ENSOLUM

February 28, 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
Twin Lakes SA Unit #316 Flowline Release
Incident Number nAPP2405244149
Chaves County, New Mexico

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of Oxy USA Inc. (Oxy), has prepared the following *Remediation Work Plan* (*Work Plan*) to document site assessment and delineation activities completed to date and propose remedial actions to address historical impacted soil identified at the Twin Lakes SA Unit #316 flowline release (Site). The following *Work Plan* proposes excavation of impacted soil within the historical release area and submittal of a subsequent *Closure Request,* documenting the excavation activities and confirmation soil sample analytical results.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit I, Section 36, Township 8 South, Range 28 East, in Chaves County, New Mexico (33.576118, -104.036442) and is associated with oil and gas exploration and production operations on state land managed by the New Mexico State Land Office (NMSLO).

During 2021, the NMSLO completed an aerial imagery review of plugged and abandoned wells located on state land in Chaves County. Visible indications of a potential historical release were identified at the Site, and as the lease holder, Oxy was notified by the NMSLO of the need to investigate potential impacts to soil. Oxy contracted Ensolum to conduct assessment and delineation activities within the historical release area. Based on the delineation soil sample analytical results, a Notification of Release was submitted to the New Mexico Oil Conservation Division (NMOCD) on February 21, 2024. The release was assigned Incident Number nAPP2405244149.

Oxy is not the Operator of the Twin Lakes SA Unit #316 well, and has no independent knowledge of the facts or circumstances surrounding the nature, content or volume of any release(s), contemporaneous to any such release(s). All information submitted by Oxy herein is based on Oxy's present day observations of the site. Oxy submits this *Work Plan* pursuant to an agreement with the NMSLO, as lessee of record.

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 New Mexico Administrative Code (NMAC).

Results from the characterization desktop review are summarized below and detailed in the NMOCD permitting portal Form C-141 Site Characterization section. Potential Site receptors are identified on Figure 1.

Depth to groundwater at the Site is estimated to be less than 50 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater well with depth to groundwater data is United States Geologic Survey (USGS) well 333423104032401, located approximately 1.2 miles southwest of the Site. The well has a recorded depth to groundwater of 35.77 feet bgs and a total depth of 157 feet. The referenced well records are included in Appendix A. All wells used for depth to groundwater determination are depicted on Figure 1.

The closest continuously flowing or significant watercourse is greater than 300 feet from 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. Site receptors are identified on Figure 1.

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

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH): 100 mg/kg
- Chloride: 600 mg/kg

SITE ASSESSMENT AND DELINEATION ACTIVITIES

During January and February 2024, Ensolum personnel were at the Site to evaluate the release extent based on information provided by the NMSLO and visual observations. Four surface soil samples (SS01 through SS04) were collected around the visible release extent to confirm the lateral extent of the surface release. Three potholes (PH01 through PH03) were advanced via backhoe within the release extent to delineate the vertical extent of the release. The potholes were advanced to depths ranging from 4 feet to 6 feet bgs. Discrete delineation soil samples were collected from the potholes at depths ranging from the ground surface to 6 feet bgs. Soil from the potholes 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 for the potholes were logged on lithologic soil sampling logs, which are included in Appendix B.

The delineation 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 Cardinal Laboratories (Cardinal) in Hobbs, New Mexico, for analysis of the following constituents of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following Standard Method SM4500.

The release extent and delineation 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 visits and a photographic log is included in Appendix C.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for surface soil samples SS01 through SS04 indicated all COC concentrations were compliant with the Site Closure Criteria and confirmed the lateral extent of the surface release. Laboratory analytical results for the delineation soil samples collected from pothole PH02, indicated that TPH concentrations exceeded the Site Closure Criteria at a depth ranging from the ground surface to 1-foot bgs. Laboratory analytical results for the delineation soil samples collected from potholes PH01 and PH03, indicated that chloride concentrations exceeded the Site Closure Criteria at depths ranging from 2 feet to 3 feet bgs. The final depth delineation sample from each pothole was compliant with the Site Closure Criteria and successfully delineated the vertical extent of impacted soil. Laboratory analytical results are summarized on the attached Table 1 and the complete laboratory analytical reports are included in Appendix D.

Based on the soil sample analytical results, additional remediation activities are warranted and are proposed below.

PROPOSED REMEDIATION WORKPLAN

The release occurred in an off-pad pasture area; therefore, the release location will be assessed for determination of whether the release encroached into undisturbed areas, to comply with the Cultural Properties Protection Rule (CPP).

The delineation soil sample results indicated soil containing TPH or chloride concentrations exceeding the Site Closure Criteria is present across an approximate 13,000 square foot area and extends to a depth ranging from the ground surface to 3 feet bgs. Based on the delineation soil sample analytical results and visible staining in the release area, Oxy proposes to complete the following remediation activities:

- The impacted soil identified within the release area will be excavated. Excavation will proceed laterally and vertically until excavation sidewall and floor samples confirm all COC concentrations are compliant with the Site Closure Criteria. The excavation extents may not be connected due to the apparent separate release areas.
    - 5-point composite soil samples will be collected from the sidewalls and floor of the final excavation extent. 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.
    - The excavation sidewall samples will be collected at a frequency of every 200 square feet.
    - Due to the estimated size of the excavation (13,000 square feet), Oxy requests a variance for frequency of excavation floor samples. Oxy proposes collecting floor samples at a frequency of every 400 square feet from the floor of the excavation.
    - The excavation confirmation soil samples will be handled as described above and analyzed for BTEX, TPH, and chloride.
- An estimated 1,000 cubic yards of impacted soil will be excavated. The excavated soil will be transported to an approved landfill facility for disposal.
- Upon completion of excavation activities, the excavation will be backfilled with locally procured backfill and topsoil and recontoured to match pre-existing conditions. The disturbed area will be seeded with a NMSLO approved seed mixture. A Reclamation Plan for the disturbed area is included in Appendix E.

- A *Closure Request* detailing the excavation activities will be submitted to the NMOCD and NMSLO upon completion of excavation activities and receipt of final laboratory analytical results.

Oxy will complete the excavation activities within 90 days of the date of approval of this *Work Plan* by the NMOCD. Oxy believes the scope of work described above meets the requirements set forth in 19.15.29 NMAC and is protective of human health, the environment, and groundwater and respectfully requests approval of this *Work Plan* for Incident Number nAPP2405244149.

