



December 26, 2024

New Mexico Oil Conservation Division

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

**Re: Closure Request
Big Eddy Unit 251H
Incident Number NAPP2419336478
Eddy County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum) on behalf of XTO Energy, Inc. (XTO), has prepared this *Closure Request* to document excavation and soil sampling activities performed at the Big Eddy Unit 251H (Site). The purpose of excavation and soil sampling activities, conducted in accordance with an approved *Remediation Work Plan (Work Plan)*, was to address impacts to soil resulting from a release of produced water and crude oil at the Site. XTO is submitting this *Closure Request*, describing excavation activities that have occurred and requesting no further remediation for Incident Number NAPP2419336478.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit A, Section 34, Township 19 South, Range 31 East, in Eddy County, New Mexico (32.62233°, -103.85177°) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM).

On June 28, 2024, corrosion of a flowline resulted in the release of 2 barrels (bbls) of produced water and 9 bbls of crude oil into a right of way (ROW) in a pasture between two pads. A vacuum truck was dispatched to the Site to recover free standing fluids, approximately 1 bbl of produced water and 5 bbls of crude oil were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) via Notification of Release (NOR) on July 11, 2024, and submitted an Initial C-141 Application (C-141) on July 22, 2024. The release was assigned Incident Number NAPP2419336478.

Ensolum conducted Site assessment, delineation and excavation activities and presented the results in a *Work Plan* submitted on September 26, 2024, and subsequently approved by the NMOCD on October 4, 2024. The *Work Plan* proposed excavation of impacted soil identified during delineation activities. Delineation sample locations are shown in Figure 2 and delineation soil sample analytical results are summarized on Table 1.

XTO Energy, Inc
Big Eddy Unit 251H
Closure Request

SITE CHARACTERIZATION AND CLOSURE CRITERIA

As documented in the approved *Work Plan*, the following NMOCD Table I Closure Criteria (Closure Criteria) apply:

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

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

EXCAVATION SOIL SAMPLING ACTIVITIES

Ensolum personnel were onsite between November 25, 2024 and December 3, 2024, to excavate impacted soil according to the approved *Work Plan*. Excavation activities were performed by use of hydrovacuum. To direct excavation activities, soil was field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. Once field screening indicated impacted soil was adequately removed, 5-point composite soil samples were collected every 200 square feet from the floor and sidewall of the excavation extent. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Confirmation floor samples FS01 through FS06 were collected from the floor of the excavation at depths ranging from 1 foot bgs to 4 feet bgs. Confirmation sidewall samples SW01 through SW04 were collected from the sidewalls of the excavation at depths ranging from the ground surface to 4 feet bgs. The confirmation soil sample locations were mapped utilizing a handheld global positioning system (GPS) unit and are depicted on Figure 3.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to Cardinal Laboratories (Cardinal) in Hobbs, New Mexico, for analysis of the following 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 Standards Method SM4500.

The final excavation extent measured approximately 1,090 square feet. A total of approximately 132 cubic yards of impacted soil was removed during the excavation activities. The impacted soil was transported and disposed of at the Halfway Disposal and Landfill in Carlsbad, New Mexico. The final excavation was fenced off pending backfill activities. Photographic documentation of the final excavation extent is provided in Appendix A.

XTO Energy, Inc
Big Eddy Unit 251H
Closure Request

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for all final excavation floor and sidewall confirmation soil samples indicated all COC concentrations were compliant with the Closure Criteria. The laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included in Appendix B.

CLOSURE REQUEST

Excavation activities were conducted at the Site in accordance with the approved *Work Plan* to address the June 2024 release of produced water and crude oil. Laboratory analytical results for all final excavation soil samples indicate all COC concentrations were compliant with the Closure Criteria. Based on the soil sample laboratory analytical results, no further remediation is required. The excavation will be backfilled with material purchased locally and the Site will be recontoured to match pre-existing site conditions. The area will be reseeded with an approved BLM seed mixture.

Excavation of soil has mitigated impacts exceeding the Closure Criteria at the Site. XTO believes these remedial actions are protective of human health, the environment, and groundwater. As such, XTO respectfully requests closure for Incident Number NAPP2419336478.

If you have any questions or comments, please contact Ms. Tacoma Morrissey at (337) 257-8307 or tmorrissey@ensolum.com.

