX	
890-6368-3	SS 3	Total/NA	Solid	Total BTEX	

Prep Batch: 76470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6368-2	SS 2	Total/NA	Solid	5035	
890-6368-3	SS 3	Total/NA	Solid	5035	
MB 880-76470/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-76470/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-76470/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-40948-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-40948-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

QC Association Summary

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

GC Semi VOA

Prep Batch: 76094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6368-1	SS 1	Total/NA	Solid	8015NM Prep	
890-6368-2	SS 2	Total/NA	Solid	8015NM Prep	
890-6368-3	SS 3	Total/NA	Solid	8015NM Prep	
MB 880-76094/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-76094/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-76094/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-40964-A-5-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-40964-A-5-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 76143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6368-1	SS 1	Total/NA	Solid	8015B NM	76094
890-6368-2	SS 2	Total/NA	Solid	8015B NM	76094
890-6368-3	SS 3	Total/NA	Solid	8015B NM	76094
MB 880-76094/1-A	Method Blank	Total/NA	Solid	8015B NM	76094
LCS 880-76094/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	76094
LCSD 880-76094/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	76094
880-40964-A-5-D MS	Matrix Spike	Total/NA	Solid	8015B NM	76094
880-40964-A-5-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	76094

Analysis Batch: 76274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6368-1	SS 1	Total/NA	Solid	8015 NM	
890-6368-2	SS 2	Total/NA	Solid	8015 NM	
890-6368-3	SS 3	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 76083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6368-1	SS 1	Soluble	Solid	DI Leach	
890-6368-2	SS 2	Soluble	Solid	DI Leach	
890-6368-3	SS 3	Soluble	Solid	DI Leach	
MB 880-76083/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-76083/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-76083/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-41060-A-2-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-41060-A-2-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 76116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6368-1	SS 1	Soluble	Solid	300.0	76083
890-6368-2	SS 2	Soluble	Solid	300.0	76083
890-6368-3	SS 3	Soluble	Solid	300.0	76083
MB 880-76083/1-A	Method Blank	Soluble	Solid	300.0	76083
LCS 880-76083/2-A	Lab Control Sample	Soluble	Solid	300.0	76083
LCSD 880-76083/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	76083
880-41060-A-2-C MS	Matrix Spike	Soluble	Solid	300.0	76083
880-41060-A-2-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	76083

Lab Chronicle

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

Client Sample ID: SS 1  
Date Collected: 03/15/24 15:35  
Date Received: 03/18/24 13:32

Lab Sample ID: 890-6368-1  
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	76120	03/20/24 13:45	AA	EET MID
Total/NA	Analysis	8021B		10	5 mL	5 mL	76264	03/22/24 17:56	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			76433	03/22/24 17:56	SM	EET MID
Total/NA	Analysis	8015 NM		1			76274	03/21/24 22:48	SM	EET MID
Total/NA	Prep	8015NM Prep			10.07 g	10 mL	76094	03/20/24 10:51	EL	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	76143	03/21/24 22:48	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	76083	03/20/24 09:42	SA	EET MID
Soluble	Analysis	300.0		1			76116	03/21/24 00:02	SMC	EET MID

Client Sample ID: SS 2  
Date Collected: 03/15/24 15:40  
Date Received: 03/18/24 13:32

Lab Sample ID: 890-6368-2  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	76120	03/20/24 13:45	AA	EET MID
Total/NA	Analysis	8021B		100	5 mL	5 mL	76264	03/22/24 19:39	MNR	EET MID
Total/NA	Prep	5035			4.96 g	5 mL	76470	03/25/24 10:58	MNR	EET MID
Total/NA	Analysis	8021B		1000	5 mL	5 mL	76416	03/25/24 15:16	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			76433	03/25/24 15:16	SM	EET MID
Total/NA	Analysis	8015 NM		1			76274	03/22/24 00:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.08 g	10 mL	76094	03/20/24 10:51	EL	EET MID
Total/NA	Analysis	8015B NM		5	1 uL	1 uL	76143	03/22/24 00:15	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	76083	03/20/24 09:42	SA	EET MID
Soluble	Analysis	300.0		1			76116	03/21/24 00:09	SMC	EET MID

Client Sample ID: SS 3  
Date Collected: 03/15/24 15:45  
Date Received: 03/18/24 13:32