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

Sincerely,
Ensolum, LLC

Hadlie Green
Project Geologist

Aimee Cole
Senior Managing Scientist

cc: Kalei Jennings, Oxy USA Inc.
New Mexico State Land Office

Appendices:

Figure 1	Site Receptor Map
Figure 2	Delineation Soil Sample Locations
Figure 3	Proposed Excavation Extent
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	Reclamation Plan

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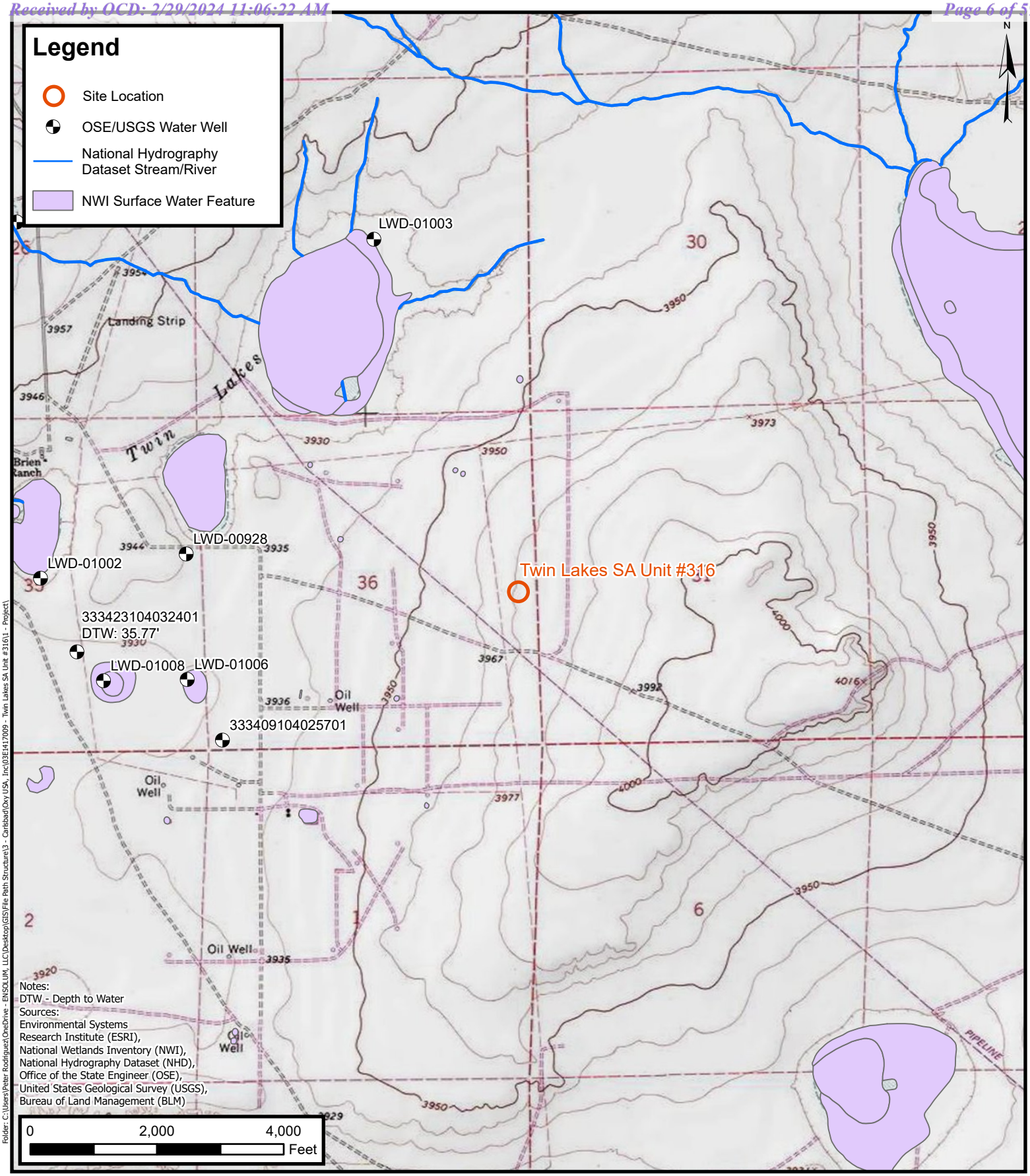
FIGURES



Folder: C:\Users\Peter Rodriguez\OneDrive - ENSOLUM, LLC\Desktop\GIS\File Path Structure\3 - Carlsbad\Oxy USA, Inc\03E1417009 - Twin Lakes SA Unit #316\1 - Project\

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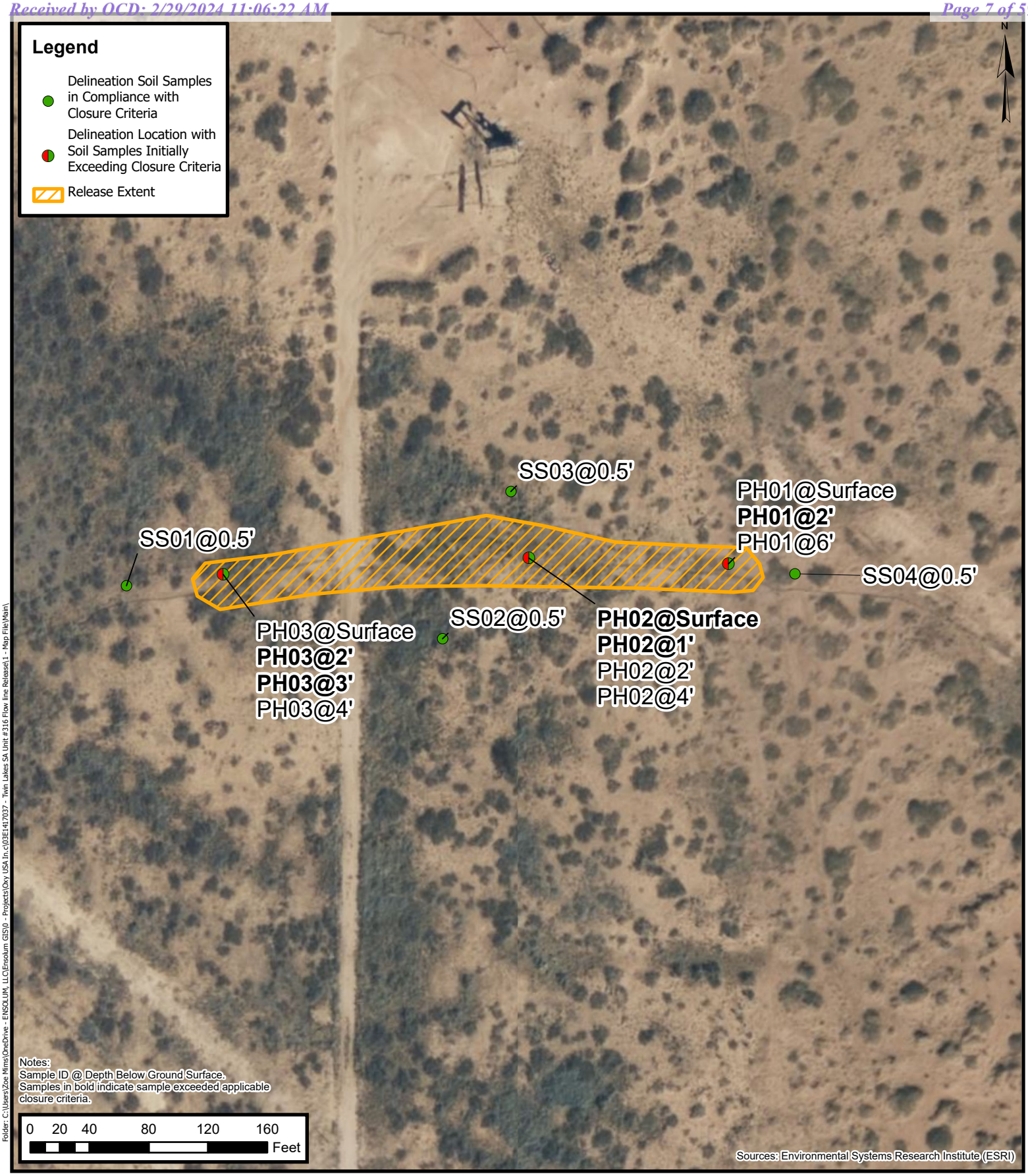
Site Receptor Map