Sincerely,
Ensolum, LLC



Benjamin J. Belill
Senior Geologist



Tacoma Morrissey, M.S.
Associate Principal

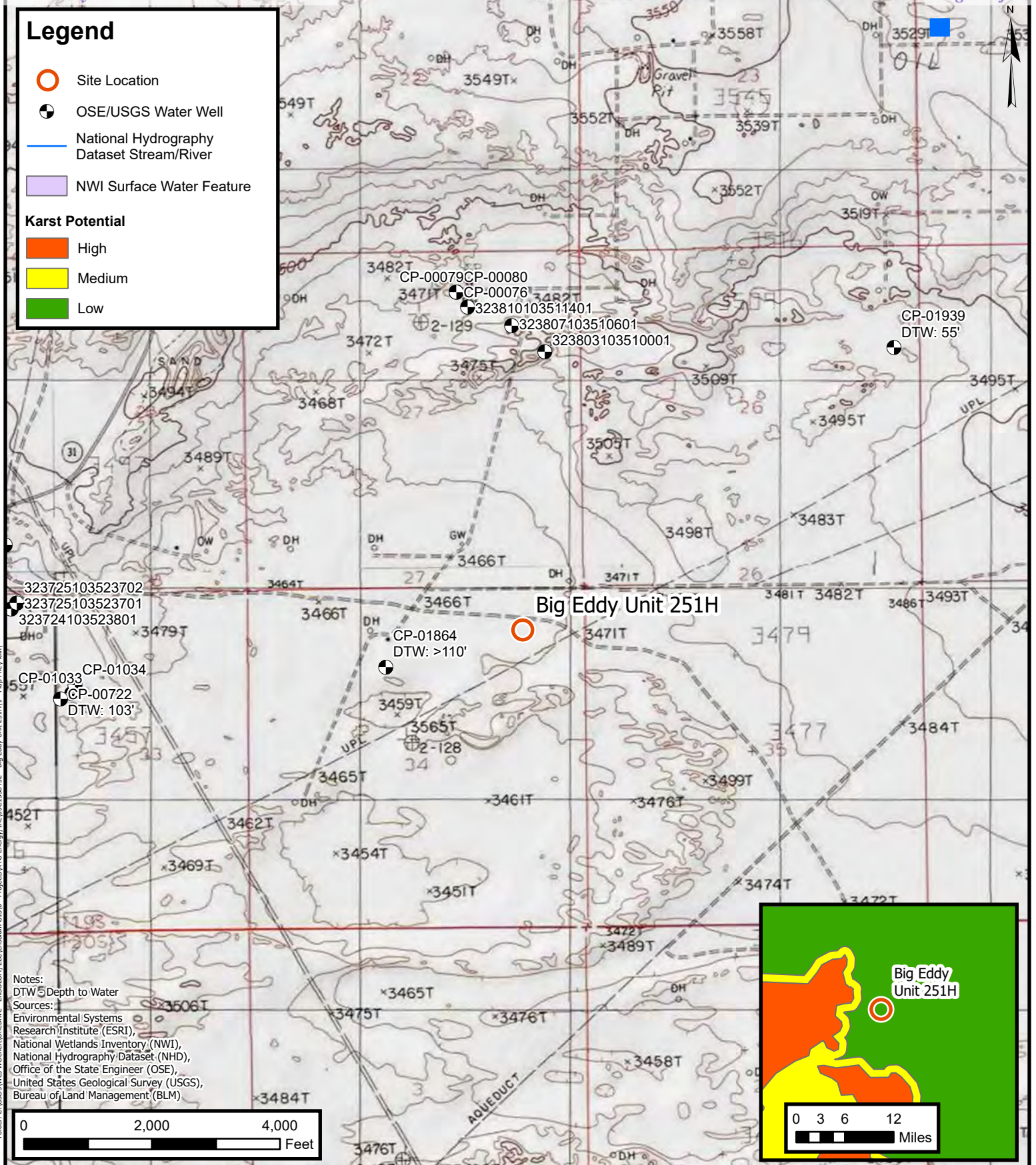
cc: Ashley McAfee, XTO
Kaylan Dirkx, XTO
BLM

Appendices:

Figure 1	Site Receptor Map
Figure 2	Delineation Soil Sample Locations
Figure 3	Excavation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Photographic Log
Appendix B	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix C	<i>Remediation Work Plan</i> , September 26, 2024



FIGURES



Site Receptor Map

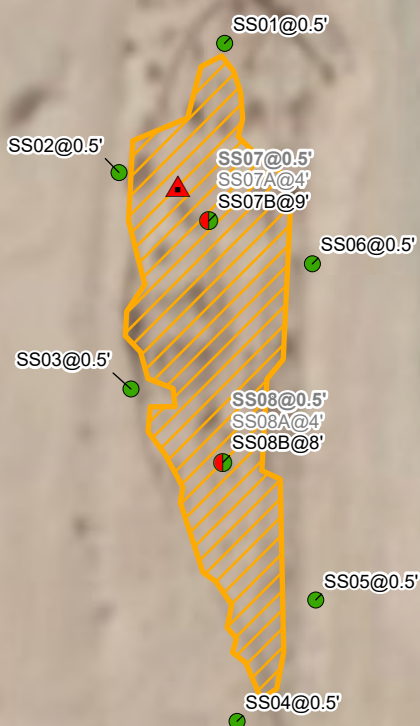
XTO Energy, Inc
Big Eddy Unit 251H
Incident Number: NAPP2419336478
Unit A, Sec 34, T19S, R31E
Eddy Co, New Mexico, United States

FIGURE

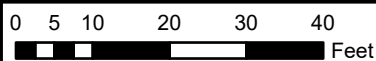
1

Legend

- Delineation Soil Sample in Compliance with Closure Criteria
- Delineation Soil Sample with Concentrations Previously Exceeding Closure Criteria
- ▲ Point of Release (POR)
- ▨ Release Extent

**Notes:**

Sample ID @ Depth Below Ground Surface.
 Samples in bold indicate sample exceeded applicable Closure Criteria.
 Grey text indicate soil sample was removed during excavation activities.



Sources: Environmental Systems Research Institute (ESRI)

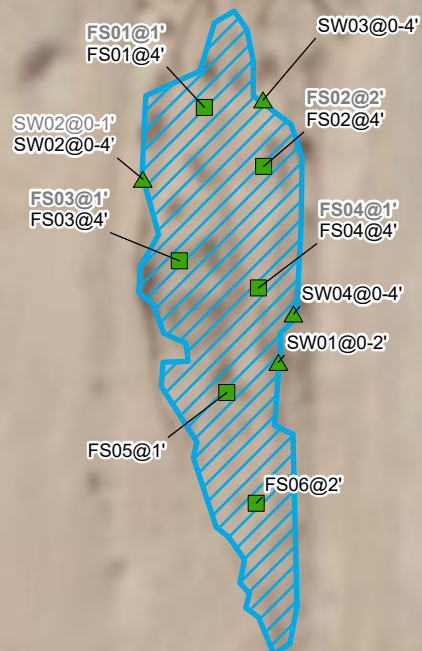
**Delineation Soil Sample Locations**

XTO Energy Inc.
 Big Eddy Unit 251H
 Incident Number: NAPP2419336478
 Unit A, Section 34, T 19S, R 31E
 Eddy County, New Mexico

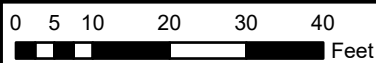
FIGURE
2

Legend

- Excavation Floor Sample in Compliance with Closure Criteria
- ▲ Excavation Sidewall Sample in Compliance with Closure Criteria
- ▨ Excavation Extent

**Notes:**

Sample ID @ Depth Below Ground Surface.
 Samples in bold indicate sample exceeded applicable Closure Criteria.
 Grey text indicate soil sample was removed during excavation activities.