Lab Sample ID: 890-6368-3  
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			5.04 g	5 mL	76120	03/20/24 13:45	AA	EET MID
Total/NA	Analysis	8021B		50	5 mL	5 mL	76264	03/22/24 19:18	MNR	EET MID
Total/NA	Prep	5035			4.97 g	5 mL	76470	03/25/24 10:58	MNR	EET MID
Total/NA	Analysis	8021B		500	5 mL	5 mL	76416	03/25/24 14:55	MNR	EET MID
Total/NA	Prep	5035			4.97 g	5 mL	76470	03/25/24 10:58	MNR	EET MID
Total/NA	Analysis	8021B		1000	5 mL	5 mL	76416	03/25/24 16:40	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			76433	03/25/24 16:40	SM	EET MID
Total/NA	Analysis	8015 NM		1			76274	03/22/24 00:36	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	76094	03/20/24 10:51	EL	EET MID
Total/NA	Analysis	8015B NM		5	1 uL	1 uL	76143	03/22/24 00:36	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	76083	03/20/24 09:42	SA	EET MID
Soluble	Analysis	300.0		1			76116	03/21/24 00:17	SMC	EET MID

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

Eurofins Carlsbad

Accreditation/Certification Summary

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

Laboratory: Eurofins Midland

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

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



Method Summary

Client: Ensolum  
Project/Site: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

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: CTB 90 BABALLO 23 FED

Job ID: 890-6368-1  
SDG: 07A2015016

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-6368-1	SS 1	Solid	03/15/24 15:35	03/18/24 13:32	0.5'
890-6368-2	SS 2	Solid	03/15/24 15:40	03/18/24 13:32	0.5'
890-6368-3	SS 3	Solid	03/15/24 15:45	03/18/24 13:32	0.5'

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



Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-6368-1  
SDG Number: 07A2015016

Login Number: 6368  
List Number: 1  
Creator: Bruns, Shannon

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: 890-6368-1  
SDG Number: 07A2015016

Login Number: 6368  
List Number: 2  
Creator: Rodriguez, Leticia

List Source: Eurofins Midland  
List Creation: 03/19/24 11:55 AM

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



## APPENDIX C

### Photographic Log

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**Photographic Log**

Western Refining Pipeline LLC.

CTB 90 (Caballo 23)

nAPP2408539690



Photograph 1

Date: 3/15/2024

Description Site Location

View: Southwest



Photograph 2

Date: 3/15/2024

Description: Surface staining under fence off pad.

View: Southwest



Photograph 3

Date: 3/15/2024

Description Surface staining

View: Northwest



Photograph 4

Date: 3/15/2024

Description: Release extent

View: Southeast





CTB 90 Caballo Release diagram - Green – Area 1 – 4.1 barrels - Purple – Area 2 – 11.9 barrels