Oxy USA, Inc.
Twin Lakes SA Unit #316 Flowline Release
Incident Number: nAPP2405244149
I-36-08S-28E
Chaves County, New Mexico

FIGURE 1



Folder: C:\Users\Zoe Mims\OneDrive - ENSOLUM, LLC\Ensolum GIS\0 - Projects\Oxy USA In.c\03E141.7037 - Twin Lakes SA Unit #316 Flow line Release\1 - Map File\Main\

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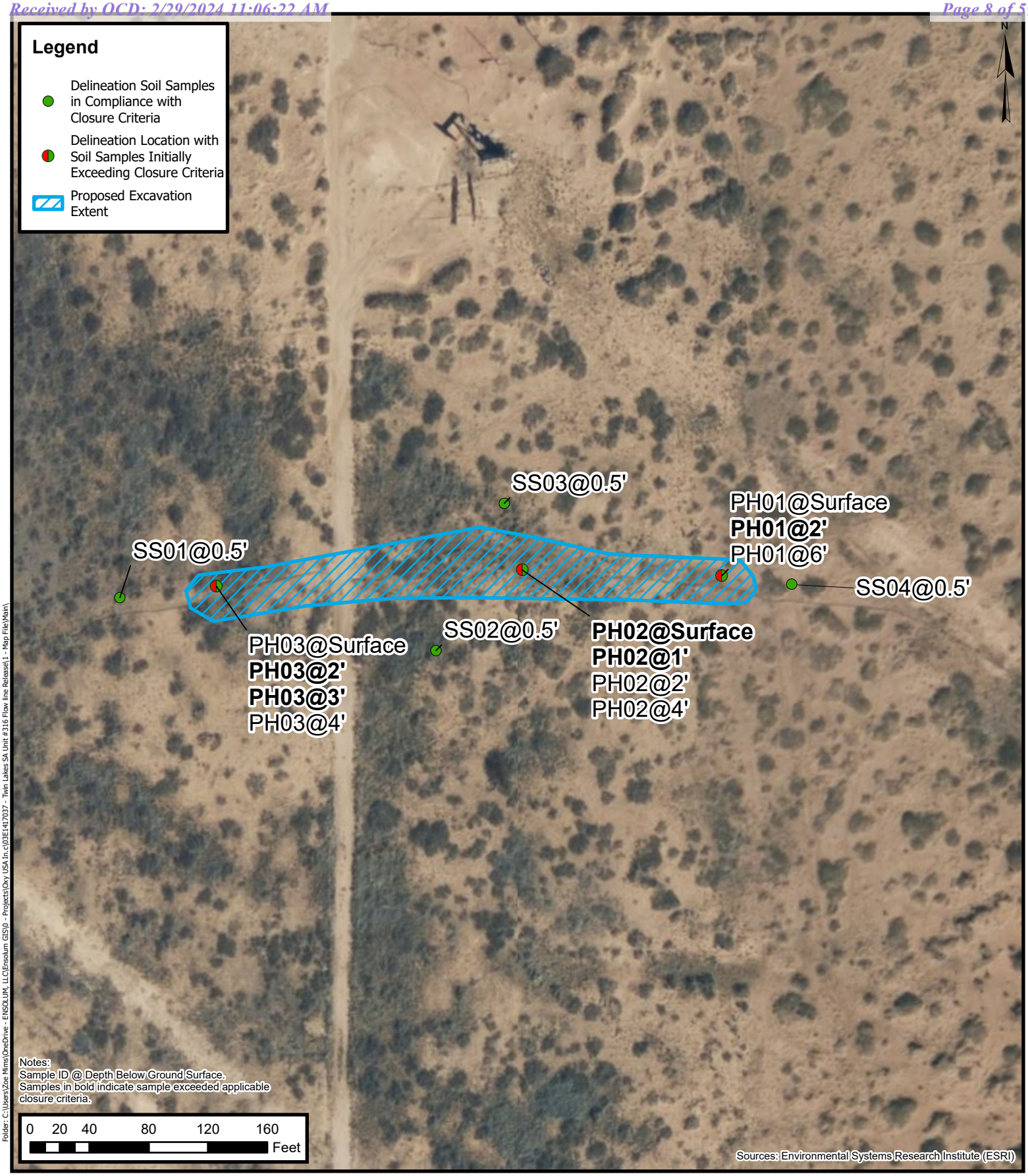
Delineation Soil Sample Locations

Oxy USA Inc.
Twin Lakes SA Unit #316 Flowline Release
Incident Number nAPP2405244149
Unit I, Sec 36, T08S, R28E
Chaves County, New Mexico

FIGURE 2



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Proposed Excavation Extent

Oxy USA Inc.
Twin Lakes SA Unit #316 Flowline Release
Incident Number nAPP2405244149
Unit I, Sec 36, T08S, R28E
Chaves County, New Mexico

FIGURE 3

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TABLES

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Twin Lakes SA Unit #316 Flowline Release
Oxy USA Inc.
Chaves County, New Mexico

Sample Designation	Date	Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Delineation Soil Samples										
SS01	01/30/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS02	01/30/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS03	01/30/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SS04	01/30/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
PH01	01/30/2024	Surface	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	144
PH01	01/30/2024	2	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	**752**
PH01	01/30/2024	6	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	384
PH02	01/30/2024	Surface	<0.050	<0.300	<50.0	2,120	2,190	2,120	**4,310**	32.0
PH02	01/30/2024	1	<0.050	<0.300	<50.0	180	346	180	**526**	16.0
PH02	02/08/2024	2	<0.050	<0.300	<10.0	58.3	36.6	58.0	94.6	576
PH02	02/08/2024	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	304
PH03	01/25/2024	Surface	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
PH03	01/25/2024	2	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	**672**
PH03	01/25/2024	3	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	**608**
PH03	01/30/2024	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	128

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

GRO: Gasoline Range Organics
DRO: Diesel Range Organics
ORO: Oil Range Organics
TPH: Total Petroleum Hydrocarbon

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APPENDIX A

Referenced Well Records

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: New Mexico | 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 New Mexico

Click to hide state-specific text

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 333423104032401

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 333423104032401 08S.28E.35.41334

Chaves County, New Mexico
Latitude 33°34'23", Longitude 104°03'24" NAD27
Land-surface elevation 3,931 feet above NAVD88
The depth of the well is 157 feet below land surface.
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) 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	? Water-level approval status
1978-10-18		D	62610		3895.00	NGVD29	1	Z			A
1978-10-18		D	62611		3896.86	NAVD88	1	Z			A
1978-10-18		D	72019	34.14			1	Z			A
1984-02-16		D	62610		3893.37	NGVD29	1	Z			A
1984-02-16		D	62611		3895.23	NAVD88	1	Z			A
1984-02-16		D	72019	35.77			1	Z			A

Explanation

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

Questions or Comments
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Page Contact Information: New Mexico Water Data Maintainer
Page Last Modified: 2024-02-07 16:44:11 EST
0.36 0.31 nadww02

New Mexico Office of the State Engineer
Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
	RA 09732			1	22	08S	28E	585283	3719179*