Sources: Environmental Systems Research Institute (ESRI)

**Excavation Soil Sample Locations**

XTO Energy Inc.
 Big Eddy Unit 251H
 Incident Number: NAPP2419336478
 Unit A, Section 34, T 19S, R 31E
 Eddy County, New Mexico

FIGURE**3**




TABLES



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
 Big Eddy Unit 251H
 XTO Energy, Inc
 Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Delineation Soil Samples										
SS01	07/12/2024	0.5	<0.050	<0.300	<10.0	17.1	<10.0	17.1	17.1	48.0
SS02	07/12/2024	0.5	<0.050	<0.300	<10.0	13.4	<10.0	13.4	13.4	64.0
SS03	07/12/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	256
SS04	07/12/2024	0.5	<0.050	1.07	<10.0	64.8	15.7	64.8	80.5	352
SS05	07/12/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	176
SS06	07/12/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	112
SS07	07/12/2024	0.5	<0.050	0.44	25.9	148	43.8	174	218	11,400
SS07A	08/07/2024	4	<0.050	<0.300	<10.0	11.4	<10.0	11.4	11.4	1,150
SS07B	08/07/2024	9	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	240
SS08	07/12/2024	0.5	102	1,890	16,100	39,900	7,410	56,000	63,400	80
SS08A	08/07/2024	4	<0.050	0.322	<10.0	213	35.9	213	249	80
SS08B	08/07/2024	8	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	592
Confirmation Soil Samples										
FS01	08/07/2024	1	<0.050	<0.300	<10.0	198	56.6	198	260	1,060
FS01	12/03/2024	4	<0.050	<0.300	<10.0	57.4	<10.0	57.4	57.4	528
FS02	08/06/2024	2	<0.050	<0.300	<10.0	66.6	11	66.6	77.6	4,040
FS02	11/26/2024	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	1,020
FS03	08/07/2024	1	<0.050	<0.300	11.3	269	60.1	280	340	1,950
FS03	12/03/2024	4	<0.050	<0.300	<10.0	69	<10.0	69	69	560
FS04	08/06/2024	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	3,400
FS04	11/26/2024	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	4,400
FS05	08/06/2024	1	<0.050	<0.300	<10.0	36.6	12	36.6	48.6	160
FS06	08/06/2024	2	<0.050	<0.300	<10.0	16.8	<10.0	16.8	16.8	80
SW01	08/07/2024	0-2	<0.050	<0.300	<10.0	14	<10.0	14	14	320
SW02	08/07/2024	0-1	<0.050	<0.300	<10.0	20.2	<10.0	20.2	20.2	320
SW02	12/03/2024	0-4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	112

<div> ENSOLUM</div>										
TABLE 1 SOIL SAMPLE ANALYTICAL RESULTS Big Eddy Unit 251H XTO Energy, Inc Eddy County, New Mexico										
Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
SW03	12/03/2024	0-4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	128
SW04	12/03/2024	0-4	<0.050	<0.300	<10.0	24.3	<10.0	24.3	24.3	144

Notes:
bgs: below ground surface
mg/kg: milligrams per kilogram
NMOCD: New Mexico Oil Conservation Division
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
Concentrations in **bold** exceed the NMOCD Table I Closure Criteria or reclamation requirement where applicable.

GRO: Gasoline Range Organics
DRO: Diesel Range Organics
ORO: Oil Range Organics
TPH: Total Petroleum Hydrocarbon
NMAC: New Mexico Administrative Code
Grey text indicates soil sample removed during excavation activities



APPENDIX A

Photographic Log

**Photographic Log**

XTO Energy, Inc

Big Eddy Unit 251H

Incident Number NAPP2419336478

170°S (T) • 32.622571, -103.8518 ±3m ▲ 1034m



Photograph: 1 Date: 6/28/2024

Description: Staining after discovery of release.

View: South

355° N (T) • 32.622332, -103.851773 ±9ft ▲ 3372ft



Photograph: 2 Date: 8/5/2024

Description: Site assessment activities.

View: North

157° SE (T) • 32.622524, -103.851802 ±3ft ▲ 3389ft



Photograph: 3 Date: 8/7/2024

Description: Excavation extent area.

View: Southeast

3° N (T) • 32.622358, -103.851765 ±6ft ▲ 3376ft



Photograph: 4 Date: 8/7/2024

Description: Excavation extent area.