L10

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Spill Characteristics - Inputs				Spill Characteristics - Selected Outputs								
2	Spill Observation or Measurement	Value	Format/Units		Spill Characteristics	Value Raw	Value	Units					
3	Date, Time, and Elapsed Time				Spill Area, Volume & Mass on Land								
4	Date & time of spill observation (now)	3/15/2024 0:00	mm/dd/yyyy hh:mm		Spill Area at Observation Time	494.8	490	ft2					
5	Date & time that spill began (estimate)	3/15/2024 0:00	mm/dd/yyyy hh:mm			0.01	0.0	ac					
6	Elapsed time to observation	1.0	hr		Spill Surface Volume at Observation Time	13.7	14	ft3					
7	User Selected Duration for Emissions Estimates	1.0	hr			102.8	100	gal					
8	Spill setting					2.4	2	bbl					
9	Type of surface where spill occurred	Land	List		Spill Surface Mass at Observation Time	732.2	730	lb					
10	Petroleum Liquid Type				Spill Area, Volume & Mass on Water								
11	Predominant petroleum liquid type	Crude-light (34 °API)	List		Spill Area at Observation Time	n/a	n/a	ft2					
12	Spill Dimensions on Land					n/a	n/a	ac					
13	Soil type	Sand			Spill Surface Volume at Observation Time	n/a	n/a	ft3					
14	Approximate geometric shape of spill	Ellipse	List			n/a	n/a	gal					
15	Maximum length	30	feet			n/a	n/a	bbl					
16	Maximum width	21	feet		Spill Surface Mass at Observation Time	n/a	n/a	lb					
17	Maximum depth of spill on surface	0.5	inches		Potential Soil Infiltration								
18	Spill Dimensions on Water				Approximate infiltration depth	0.23	0.2	ft					
19	Approximate geometric shape of spill				Approximate liquid volume in infiltrated soil	11.0	11	gal					
20	Maximum length		feet			0.3	0	bbl					
21	Maximum width		feet		Total liquid volume - surface and infiltrated soil	113.8	110	gal					
22	Visibility threshold appearance thickness or user specified		List			2.7	3	bbl					
23	User specified thickness		µm		Total liquid mass -surface and infiltrated soil	810.6	810	lb.					
24	Spill Conditions				Initial spill loading on surface	0.23	0.20	gal/ft2					
25	Ambient temperature	46	°F		Final depth for spill loading at 95% Confidence Intvl	0.67	0.70	ft					
26	Wind speed	15	mph		Air Emissions								
27					Estimated VOC Emissions Prior to Observation	430.7	430	lb					
28					Estimated Maximum 1-Hour VOC Emissions	242.5	240	lb					
29					Estimated 24-Hour VOC Emissions	430.7	430	lb					
30	Reporting Applicability				Estimated Emission During Selected Time Period	242.5	240	lb					
31	State in which spill occurred:	NM			Maximum 1-hr Benzene Emissions		1	lb./hr					
32					Total Benzene Emissions for User Selected Duration		2	lb.					
33					Maximum 1-hr H2S Emissions		0.0	lb./hr					
34					Total H2S Emissions for User Selected Duration		0.000	lb.					
35	NOTE: A reporting threshold may have been triggered from this release. Please refer to the NM				Fully or Partially Evaporated		Partially Evaporated						
36	tab on the spill reporting requirements tool for reporting requirements associated with releases to				Initial Spill Size Estimate								
37	land, initiate a MAPLine call, and contact ES&R.				Estimated Mass of Initial Spill	1,241.3	1,200	lb.					
38					Estimated Volume of Initial Spill	174.3	170	gal					
39						4.1	4	bbl					
40					Potential Benzene/Hydrogen Sulfide Emissions from Spill								
41					Select Product Type	Crude-light (34 °API)							
42					Potential Benzene Emissions		1.7	lb.					
43					Potential Hydrogen Sulfide Emissions		0.000	lb.					
44													
45													
46					Note - the below table is a separate emissions calculator that can be used to evaluate releases of specific crude oil types in conjunction with the inputs above..								
47					Crude-Specific Potential Benzene/Hydrogen Sulfide Emissions from Capline Crude Spill								
48					Select Crude Type	Keystone Conoco Blend							
49					Potential Benzene Emissions		2	lb.					
50					Potential Hydrogen Sulfide Emissions		0.002	lb.					
51													