Driller License:	1082	**Driller Company:**	SPEARS, JACK DRILLING CO.		
Driller Name:	SPEARS, JACK				
Drill Start Date:	05/14/1999	**Drill Finish Date:**	06/17/1999	**Plug Date:**	
Log File Date:	06/22/1999	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	10 GPM
Casing Size:	5.00	**Depth Well:**	922 feet	**Depth Water:**	600 feet

Water Bearing Stratifications:	Top	Bottom	Description
	862	920	Shallow Alluvium/Basin Fill

Casing Perforations:	Top	Bottom
	832	922

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

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APPENDIX B

Lithologic Soil Sampling Logs

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	Sample Name: PH01	Date: Jan 30, 2024
	Site Name: Twin Lakes SA Unit #316 Flow line Release	
	Incident Number: nAPP2405244149	
	Job Number: 03E1417037	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: K Shimada	Method: Backhoe
Coordinates: 33.576090, -104.035889	Hole Diameter: N/A	Total Depth: 6'

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 factor included. D-Dry; ND-Non Detect; N-No; Y-Yes

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
D	ND	0.0	N	PH01	Surface	Surface	SW	SAND, dark brown, well graded, fine grain, rounded, dry, no stain, no odor.
D	767.2	0.0	N			1	CL	CLAY, dark brown, abundant sand, well graded, fine grain, rounded, dry, no stain, no odor.
D	1562	0.0	N	PH01	2	2	CL	CLAY, dark brown, abundant sand, well graded, fine grain, rounded, dry, no stain, no odor.
D	1254	0.0	N			3	CL	CLAY, dark brown, abundant sand, well graded, fine grain, rounded, dry, no stain, no odor.
D	996.8	0.0	Y			4	CL	CLAY, reddish brown, abundant sand, well graded, fine grain, rounded, dry, staining, no odor.
D	767.2	0.0	Y			5	CL	CLAY, pale brown, abundant sand, well graded, fine grain, rounded, dry, staining, no odor.
D	571.2	0.0	Y	PH01	6	6	CL	CLAY, pale brown, abundant sand, well graded, fine grain, rounded, dry, staining, no odor.

Total depth @ 6 feet bgs

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	Sample Name: PH02	Date: Jan 30, 2024
	Site Name: Twin Lakes SA Unit #316 Flow line Release	
	Incident Number: nAPP2405244149	
	Job Number: 03E1417037	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: K Shimada	Method: Backhoe
Coordinates: 33.576102, -104.036331	Hole Diameter: N/A	Total Depth: 2'

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 factor included. D-Dry; ND-Non Detect; N-No

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
D	ND	0.0	N	PH02	Surface	Surface	SW	SAND, dark brown, well graded, fine grain, rounded, dry, no stain, no odor.
D	ND	0.0	N	PH02	1	1	CL	CLAY, dark brov Dark Brown fine grain, rounded, dry, no stain, no odor.
D	1260	0.6	N	PH02	2	2	CL	CLAY, dark brown, abundant sand, well graded, fine grain, rounded, dry, no stain, no odor.
D	554.4	0.8	N			3	CL	CLAY, dark brown, abundant sand, well graded, fine grain, rounded, dry, no stain, no odor.
D	347	0.4	N	PH02	4	4	CL	CLAY, reddish brown, abundant sand, well graded, fine grain, rounded, dry, staining, no odor.

Total Depth @ 4 feet bgs

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	Sample Name: PH03	Date: Jan 25/30, 2024
	Site Name: Twin Lakes SA Unit #316 Flow line Release	
	Incident Number: nAPP2405244149	
	Job Number: 03E1417037	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: K Shimada	Method: Backhoe
Coordinates: 33.576079, -104.037008	Hole Diameter: N/A	Total Depth:4'

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 factor included. D-Dry; ND-Non Detect; N-No

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
D	ND	0.0	N	PH03	Surface	Surface	SW	SAND, brown, well graded, fine grain, rounded, dry, no stain, no odor.
D	ND	0.0	N			1	SW	SAND, brown, well graded, fine grain, rounded, dry, no stain, no odor.
D	772.8	0.0	N	PH03	2	2	SW	SAND, brown, well graded, fine grain, rounded, dry, no stain, no odor.
D	515.4	0.0	N	PH03	3	3	CL	CLAY, pale brown, abundant sand, well graded, fine grain, rounded, dry, staining, no odor.
D	274.4	0.0	N	PH03	4	4	CL	CLAY, brown, abundant sand, well graded, fine grain, rounded, dry, staining, no odor.

Total Depth @ 4 feet bgs

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APPENDIX C

Photographic Log

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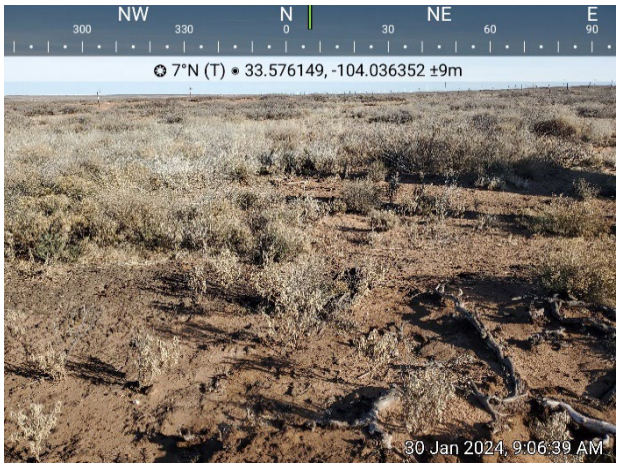
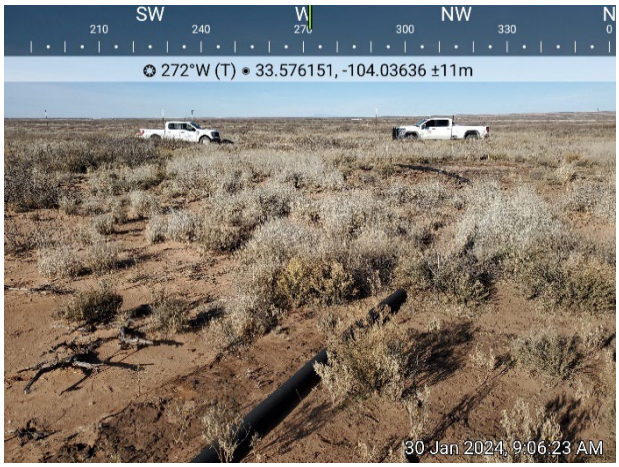
Photographic Log
Oxy USA Inc.
Twin Lakes SA Unit #316 Flowline Release
Incident Number nAPP2405244149

Photograph 1 Date: 01/25/2024
Description Visible staining in release area
View: Northeast

Photograph 2 Date: 01/30/2024
Description: Delineation activities
View: West



Photograph 3 Date: 01/30/2024
Description Release area
View: North



Photograph 4 Date: 01/30/2024
Description: Release area
View: West

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APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation

CARDINAL Laboratories

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

January 29, 2024

AIMEE COLE

ENSOLUM, LLC

705 W WADLEY AVE.

MIDLAND, TX 79705

RE: TWIN LAKES FLOWLINE RELEASE (#316)

Enclosed are the results of analyses for samples received by the laboratory on 01/26/24 14:02.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-23-16. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC
AIMEE COLE
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received:	01/26/2024	Sampling Date:	01/25/2024
Reported:	01/29/2024	Sampling Type:	Soil
Project Name:	TWIN LAKES FLOWLINE RELEASE (#31(	Sampling Condition:	Cool & Intact
Project Number:	03E1417037	Sample Received By:	Shalyn Rodriguez
Project Location:	OXY-EDDY COUNTY, NM		