View: North

**Photographic Log**

XTO Energy, Inc

Big Eddy Unit 251H

Incident Number NAPP2419336478



Photograph: 5 Date: 12/3/2024
Description: Excavation activities.
View: Southeast



Photograph: 6 Date: 12/3/2024
Description: Excavation activities.
View: Northeast



Photograph: 7 Date: 12/3/2024
Description: Excavation activities.
View: Northwest



Photograph: 8 Date: 12/3/2024
Description: Excavation activities.
View: Northeast



APPENDIX B

Laboratory Analytical Reports & Chain of Custody Documentation



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

December 04, 2024

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 251H

Enclosed are the results of analyses for samples received by the laboratory on 12/02/24 11:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. 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 accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 12/02/2024
Reported: 12/04/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62232-103.85177

Sampling Date: 11/26/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: FS 02 4' (H247298-01)

BTX 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	12/02/2024	ND	2.21	111	2.00	5.42	
Toluene*	<0.050	0.050	12/02/2024	ND	2.28	114	2.00	4.01	
Ethylbenzene*	<0.050	0.050	12/02/2024	ND	2.23	111	2.00	4.04	
Total Xylenes*	<0.150	0.150	12/02/2024	ND	6.97	116	6.00	3.18	
Total BTX	<0.300	0.300	12/02/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 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	1020	16.0	12/03/2024	ND	416	104	400	0.00	

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	12/03/2024	ND	184	91.9	200	2.40	
DRO >C10-C28*	<10.0	10.0	12/03/2024	ND	170	85.2	200	2.83	
EXT DRO >C28-C36	<10.0	10.0	12/03/2024	ND					

Surrogate: 1-Chlorooctane 94.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 107 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 12/02/2024
Reported: 12/04/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62232-103.85177

Sampling Date: 11/26/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: FS 04 4' (H247298-02)

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	12/02/2024	ND	2.21	111	2.00	5.42		
Toluene*	<0.050	0.050	12/02/2024	ND	2.28	114	2.00	4.01		
Ethylbenzene*	<0.050	0.050	12/02/2024	ND	2.23	111	2.00	4.04		
Total Xylenes*	<0.150	0.150	12/02/2024	ND	6.97	116	6.00	3.18		
Total BTEX	<0.300	0.300	12/02/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 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	4400	16.0	12/03/2024	ND	416	104	400	0.00		

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	12/03/2024	ND	184	91.9	200	2.40	
DRO >C10-C28*	<10.0	10.0	12/03/2024	ND	170	85.2	200	2.83	
EXT DRO >C28-C36	<10.0	10.0	12/03/2024	ND					

Surrogate: 1-Chlorooctane 97.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 111 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager

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

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

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Ensolum, LLC

Project Manager: Ben Brel

Address: 3122 National Parks Hwy

City: Carlsbad

State: NM Zip: 88220

Phone #: 969 854 0852

Fax #:

Project #: 83C1554152

Project Owner: XTO

Project Name: Big Bear Edwy Unit 251H

Project Location: 832,62232, -103,85177

Sampler Name: Joshua Boxley

BILL TO

ANALYSIS REQUEST

P.O. #:

Company: XTO Energy Inc

Attn: Colton Brown

Address: 3104 E Green St

City: Carlsbad

State: NM Zip: 88220

Phone #:

Fax #:

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

Depth (feet)

(G)RAB OR (C)OMP.

CONTAINERS

MATRIX

PRESERV

SAMPLING

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

Chlorides

TPH

BTEX

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: 12-2-24

Received By:

Verbal Result: ☐ Yes ☐ No Add'l Phone #:

All Results are emailed. Please provide Email address:

@ensolum.com, T Morrissey@ensolum.com, KThomason@ensolum.com

Relinquished By:

Date: 11-30

Received By:

REMARKS: Incident: 11/24/24 3:36:17

Cost Center: 114091001

Delivered By: (Circle One)

Observed Temp.: 2.5

Sample Condition

CHECKED BY: (Initials)

Turnaround Time:

Standard

Bacteria (only)

Sample Condition

Sampler - UPS - Bus - Other:

Corrected Temp.: 1.9

Cool Intact

Yes

Thermometer ID

Rush

Cool Intact

Observed Temp.: 2.5

FORM 000 R 3.2 10/07/21

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



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

December 05, 2024

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 251H

Enclosed are the results of analyses for samples received by the laboratory on 12/04/24 10:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. 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 accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 12/04/2024
Reported: 12/05/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233,-103.85177

Sampling Date: 12/03/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Alyssa Parras

Sample ID: FS 01 4' (H247371-01)

BTX 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	12/04/2024	ND	2.11	105	2.00	5.89	
Toluene*	<0.050	0.050	12/04/2024	ND	2.03	102	2.00	6.13	
Ethylbenzene*	<0.050	0.050	12/04/2024	ND	2.05	102	2.00	6.04	
Total Xylenes*	<0.150	0.150	12/04/2024	ND	6.12	102	6.00	6.14	
Total BTX	<0.300	0.300	12/04/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	528	16.0	12/04/2024	ND	432	108	400	0.00		

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	12/04/2024	ND	231	116	200	0.517	
DRO >C10-C28*	57.4	10.0	12/04/2024	ND	213	107	200	3.34	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 99.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 95.7 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 12/04/2024
Reported: 12/05/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233,-103.85177

Sampling Date: 12/03/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Alyssa Parras

Sample ID: FS 03 4' (H247371-02)

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	12/04/2024	ND	2.11	105	2.00	5.89		
Toluene*	<0.050	0.050	12/04/2024	ND	2.03	102	2.00	6.13		
Ethylbenzene*	<0.050	0.050	12/04/2024	ND	2.05	102	2.00	6.04		
Total Xylenes*	<0.150	0.150	12/04/2024	ND	6.12	102	6.00	6.14		
Total BTEX	<0.300	0.300	12/04/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	560	16.0	12/04/2024	ND	432	108	400	0.00		

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	12/04/2024	ND	231	116	200	0.517	
DRO >C10-C28*	69.0	10.0	12/04/2024	ND	213	107	200	3.34	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 98.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 97.5 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 12/04/2024
Reported: 12/05/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233,-103.85177

Sampling Date: 12/03/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Alyssa Parras

Sample ID: SW 02 0-4' (H247371-03)

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	12/04/2024	ND	2.11	105	2.00	5.89		
Toluene*	<0.050	0.050	12/04/2024	ND	2.03	102	2.00	6.13		
Ethylbenzene*	<0.050	0.050	12/04/2024	ND	2.05	102	2.00	6.04		
Total Xylenes*	<0.150	0.150	12/04/2024	ND	6.12	102	6.00	6.14		
Total BTEX	<0.300	0.300	12/04/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.1 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	12/04/2024	ND	432	108	400	0.00		