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	A	B	C	D	E	F	G	H	I	J	K	L
1	Spill Characteristics - Inputs				Spill Characteristics - Selected Outputs							
2	Spill Observation or Measurement	Value	Format/Units		Spill Characteristics	Value Raw	Value	Units				
3	Date, Time, and Elapsed Time				Spill Area, Volume & Mass on Land							
4	Date & time of spill observation (now)	3/15/2024 0:00	mm/dd/yyyy hh:mm		Spill Area at Observation Time	1,413.7	1,400	ft2				
5	Date & time that spill began (estimate)	3/15/2024 0:00	mm/dd/yyyy hh:mm			0.03	0.0	ac				
6	Elapsed time to observation	1.0	hr		Spill Surface Volume at Observation Time	39.3	39	ft3				
7	User Selected Duration for Emissions Estimates	1.0	hr			293.7	290	gal				
8	Spill setting					7.0	7	bbl				
9	Type of surface where spill occurred	Land	List		Spill Surface Mass at Observation Time	2,092.0	2,100	lb				
10	Petroleum Liquid Type				Spill Area, Volume & Mass on Water							
11	Predominant petroleum liquid type	Crude-light (34 °API)	List		Spill Area at Observation Time	n/a	n/a	ft2				
12	Spill Dimensions on Land					n/a	n/a	ac				
13	Soil type	Sand			Spill Surface Volume at Observation Time	n/a	n/a	ft3				
14	Approximate geometric shape of spill	Ellipse	List			n/a	n/a	gal				
15	Maximum length	200	feet			n/a	n/a	bbl				
16	Maximum width	9	feet		Spill Surface Mass at Observation Time	n/a	n/a	lb				
17	Maximum depth of spill on surface	0.5	inches		Potential Soil Infiltration							
18	Spill Dimensions on Water				Approximate infiltration depth	0.23	0.2	ft				
19	Approximate geometric shape of spill				Approximate liquid volume in infiltrated soil	31.5	31	gal				
20	Maximum length		feet			0.7	1	bbl				
21	Maximum width		feet		Total liquid volume - surface and infiltrated soil	325.2	330	gal				
22	Visibility threshold appearance thickness or user specified		List			7.7	8	bbl				
23	User specified thickness		µm		Total liquid mass -surface and infiltrated soil	2,316.1	2,300	lb.				
24	Spill Conditions				Initial spill loading on surface	0.23	0.20	gal/ft2				
25	Ambient temperature	46	°F		Final depth for spill loading at 95% Confidence Intvl	0.67	0.70	ft				
26	Wind speed	15	mph		Air Emissions							
27					Estimated VOC Emissions Prior to Observation	1,239.0	1,200	lb				
28	Cells shaded in green are for user input of spill specific data.				Estimated Maximum 1-Hour VOC Emissions	697.6	700	lb				
29					Estimated 24-Hour VOC Emissions	1,239.0	1,200	lb				
30	Reporting Applicability				Estimated Emission During Selected Time Period	697.6	700	lb				
31	State in which spill occurred:	NM			Maximum 1-hr Benzene Emissions		4	lb./hr				
32					Total Benzene Emissions for User Selected Duration		5	lb.				
33					Maximum 1-hr H2S Emissions		0.0	lb./hr				
34					Total H2S Emissions for User Selected Duration		0.001	lb.				
35	NOTE: A reporting threshold may have been triggered from this release. Please refer to the NM				Fully or Partially Evaporated		Partially Evaporated					
36	tab on the spill reporting requirements tool for reporting requirements associated with releases to				Initial Spill Size Estimate							
37	land, initiate a MAPLine call, and contact ES&R.				Estimated Mass of Initial Spill	3,555.1	3,600	lb.				
38					Estimated Volume of Initial Spill	499.2	500	gal				
39						11.9	12	bbl				
40												
41					Potential Benzene/Hydrogen Sulfide Emissions from Spill							
42					Select Product Type	Crude-light (34 °API)						
43					Potential Benzene Emissions		5.1	lb.				
44					Potential Hydrogen Sulfide Emissions		0.001	lb.				
45												
46					Note - the below table is a separate emissions calculator that can be used to evaluate releases of specific crude oil types in conjunction with the inputs above..							
47					Crude-Specific Potential Benzene/Hydrogen Sulfide Emissions from Capline Crude Spill							
48					Select Crude Type	Keystone Conoco Blend						
49					Potential Benzene Emissions		5	lb.				
50					Potential Hydrogen Sulfide Emissions		0.007	lb.				
51												
52												

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QUESTIONS

Action 337277

QUESTIONS

Operator: WESTERN REFINING PIPELINE LLC 200 E. Hardin Street Findlay, OH 45840	OGRID: 319135 Action Number: 337277 Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)
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QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2408539690
Incident Name	NAPP2408539690 CTB 90 (CABALLO 23) @ 0
Incident Type	Oil Release
Incident Status	Remediation Plan Received

Location of Release Source	
Please answer all the questions in this group.	
Site Name	CTB 90 (Caballo 23)
Date Release Discovered	03/15/2024
Surface Owner	Federal

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

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Cause: Normal Operations   Pipeline (Any)   Crude Oil   Released: 16 BBL   Recovered: 1 BBL   Lost: 15 BBL.
Produced Water Released (bbls) Details	Not answered.
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.