Sample ID: BH 03 0' (H240364-01)

BTEX 8021B mg/kg Analyzed By: JH HDSP-1

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/26/2024	ND	2.19	110	2.00	1.62	
Toluene*	<0.050	0.050	01/26/2024	ND	2.19	110	2.00	1.70	
Ethylbenzene*	<0.050	0.050	01/26/2024	ND	2.18	109	2.00	1.43	
Total Xylenes*	<0.150	0.150	01/26/2024	ND	6.39	106	6.00	1.55	
Total BTEX	<0.300	0.300	01/26/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *97.6 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	01/29/2024	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: MS HDSP-1

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/26/2024	ND	167	83.7	200	1.38	
DRO >C10-C28*	<10.0	10.0	01/26/2024	ND	179	89.4	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	01/26/2024	ND					

Surrogate: 1-Chlorooctane *93.2 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *116 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC
AIMEE COLE
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received:	01/26/2024	Sampling Date:	01/25/2024
Reported:	01/29/2024	Sampling Type:	Soil
Project Name:	TWIN LAKES FLOWLINE RELEASE (#31(	Sampling Condition:	Cool & Intact
Project Number:	03E1417037	Sample Received By:	Shalyn Rodriguez
Project Location:	OXY-EDDY COUNTY, NM		

Sample ID: BH 03 2' (H240364-02)

BTEX 8021B mg/kg **Analyzed By: JH**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/26/2024	ND	2.19	110	2.00	1.62	
Toluene*	<0.050	0.050	01/26/2024	ND	2.19	110	2.00	1.70	
Ethylbenzene*	<0.050	0.050	01/26/2024	ND	2.18	109	2.00	1.43	
Total Xylenes*	<0.150	0.150	01/26/2024	ND	6.39	106	6.00	1.55	
Total BTEX	<0.300	0.300	01/26/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *97.5 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**672**	16.0	01/29/2024	ND	432	108	400	3.64	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/26/2024	ND	167	83.7	200	1.38	
DRO >C10-C28*	<10.0	10.0	01/26/2024	ND	179	89.4	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	01/26/2024	ND					

Surrogate: 1-Chlorooctane *98.0 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *119 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC
AIMEE COLE
705 W WADLEY AVE.
MIDLAND TX, 79705
Fax To:

Received:	01/26/2024	Sampling Date:	01/25/2024
Reported:	01/29/2024	Sampling Type:	Soil
Project Name:	TWIN LAKES FLOWLINE RELEASE (#31(	Sampling Condition:	Cool & Intact
Project Number:	03E1417037	Sample Received By:	Shalyn Rodriguez
Project Location:	OXY-EDDY COUNTY, NM		

Sample ID: BH 03 3' (H240364-03)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/26/2024	ND	2.19	110	2.00	1.62	
Toluene*	<0.050	0.050	01/26/2024	ND	2.19	110	2.00	1.70	
Ethylbenzene*	<0.050	0.050	01/26/2024	ND	2.18	109	2.00	1.43	
Total Xylenes*	<0.150	0.150	01/26/2024	ND	6.39	106	6.00	1.55	
Total BTEX	<0.300	0.300	01/26/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *97.9 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**608**	16.0	01/29/2024	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/26/2024	ND	167	83.7	200	1.38	
DRO >C10-C28*	<10.0	10.0	01/26/2024	ND	179	89.4	200	1.53	
EXT DRO >C28-C36	<10.0	10.0	01/26/2024	ND					

Surrogate: 1-Chlorooctane *92.4 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *113 %* *49.1-148*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Notes and Definitions

HDSP-1	Sample container had headspace. Results may be biased low.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

1/1

Company Name:	Ensolum, LLC
Project Manager:	Aimee Cole
Address:	601 N. Marienfeld St. STE 400
City:	Midland State: TX Zip: 79701
Phone #:	720 384 7365 Fax #:
Project #:	03E1417637 Project Owner:
Project Name:	Twin Lakes Flowline Release (# 3116)
Project Location:	
Sampler Name:	

BILL TO

P.O. #:	
Company:	Oxy USA Inc
Attn:	Wade Dittrich
Address:	
City:	
State:	Zip:
Phone #:	575 390 2826
Fax #:	

FOR LAB USE ONLY: H240364

Lab I.D.	Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX	TPH	Cl-
1	BH03	0'	C	1			X					X		1/25/24	1428	X	X	X
2	↓	2'	↓	↓			↓					↓		↓	1432	↓	↓	↓
3		3'													1447			

NFE SK

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

Relinquished By:	Date: 1/26/24	Received By:	
	Time: 0850		
Relinquished By:	Date: 1-26-24	Received By:	SRodriguez
	Time: 1402		

Verbal Result: ☐ Yes ☒ No Add'l Phone #:
All Results are emailed. Please provide Email address: acole@ensolum.com
REMARKS: 24 hrs Sample #1 has headspace client said run anyway - AT 1/26/24

Delivered By: (Circle One) Sampler - UPS - Bus - Other:
Observed Temp. °C 3.6 Corrected Temp. °C
Sample Condition: Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No
CHECKED BY: (Initials) SR

Turnaround Time: Standard ☐ Rush ☒
Thermometer ID #140
Correction Factor -0.5°C
Bacteria (only) Sample Condition: Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No
Observed Temp. °C
Corrected Temp. °C

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

FORM-006 R 3.2 10/07/21

CARDINAL Laboratories

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

February 07, 2024

AIMEE COLE

ENSOLUM, LLC

705 W WADLEY AVE.

MIDLAND, TX 79705

RE: TWIN LAKES FLOWLINE RELEASE (#316)

Enclosed are the results of analyses for samples received by the laboratory on 02/01/24 10:27.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-23-16. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PH 3 4'	H240476-01	Soil	30-Jan-24 08:44	01-Feb-24 10:27
PH 2 SURFACE	H240476-02	Soil	30-Jan-24 09:06	01-Feb-24 10:27
PH 2 2'	H240476-03	Soil	30-Jan-24 09:13	01-Feb-24 10:27
SS 1 0.5'	H240476-04	Soil	30-Jan-24 09:03	01-Feb-24 10:27
SS 2 0.5'	H240476-05	Soil	30-Jan-24 09:38	01-Feb-24 10:27
SS 3 0.5'	H240476-06	Soil	30-Jan-24 09:40	01-Feb-24 10:27
SS 4 0.5'	H240476-07	Soil	30-Jan-24 09:41	01-Feb-24 10:27
PH 1 SURFACE	H240476-08	Soil	30-Jan-24 09:35	01-Feb-24 10:27
PH 1 6'	H240476-09	Soil	30-Jan-24 09:42	01-Feb-24 10:27
PH 1 2'	H240476-10	Soil	30-Jan-24 10:40	01-Feb-24 10:27

02/07/24 - Client changed the sample IDs on -09 and -10 (see COC). This is the revised report and will replace the one sent on 02/04/24.