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	12/04/2024	ND	231	116	200	0.517	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	213	107	200	3.34	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 97.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 92.8 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 12/04/2024
Reported: 12/05/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233,-103.85177

Sampling Date: 12/03/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Alyssa Parras

Sample ID: SW 03 0-4' (H247371-04)

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	12/04/2024	ND	2.11	105	2.00	5.89		
Toluene*	<0.050	0.050	12/04/2024	ND	2.03	102	2.00	6.13		
Ethylbenzene*	<0.050	0.050	12/04/2024	ND	2.05	102	2.00	6.04		
Total Xylenes*	<0.150	0.150	12/04/2024	ND	6.12	102	6.00	6.14		
Total BTEX	<0.300	0.300	12/04/2024	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	12/04/2024	ND	432	108	400	0.00		

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	12/04/2024	ND	231	116	200	0.517	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	213	107	200	3.34	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 104 % 48.2-134

Surrogate: 1-Chlorooctadecane 101 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 12/04/2024
Reported: 12/05/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233,-103.85177

Sampling Date: 12/03/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Alyssa Parras

Sample ID: SW 04 0-4' (H247371-05)

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	12/04/2024	ND	2.11	105	2.00	5.89		
Toluene*	<0.050	0.050	12/04/2024	ND	2.03	102	2.00	6.13		
Ethylbenzene*	<0.050	0.050	12/04/2024	ND	2.05	102	2.00	6.04		
Total Xylenes*	<0.150	0.150	12/04/2024	ND	6.12	102	6.00	6.14		
Total BTEX	<0.300	0.300	12/04/2024	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	12/04/2024	ND	432	108	400	0.00		

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	12/04/2024	ND	231	116	200	0.517	
DRO >C10-C28*	24.3	10.0	12/04/2024	ND	213	107	200	3.34	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 96.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 93.8 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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

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

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ensolum, LLC				BILL TO				ANALYSIS REQUEST			
Project Manager: Ben Bell				P.O. #:							
Address: 3122 National Parks Hwy				Company: XTO Energy Inc							
City: Carlsbad				Attn: Colton Brown							
State: NM Zip: 88220				Address: 3104 E Green St							
Phone #: 854 854 0852 Fax #:				City: Carlsbad							
Project #: 03C1556452 Project Owner: XTO				State: NM Zip: 88220							
Project Name: Big Edley Unit 251H				Phone #:							
Project Location: S2, 62233, -103, 85177				Fax #:							
Sampler Name: Joshua Boxley											

FOR LAB USE ONLY		Depth (feet)		(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING																
Lab I.D.	Sample I.D.					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chlorides	TPH	BTEX										
1B247371	F501	4		C	1	X							X		12-3-24	1050	X	X	X										
2	F503	4		C	1	X							X		12-3-24	1055	X	X	X										
3	SWD2	0-4		C	1	X							X		12-3-24	1125	X	X	X										
4	SWD3	0-4		C	1	X							X		12-3-24	1130	X	X	X										
5	SWD4	0-4		C	1	X							X		12-3-24	1140	X	X	X										

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Relinquished By: [Signature]		Date: 12/11/24	Received By: [Signature]	Verbal Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By: [Signature]		Date: 12/11/24	Received By: [Signature]	All Results are emailed. Please provide Email address: @ensolum.com, T Morrissey@ensolum.com, KThomason@ensolum.com	

Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Observed Temp. °C: 07°C Corrected Temp. °C: 0.12	Sample Condition: Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CHECKED BY: (Initials) [Signature]	Turnaround Time: Standard <input type="checkbox"/> Rush <input checked="" type="checkbox"/> Thermometer ID: R13#110 Correction Factor: 0.5°C - 0.1°C	Bacteria (only) Sample Condition: Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	Observed Temp. °C: Corrected Temp. °C:
--	---	--	---	---	---	---

FORM-P000-R-3.2 10/07/21



APPENDIX C

Remediation Work Plan, September 26, 2024



September 26, 2024

New Mexico Oil Conservation Division

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

**Re: Remediation Work Plan
Big Eddy Unit 251H
Incident Number NAPP2419336478
Eddy County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared the following *Remediation Work Plan (Work Plan)* to document site assessment, delineation and excavation activities completed to date and propose to complete additional excavation and confirmation soil sampling to address impacted soil at the Big Eddy Unit 251H (Site). The purpose of the site assessment, delineation and excavation activities is to delineate and remove impacted soil resulting from a release of produced water and crude oil at the Site. The following *Work Plan* proposes to further excavate impacted soil and conduct confirmation soil sampling for Incident Number NAPP2419336478.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit A, Section 34, Township 19 South, Range 31 East in Eddy County, New Mexico (32.62233°, -103.85177°) and is associated with oil and gas exploration and production operations on federal land managed by the Bureau of Land Management (BLM).

On June 28, 2024, corrosion on a steel flowline caused the release of approximately 9 barrels (bbls) of crude oil and 2 bbls of produced water to release onto the surface of a small surface pipeline right-of-way (ROW) located between two active facility pads. A vacuum truck was immediately dispatched and recovered approximately 5 bbls of released fluids. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) via Notification of Release (NOR) and submitted an Initial C-141 Application (C-141) on July 11, 2024. The release was assigned Incident Number NAPP2419336478.

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 presented below. Potential Site receptors are identified on Figure 1.