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QUESTIONS, Page 2

Action 337277

**QUESTIONS (continued)**

Operator: WESTERN REFINING PIPELINE LLC 200 E. Hardin Street Findlay, OH 45840	OGRID:
	319135
	Action Number:
	337277
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

**QUESTIONS**

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

**Initial Response**

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

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

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

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

I hereby agree and sign off to the above statement	Name: Matt Krakow Title: Environmental Professional Email: mjakrow@marathonpetroleum.com Date: 04/24/2024
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QUESTIONS, Page 3

Action 337277

**QUESTIONS (continued)**

Operator: WESTERN REFINING PIPELINE LLC 200 E. Hardin Street Findlay, OH 45840	OGRID:	319135
	Action Number:	337277
	Action Type:	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS****Site Characterization**

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

What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	U.S. Geological Survey
Did this release impact groundwater or surface water	No
<b>What is the minimum distance, between the closest lateral extents of the release and the following surface areas:</b>	
A continuously flowing watercourse or any other significant watercourse	Between 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 200 and 300 (ft.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between ½ and 1 (mi.)
Any other fresh water well or spring	Between 300 and 500 (ft.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Between 300 and 500 (ft.)
A wetland	Between 300 and 500 (ft.)
A subsurface mine	Between 300 and 500 (ft.)
An (non-karst) unstable area	Between 300 and 500 (ft.)
Categorize the risk of this well / site being in a karst geology	None
A 100-year floodplain	Between 300 and 500 (ft.)
Did the release impact areas not on an exploration, development, production, or storage site	No

**Remediation Plan**

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

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

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

Chloride	(EPA 300.0 or SM4500 Cl B)	72.1
TPH (GRO+DRO+MRO)	(EPA SW-846 Method 8015M)	28600
GRO+DRO	(EPA SW-846 Method 8015M)	28800
BTEX	(EPA SW-846 Method 8021B or 8260B)	928
Benzene	(EPA SW-846 Method 8021B or 8260B)	63.1

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

On what estimated date will the remediation commence	04/24/2024
On what date will (or did) the final sampling or liner inspection occur	06/13/2024
On what date will (or was) the remediation complete(d)	06/13/2024
What is the estimated surface area (in square feet) that will be reclaimed	2450
What is the estimated volume (in cubic yards) that will be reclaimed	180
What is the estimated surface area (in square feet) that will be remediated	2450
What is the estimated volume (in cubic yards) that will be remediated	180

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

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

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QUESTIONS, Page 4

Action 337277

**QUESTIONS (continued)**

Operator: WESTERN REFINING PIPELINE LLC 200 E. Hardin Street Findlay, OH 45840	OGRID:	319135
	Action Number:	337277
	Action Type:	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS****Remediation Plan (continued)**

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

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

(Select all answers below that apply.)	
(Ex Situ) Excavation and <b>off-site</b> disposal (i.e. dig and haul, hydrovac, etc.)	Not answered.
(Ex Situ) Excavation and <b>on-site</b> remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Yes
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.

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

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

I hereby agree and sign off to the above statement	Name: Matt Krakow Title: Environmental Professional Email: mjakraw@marathonpetroleum.com Date: 04/24/2024
--	--

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



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QUESTIONS, Page 5  
  
Action 337277

QUESTIONS (continued)

Operator:  WESTERN REFINING PIPELINE LLC 200 E. Hardin Street Findlay, OH 45840	OGRID:  319135
	Action Number:  337277
	Action Type:  [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

<b>Deferral Requests Only</b>	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS, Page 6  
Action 337277

QUESTIONS (continued)

Operator: WESTERN REFINING PIPELINE LLC 200 E. Hardin Street Findlay, OH 45840	OGRID: 319135
	Action Number: 337277
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

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

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



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CONDITIONS  
  
Action 337277

CONDITIONS

Operator:  WESTERN REFINING PIPELINE LLC 200 E. Hardin Street Findlay, OH 45840	OGRID:
	319135
	Action Number:
	337277
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

CONDITIONS

Created By	Condition	Condition Date
nvelez	Remediation plan is approved under the following conditions; 1. Once treated stockpiles have been sampled and properly disposed, vadose zone beneath each treated stockpile between surface grade and one (1) foot below grade must be sampled by collecting a five (5)-point composite sample and meet the applicable closure standards. 2. Any soils used in the top four (4) feet from grade must meet the reclamation standards of 100 mg/Kg for TPH per US EPA Method 8015M, 10 mg/Kg for benzene, and 50 mg/Kg for benzene, toluene, ethylbenzene, and total xylenes (BTEX) per US EPA Methods 8021 or 8260B. 3. Western Refining Pipeline has 90 days (July 29, 2024) to initiate the soil shredding process. 4. Western Refining Pipeline has 180 days (October 28, 2024) to submit to OCD its appropriate or final remediation closure report.	4/29/2024