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

PH 3 4'

H240476-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**128**		16.0	mg/kg	4	4020211	CT	02-Feb-24	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*104 %*	*71.5-134*		*4020123*	JH	*01-Feb-24*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
Surrogate: 1-Chlorooctane			*120 %*	*48.2-134*		*4020124*	MS	*01-Feb-24*	*8015B*	
Surrogate: 1-Chlorooctadecane			*114 %*	*49.1-148*		*4020124*	MS	*01-Feb-24*	*8015B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

PH 2 SURFACE

H240476-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**32.0**		16.0	mg/kg	4	4020211	CT	02-Feb-24	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*71.5-134*		*4020123*	JH	*01-Feb-24*	*8021B*	
Petroleum Hydrocarbons by GC FID										**S-06**
GRO C6-C10*	<50.0		50.0	mg/kg	5	4020124	MS	01-Feb-24	8015B	
DRO >C10-C28*	**2120**		50.0	mg/kg	5	4020124	MS	01-Feb-24	8015B	
EXT DRO >C28-C36	**2190**		50.0	mg/kg	5	4020124	MS	01-Feb-24	8015B	
Surrogate: 1-Chlorooctane			*123 %*	*48.2-134*		*4020124*	MS	*01-Feb-24*	*8015B*	
Surrogate: 1-Chlorooctadecane			*150 %*	*49.1-148*		*4020124*	MS	*01-Feb-24*	*8015B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

PH 2 2'

H240476-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**16.0**		16.0	mg/kg	4	4020211	CT	02-Feb-24	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*71.5-134*		*4020123*	JH	*01-Feb-24*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<50.0		50.0	mg/kg	5	4020124	MS	01-Feb-24	8015B	
DRO >C10-C28*	**180**		50.0	mg/kg	5	4020124	MS	01-Feb-24	8015B	
EXT DRO >C28-C36	**346**		50.0	mg/kg	5	4020124	MS	01-Feb-24	8015B	
Surrogate: 1-Chlorooctane			*126 %*	*48.2-134*		*4020124*	MS	*01-Feb-24*	*8015B*	
Surrogate: 1-Chlorooctadecane			*121 %*	*49.1-148*		*4020124*	MS	*01-Feb-24*	*8015B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

SS 1 0.5'

H240476-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**16.0**		16.0	mg/kg	4	4020211	CT	02-Feb-24	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*71.5-134*		*4020123*	JH	*01-Feb-24*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
Surrogate: 1-Chlorooctane			*121 %*	*48.2-134*		*4020124*	MS	*01-Feb-24*	*8015B*	
Surrogate: 1-Chlorooctadecane			*115 %*	*49.1-148*		*4020124*	MS	*01-Feb-24*	*8015B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

SS 2 0.5'

H240476-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**16.0**		16.0	mg/kg	4	4020211	CT	02-Feb-24	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*71.5-134*		*4020123*	JH	*01-Feb-24*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
Surrogate: 1-Chlorooctane			*114 %*	*48.2-134*		*4020124*	MS	*01-Feb-24*	*8015B*	
Surrogate: 1-Chlorooctadecane			*107 %*	*49.1-148*		*4020124*	MS	*01-Feb-24*	*8015B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

SS 3 0.5'

H240476-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**32.0**		16.0	mg/kg	4	4020211	CT	02-Feb-24	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*71.5-134*		*4020123*	JH	*01-Feb-24*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
Surrogate: 1-Chlorooctane			*115 %*	*48.2-134*		*4020124*	MS	*01-Feb-24*	*8015B*	
Surrogate: 1-Chlorooctadecane			*106 %*	*49.1-148*		*4020124*	MS	*01-Feb-24*	*8015B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

SS 4 0.5'

H240476-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**16.0**		16.0	mg/kg	4	4020211	CT	02-Feb-24	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*71.5-134*		*4020123*	JH	*01-Feb-24*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
Surrogate: 1-Chlorooctane			*123 %*	*48.2-134*		*4020124*	MS	*01-Feb-24*	*8015B*	
Surrogate: 1-Chlorooctadecane			*114 %*	*49.1-148*		*4020124*	MS	*01-Feb-24*	*8015B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

PH 1 SURFACE

H240476-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**144**		16.0	mg/kg	4	4020211	CT	02-Feb-24	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4020123	JH	01-Feb-24	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*104 %*	*71.5-134*		*4020123*	JH	*01-Feb-24*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
Surrogate: 1-Chlorooctane			*108 %*	*48.2-134*		*4020124*	MS	*01-Feb-24*	*8015B*	
Surrogate: 1-Chlorooctadecane			*98.5 %*	*49.1-148*		*4020124*	MS	*01-Feb-24*	*8015B*	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

PH 1 6'

H240476-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**384**		16.0	mg/kg	4	4020211	CT	02-Feb-24	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	4020123	JH	02-Feb-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4020123	JH	02-Feb-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4020123	JH	02-Feb-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4020123	JH	02-Feb-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4020123	JH	02-Feb-24	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*71.5-134*		*4020123*	JH	*02-Feb-24*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
Surrogate: 1-Chlorooctane			*120 %*	*48.2-134*		*4020124*	MS	*01-Feb-24*	*8015B*	
Surrogate: 1-Chlorooctadecane			*112 %*	*49.1-148*		*4020124*	MS	*01-Feb-24*	*8015B*	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

PH 1 2'

H240476-10 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**752**		16.0	mg/kg	4	4020206	AC	02-Feb-24	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	4020123	JH	02-Feb-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4020123	JH	02-Feb-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4020123	JH	02-Feb-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4020123	JH	02-Feb-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4020123	JH	02-Feb-24	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*71.5-134*		*4020123*	JH	*02-Feb-24*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4020124	MS	01-Feb-24	8015B	
Surrogate: 1-Chlorooctane			*115 %*	*48.2-134*		*4020124*	MS	*01-Feb-24*	*8015B*	
Surrogate: 1-Chlorooctadecane			*108 %*	*49.1-148*		*4020124*	MS	*01-Feb-24*	*8015B*	

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Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4020206 - 1:4 DI Water										
Blank (4020206-BLK1)				Prepared & Analyzed: 02-Feb-24						
Chloride	ND	16.0	mg/kg							
LCS (4020206-BS1)				Prepared & Analyzed: 02-Feb-24						
Chloride	432	16.0	mg/kg	400		108	80-120			
LCS Dup (4020206-BSD1)				Prepared & Analyzed: 02-Feb-24						
Chloride	432	16.0	mg/kg	400		108	80-120	0.00	20	
Batch 4020211 - 1:4 DI Water										
Blank (4020211-BLK1)				Prepared & Analyzed: 02-Feb-24						
Chloride	ND	16.0	mg/kg							
LCS (4020211-BS1)				Prepared & Analyzed: 02-Feb-24						
Chloride	416	16.0	mg/kg	400		104	80-120			
LCS Dup (4020211-BSD1)				Prepared & Analyzed: 02-Feb-24						
Chloride	432	16.0	mg/kg	400		108	80-120	3.77	20	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4020123 - Volatiles										
Blank (4020123-BLK1)				Prepared & Analyzed: 01-Feb-24						
Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	*0.0515*		mg/kg	*0.0500*		*103*	*71.5-134*			
LCS (4020123-BS1)				Prepared & Analyzed: 01-Feb-24						
Benzene	2.13	0.050	mg/kg	2.00		107	82.8-130			
Toluene	2.14	0.050	mg/kg	2.00		107	86-128			
Ethylbenzene	2.12	0.050	mg/kg	2.00		106	85.9-128			
m,p-Xylene	4.31	0.100	mg/kg	4.00		108	89-129			
o-Xylene	2.08	0.050	mg/kg	2.00		104	86.1-125			
Total Xylenes	6.39	0.150	mg/kg	6.00		107	88.2-128			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0504*		mg/kg	*0.0500*		*101*	*71.5-134*			
LCS Dup (4020123-BSD1)				Prepared & Analyzed: 01-Feb-24						
Benzene	2.10	0.050	mg/kg	2.00		105	82.8-130	1.71	15.8	
Toluene	2.10	0.050	mg/kg	2.00		105	86-128	1.60	15.9	
Ethylbenzene	2.09	0.050	mg/kg	2.00		104	85.9-128	1.58	16	
m,p-Xylene	4.25	0.100	mg/kg	4.00		106	89-129	1.45	16.2	
o-Xylene	2.05	0.050	mg/kg	2.00		102	86.1-125	1.61	16.7	
Total Xylenes	6.30	0.150	mg/kg	6.00		105	88.2-128	1.50	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	*0.0505*		mg/kg	*0.0500*		*101*	*71.5-134*			