Depth to groundwater at the Site is greater than 100 feet below ground surface (bgs) based on a soil boring drilled for determination of regional groundwater depth. On April 26, 2021, a soil boring permitted by New Mexico Office of the State Engineer (OSE) as CP-1864 was advanced approximately 0.42 miles west of the Site. The boring was drilled to a total depth of 110 feet bgs. A field geologist logged and described soils continuously. The borehole was left open for over 72 hours to allow for potential slow infill of groundwater. After the 72-hour waiting period without observing groundwater, it was confirmed

that groundwater beneath the Site is greater than 110 feet bgs. The borehole was properly abandoned using hydrated bentonite chips. The Well Record and Log for CP-1864 is included in Appendix A. All wells used to evaluate depth to groundwater are presented on Figure 1.

The closest continuously flowing or significant watercourse to the Site is a dry wash located approximately 12,930 feet north of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area).

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

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

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

SITE ASSESSMENT ACTIVITIES

On July 12, 2024, Ensolum personnel conducted site assessment activities at the Site to evaluate the release extent based on information provided on the C-141 and visual observations. Eight delineation soil samples (SS01 through SS08) were collected from a depth of 0.5 feet bgs to assess the extent of the release. Soil samples SS01 through SS06 were collected outside of the release and SS07 and SS08 were collected inside the release extent. The soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. The release extent and soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation was conducted during all Site visits and is presented on a Photographic Log 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 contaminants of concern (COC): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following Standards Method SM4500.

Laboratory analytical results for delineation soil samples SS01 through SS06 indicated COC concentrations were compliant with the Closure Criteria and reclamation requirement, successfully defining the lateral extent of the release. Delineation soil samples SS07 and SS08, collected within the

release extent indicated BTEX, TPH and/or chloride concentrations exceed the Closure Criteria and/or reclamation requirement. Based on the laboratory analytical results, additional delineation and excavation activities were warranted.

DELINEATION AND EXCAVATION ACTIVITIES

Between August 5 and August 7, 2024, Ensolum personnel returned to the Site to oversee delineation and excavation activities. Two boreholes were advanced utilizing a hand auger in the vicinity of SS07 and SS08. The boreholes were advanced up to a maximum depth of 9 feet bgs. Soil from the boreholes were field screened for VOCs and chloride. Field screening results and observations for the boreholes were logged on lithologic soil sampling logs, which are included in Appendix C. Delineation soil samples were collected from each borehole at depths ranging from 4 feet bgs to the terminal depth of the boreholes (9 feet bgs for SS07; 8 feet bgs for SS08). The delineation soil samples were collected, handled, and analyzed as described above and submitted to Cardinal. The delineation soil sample locations are depicted on Figure 2.

Impacted soil was excavated from the release area as indicated by delineation soil sample laboratory analytical results. Due to the amount of surface and buried lines in the area, excavation activities were performed utilizing a hydrovacuum truck. The excavation occurred in a small ROW located between two active facility pads. To direct excavation activities, Ensolum personnel screened soil for VOCs and chlorides. Following removal of impacted soil, Ensolum personnel collected 5-point composite soil samples representing no more than 200 square feet from the sidewalls and floor of the excavation. The 5-point composite soil samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Confirmation soil samples FS01 through FS06 were collected from the floor of the excavation at depths ranging from 1-foot to 2 feet bgs. Confirmation soil samples SW01 and SW02 were collected from the sidewalls of the excavation at depths ranging from ground surface to 2 feet bgs. The soil samples were collected, handled, and analyzed as described above and submitted to Cardinal. The excavation extent and confirmation soil sample locations are presented on Figure 3.

The excavation extent measures approximately 1,090 square feet. A total of approximately 45 cubic yards of impacted soil was removed during the excavation activities. The impacted soil was transported and properly disposed of at the R360 Landfill Disposal Facility in Hobbs, New Mexico.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for delineation soil samples SS07A and SS08A collected at 4 feet bgs, SS07B collected at 9 feet bgs, and SS08B collected at 8 feet bgs indicated that all COC concentrations were compliant with Closure Criteria and successfully define the vertical extent of the release. As indicated above, delineation soil samples SS07 and SS08 indicated COC concentrations exceeding reclamation requirement, however, these samples were removed during excavation activities.

Laboratory analytical results for confirmation soil samples FS01 through FS04 indicated TPH and or chloride concentrations exceeded reclamation requirement. All other confirmation soil samples collected indicated COC concentrations were compliant with the Closure Criteria and reclamation requirement. Laboratory analytical results are summarized in Table 1 and complete laboratory analytical reports are included in Appendix D.

XTO Energy Inc.
Remediation Work Plan
Big Eddy Unit 251H



PROPOSED REMEDIATION WORK PLAN

Site assessment, delineation, and excavation activities were conducted at the Site to address the June 2024, release of crude oil and produced water. The release extent has been laterally delineated by soil samples SS01 through SS06 and vertically delineated by delineation soil samples SS07A and SS08A. A total of approximately 45 cubic yards of impacted soil was removed during the excavation activities, however, based on laboratory analytical results for confirmation soil samples FS01 through FS04, impacted soil at the Site still exists. XTO proposes to complete the following remediation activities:

- Excavation of TPH and chloride-impacted soil to a depth of 4 feet bgs in the areas of FS01 through FS04. The excavation will proceed vertically until COC concentrations indicate analytical results are below Closure Criteria, and laterally until sidewall samples confirm COC concentrations are compliant with the reclamation requirement in the top four feet.
- Following the removal of all impacted soil, confirmation soil samples will be collected and handled as described above and analyzed for the same COCs listed above.
- An additional 80 cubic yards of impacted soil is estimated to be removed by excavation. The excavated soil will be transferred to an approved landfill facility for disposal.
- The excavation will be backfilled and recontoured to match pre-existing conditions and re-seeded with the recommended BLM seed mixture.