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM, LLC 705 W WADLEY AVE. MIDLAND TX, 79705	Project: TWIN LAKES FLOWLINE RELEASE (Project Number: 03E1417037 Project Manager: AIMEE COLE Fax To:	Reported: 07-Feb-24 16:23

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4020124 - General Prep - Organics										
Blank (4020124-BLK1)				Prepared & Analyzed: 01-Feb-24						
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	*52.9*		mg/kg	*50.0*		*106*	*48.2-134*			
Surrogate: 1-Chlorooctadecane	*48.5*		mg/kg	*50.0*		*97.0*	*49.1-148*			
LCS (4020124-BS1)				Prepared & Analyzed: 01-Feb-24						
GRO C6-C10	197	10.0	mg/kg	200		98.3	66.4-123			
DRO >C10-C28	213	10.0	mg/kg	200		106	66.5-118			
Total TPH C6-C28	410	10.0	mg/kg	400		102	77.6-123			
Surrogate: 1-Chlorooctane	*53.4*		mg/kg	*50.0*		*107*	*48.2-134*			
Surrogate: 1-Chlorooctadecane	*48.9*		mg/kg	*50.0*		*97.9*	*49.1-148*			
LCS Dup (4020124-BSD1)				Prepared & Analyzed: 01-Feb-24						
GRO C6-C10	194	10.0	mg/kg	200		97.0	66.4-123	1.42	17.7	
DRO >C10-C28	202	10.0	mg/kg	200		101	66.5-118	5.11	21	
Total TPH C6-C28	396	10.0	mg/kg	400		99.1	77.6-123	3.32	18.5	
Surrogate: 1-Chlorooctane	*54.4*		mg/kg	*50.0*		*109*	*48.2-134*			
Surrogate: 1-Chlorooctadecane	*53.1*		mg/kg	*50.0*		*106*	*49.1-148*			

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Ensolum, LLC
Project Manager:	Aimee Cole
Address:	601 N. Marienfeld St. STE 400
City:	Midland **State:** TX **Zip:** 79701
Phone #:	720-384-7365 **Fax #:**
Project #:	03E1417037F **Project Owner:**
Project Name:	Twin Lakes Flowline Release (#316)
Project Location:	Chaves County
Sampler Name:	SK

BILL TO

P.O. #:	
Company:	Oxy USA, Inc.
Attn:	Wade Dittrich
Address:	
City:	
State:	**Zip:**
Phone #:	575-390-2828
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	Sample Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	BTEX	TPH	Chloride
H240476	SK																	
1	PH #3	4	C	1			X					X		1/30/24	934	X	X	X
2	PH #2	Surface													906			
3	PH #2	2													913			
4	SS #1	0.5													903			
5	SS #2	0.5													938			
6	SS #3	0.5													940			
7	SS #4	0.5													941			
8	PH #1	Surface													935			
9	PH #1	* 36'													942			
10	PH #1	42'	C	1			X					X		1/30/24	1040	X	X	X

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

Relinquished By:	**Date:** 2.1.24	**Received By:**	Verbal Result: ☐ Yes ☒ No Add'l Phone #:
	Time: 1027		All Results are emailed. Please provide Email address:
Relinquished By:	**Date:**	**Received By:**	ACole@ensolum.com
	Time:		REMARKS: * Cust. requested Depth changes 2/5/24

Turnaround Time: Standard ☐ Rush ☒ 48 hours

Thermometer ID #140 Correction Factor ~~0.5°C~~

Delivered By: (Circle One) Sampler - UPS - Bus - Other:

Observed Temp. °C 4.4 Corrected Temp. °C

Sample Condition: Cool ~~Yes~~ Intact ~~Yes~~ / No No

CHECKED BY: (Initials) SK

Bacteria (only) Sample Condition: Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No Observed Temp. °C Corrected Temp. °C

FORM-006 R 3.2 10/07/21

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

CARDINAL Laboratories

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

February 13, 2024

AIMEE COLE

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: TWIN LAKES SA UNIT #316 FLOW LINE RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 02/12/24 16:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-23-16. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
AIMEE COLE
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	02/12/2024	Sampling Date:	02/08/2024
Reported:	02/13/2024	Sampling Type:	Soil
Project Name:	TWIN LAKES SA UNIT #316 FLOW LINE	Sampling Condition:	Cool & Intact
Project Number:	03E1417037	Sample Received By:	Tamara Oldaker
Project Location:	CHAVES CO.		

Sample ID: PH 2 2' (H240658-01)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2024	ND	1.96	97.8	2.00	5.68	
Toluene*	<0.050	0.050	02/12/2024	ND	2.08	104	2.00	7.99	
Ethylbenzene*	<0.050	0.050	02/12/2024	ND	2.22	111	2.00	8.97	
Total Xylenes*	<0.150	0.150	02/12/2024	ND	6.67	111	6.00	9.27	
Total BTEX	<0.300	0.300	02/12/2024	ND					

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

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**576**	16.0	02/13/2024	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/13/2024	ND	207	104	200	0.233	
DRO >C10-C28*	**58.3**	10.0	02/13/2024	ND	199	99.7	200	0.0552	
EXT DRO >C28-C36	**36.6**	10.0	02/13/2024	ND					

Surrogate: 1-Chlorooctane *84.3 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *78.9 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ENSOLUM
AIMEE COLE
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received:	02/12/2024	Sampling Date:	02/08/2024
Reported:	02/13/2024	Sampling Type:	Soil
Project Name:	TWIN LAKES SA UNIT #316 FLOW LINE	Sampling Condition:	Cool & Intact
Project Number:	03E1417037	Sample Received By:	Tamara Oldaker
Project Location:	CHAVES CO.		