XTO believes this *Work Plan* is protective of human health, the environment, and groundwater. As such, XTO requests approval of this *Work Plan* by NMOCD. XTO will complete the soil sampling activities within 90 days of the date of approval of this *Work Plan* by the NMOCD. If you have any questions or comments, please contact Ms. Tacoma Morrissey at (337) 257-8307 or tmorrissey@ensolum.com.

Sincerely,
Ensolum, LLC

A handwritten signature in black ink, appearing to read "Ben J. Belill".

Benjamin J. Belill
Senior Geologist

A handwritten signature in black ink, appearing to read "T Morrissey".

Tacoma Morrissey
Associate Principal

cc:

Colton Brown, XTO
Kaylan Dirkx, XTO
BLM

Appendices:

Figure 1	Site Receptor Map
Figure 2	Delineation Soil Sample Locations
Figure 3	Excavation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Referenced Well Records
Appendix B	Photographic Log

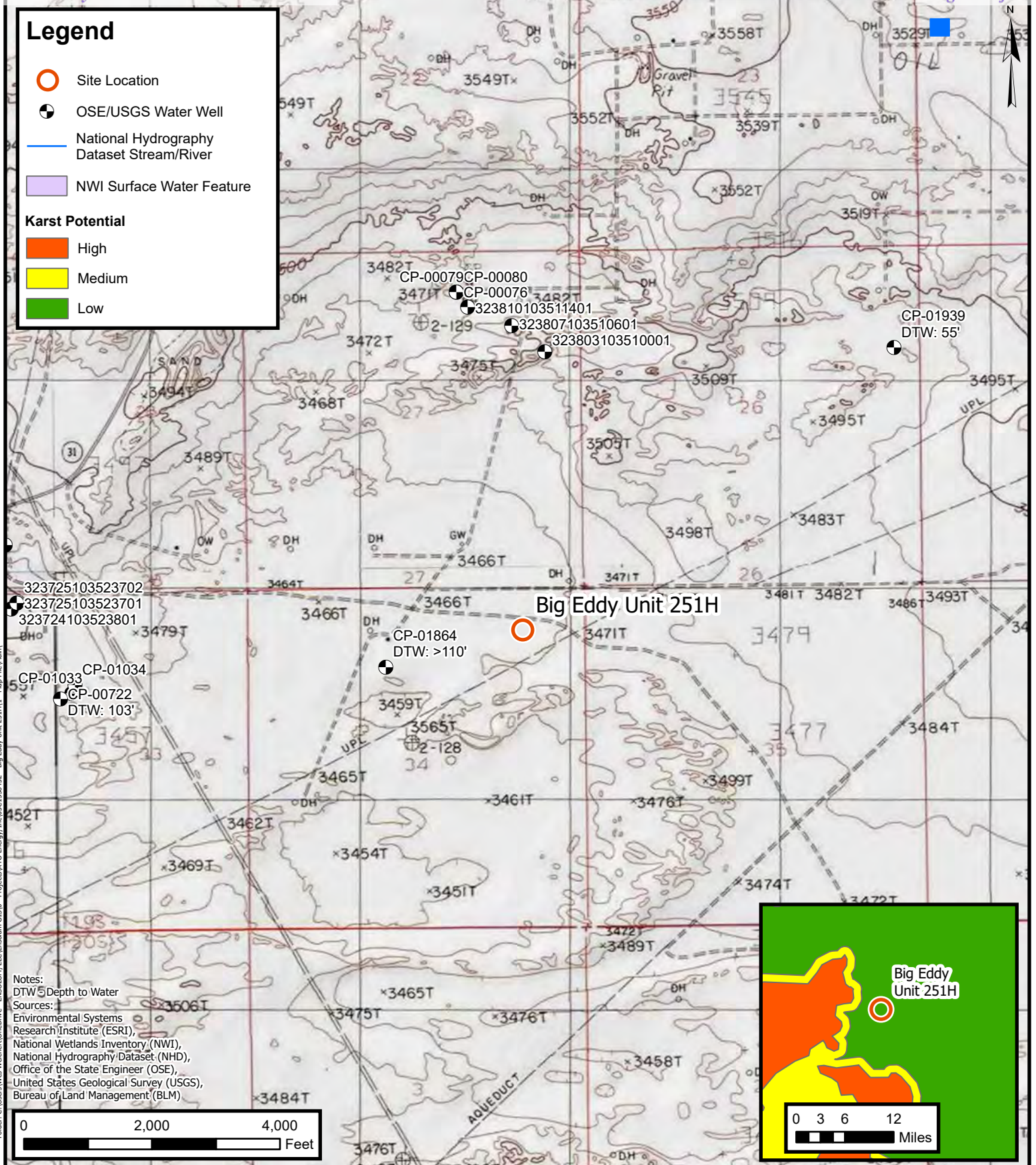
XTO Energy Inc.
Remediation Work Plan
Big Eddy Unit 251H



Appendix C Lithologic Soil Sampling Logs
Appendix D Laboratory Analytical Reports & Chain-of-Custody Documentation