Sample ID: PH 2 4' (H240658-02)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2024	ND	1.96	97.8	2.00	5.68	
Toluene*	<0.050	0.050	02/12/2024	ND	2.08	104	2.00	7.99	
Ethylbenzene*	<0.050	0.050	02/12/2024	ND	2.22	111	2.00	8.97	
Total Xylenes*	<0.150	0.150	02/12/2024	ND	6.67	111	6.00	9.27	
Total BTEX	<0.300	0.300	02/12/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *111 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**304**	16.0	02/13/2024	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/13/2024	ND	207	104	200	0.233	
DRO >C10-C28*	<10.0	10.0	02/13/2024	ND	199	99.7	200	0.0552	
EXT DRO >C28-C36	<10.0	10.0	02/13/2024	ND					

Surrogate: 1-Chlorooctane *90.3 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *80.4 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Ensolum, LLC
Project Manager:	Aimee Cole
Address:	601 N. Marienfeld St. STE 400
City:	Midland **State:** TX **Zip:** 79701
Phone #:	720-384-7365 **Fax #:**
Project #:	03E141 7037 **Project Owner:**
Project Name:	Twin Lakes SA Unit #316 Flow line Rel
Project Location:	Chaves County
Sampler Name:	SK

BILL TO

P.O. #:	
Company:	Oxy USA, Inc.
Attn:	Wade Dittrich
Address:	
City:	
State:	**Zip:**
Phone #:	575-390-2828
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	Sample Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	BTEX	TPH	Chloride
H240658																		
1	PH2	2	C	1			X					X		2/8/24	1022	X	X	X
2	PH2	4	C	1			X					X		2/8/24	1058	X	X	X

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

Relinquished By:	**Date:** 2-12-24 **Time:** 1615	**Received By:**	**Verbal Result:** ☐ Yes ☒ No **Add'l Phone #:**
Relinquished By:	**Date:** **Time:**	**Received By:**	**All Results are emailed. Please provide Email address:** ACole@ensolum.com
			REMARKS: 24 HR TAT

Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Observed Temp. °C 3.6 Corrected Temp. °C	**Sample Condition** Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No	**CHECKED BY: (Initials)** TO	**Turnaround Time:** Standard ☐ Rush ☒ **Thermometer ID** ~~#113~~ #140 **Correction Factor** ~~-0.5°C~~ TO: 2/12/24

Bacteria (only) Sample Condition Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No **Observed Temp. °C** **Corrected Temp. °C**

FORM-006 R 3.2 10/07/21

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

ENSOLUM

APPENDIX E

Reclamation Plan

RECLAMATION PLAN

The release occurred in an off-pad pasture area and as such, a reclamation requirement of 600 mg/kg chloride and 100 mg/kg TPH applies to the top 4 feet of the area that was impacted by the release per 19.15.29.13.D (1)) NMAC for the top 4 feet of areas that will be reclaimed following remediation. The following Reclamation Plan addresses reclamation of the disturbed pasture area:

- The excavation will be backfilled with locally sourced backfill material and topsoil to match surrounding grade. Approximately 1 foot of topsoil will be placed on top of the backfill to support vegetative growth within the disturbed area;
- Soil in the vicinity of the release includes: Sandy clay loam
- The backfilled areas will be seeded with a weed-free seed mix designed by the NMSLO to meet reclamation standards for this region, which will be the loamy sites (L) seed mix as described in the NMSLO Revegetation Guidelines Handbook for Southeastern New Mexico, dated 2018;
- The seed mix will be distributed with either a push broadcast seed spreader, tractor operated broadcast seed spreader, and/or drill seeding method(s);
- Application of the seed mix will be at a coverage of 10 pounds of seed per acre of reclaimed pasture with distribution by a drill seed method or 20 pounds of seed per acre of reclaimed pasture with distribution by a broadcast method;
- If necessary, erosion control management will potentially include:
    - The placement of waddles in areas with a propensity for high run off rates;
    - Straw cover if high winds are anticipated to support moisture retention and limit wind from blowing seeds away before they have had time to germinate; and/or
    - Other erosional control best management practices (BMP) as necessary to support timely and healthy regrowth of vegetation in disturbed areas.
- Seeding is anticipated to be completed in the spring or fall when temperatures and precipitation are most conducive to vegetation growth. In general, seeding should occur approximately one month after the last frost in the spring up until approximately one month prior to the first fall frost.
- Annual inspections (at a minimum), will take place at the location until revegetation is consistent with local natural vegetation density. The Site will be inspected the following spring/fall to assess the success of regrowth. If necessary, an additional application of the NMSLO-approved pure live seed mix will be applied and any needed BMPs will be installed to support growth and limit erosion.

Upon completion of revegetation, a copy of the C-103 submitted to NMOCD will also be submitted to NMSLO for final inspection and release.

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Santa Fe, NM 87505

QUESTIONS

Action 318585

QUESTIONS

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 318585
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAPP2405244149**
Incident Name	**NAPP2405244149 TWIN LAKES SA UNIT #316 FLOW LINE RELEASE @ 30-005-63185**
Incident Type	**Oil Release**
Incident Status	**Remediation Plan Received**
Incident Well	**[30-005-63185] TWIN LAKES SAN ANDRES UNIT #316**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	Twin Lakes SA Unit #316 Flow line Release
Date Release Discovered	11/01/2021
Surface Owner	State

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: Other | Unknown | Crude Oil | Released: 0 BBL (Unknown Released Amount) | Recovered: 0 BBL | Lost: 0 BBL.
Produced Water Released (bbls) Details	Cause: Other | Unknown | Produced Water | Released: 0 BBL (Unknown Released Amount) | Recovered: 0 BBL | Lost: 0 BBL.
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)	Historical release, volume is unknown. Oxy is not the Operator of the Incident Well and has no independent knowledge of the facts or circumstances surrounding the nature, content or volume of any release(s), contemporaneous to any such release(s). All information submitted by Oxy herein is based on Oxy's present day observations of the site, and educated guesses based on those observations. Oxy submits this Notification of Release pursuant to an agreement with the New Mexico State Land Office, as lessee of record.

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QUESTIONS (continued)

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 318585
	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	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.**
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	False
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	Historical release
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: Wade Dittrich Title: Environmental Coordinator Email: wade_dittrich@oxy.com Date: 02/29/2024

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QUESTIONS (continued)

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 318585
	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 26 and 50 (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
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between ½ and 1 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between ½ and 1 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between ½ and 1 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	Yes

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)	752
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	4310
GRO+DRO (EPA SW-846 Method 8015M)	2120
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	06/01/2024
On what date will (or did) the final sampling or liner inspection occur	08/30/2024
On what date will (or was) the remediation complete(d)	08/30/2024
What is the estimated surface area (in square feet) that will be reclaimed	13000
What is the estimated volume (in cubic yards) that will be reclaimed	1000
What is the estimated surface area (in square feet) that will be remediated	13000
What is the estimated volume (in cubic yards) that will be remediated	1000
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 (continued)

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 318585
	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 **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	R360 Artesia LLC LANDFARM [fEEM0112340644]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	*Not answered.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Wade Dittrich Title: Environmental Coordinator Email: wade_dittrich@oxy.com Date: 02/29/2024
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 (continued)

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 318585
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

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

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QUESTIONS (continued)

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 318585
	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 318585

CONDITIONS

Operator:	OGRID:
OXY USA INC P.O. Box 4294 Houston, TX 772104294	16696
	Action Number: 318585
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	The Remediation Plan is Conditionally Approved. Due to the sensitive nature of the site (groundwater <50'), the variance request for 400 ft2 confirmation floor samples are denied. All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards from Table 1 of the OCD Spill Rule. Sidewall/Edge samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. Please collect confirmation samples, representing no more than 200 ft2. All sidewall samples should be taken from the sidewall of the excavation. Please make sure that the edge of the release extent is accurately defined. All off-pad areas must meet reclamation standards set forth in the OCD Spill Rule. The work will need to occur in 90 days after the report has been reviewed.	3/13/2024