FIGURES

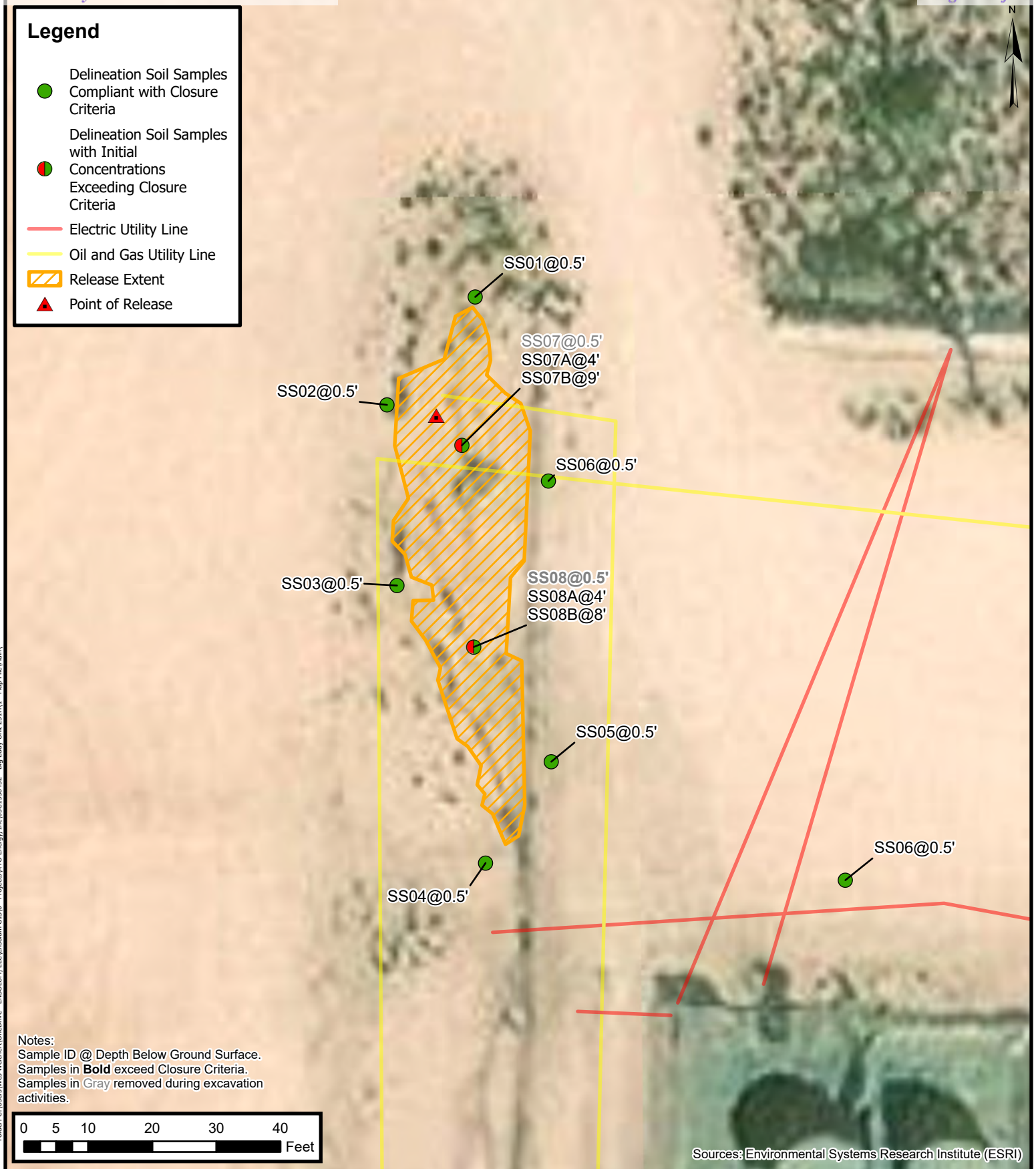


Site Receptor Map

XTO Energy, Inc
Big Eddy Unit 251H
Incident Number: NAPP2419336478
Unit A, Sec 34, T19S, R31E
Eddy Co, New Mexico, United States

FIGURE

1



Delineation Soil Sample Locations

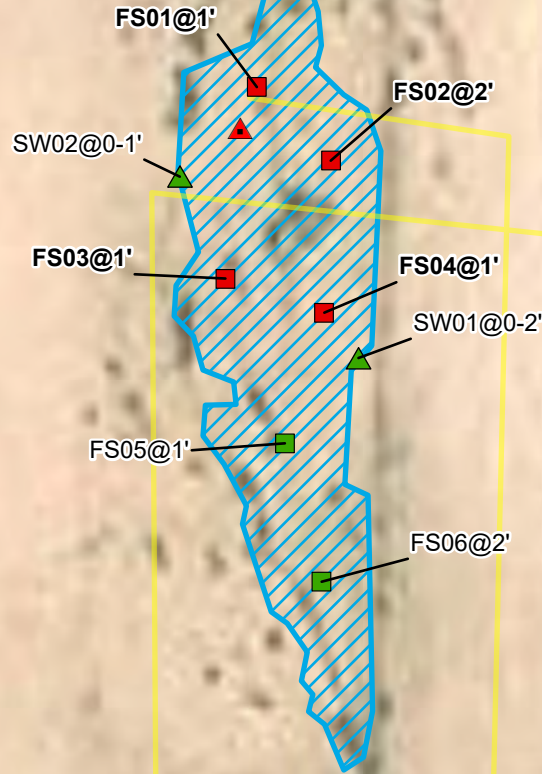
XTO Energy, Inc
Big Eddy Unit 251H
Incident Number: NAPP2419336478
Unit A, Sec 34, T19S, R31E
Eddy Co, New Mexico, United States

FIGURE

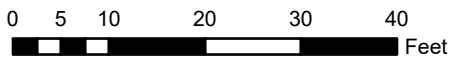
2

Legend

- Confirmation Floor Soil Sample Compliant with Closure Criteria
- Confirmation Floor Sample with Concentrations Exceeding Closure Criteria
- ▲ Confirmation Sidewall Soil Sample Compliant with Closure Criteria
- ▲ Point of Release
- Electric Utility Line
- Oil and Gas Utility Line
- ▨ Excavation Extent



Notes:
 Sample ID @ Depth Below Ground Surface.
 Samples in **Bold** exceed Closure Criteria.



Sources: Environmental Systems Research Institute (ESRI)

Excavation Soil Sample Locations

XTO Energy, Inc
 Big Eddy Unit 251H
 Incident Number: NAPP2419336478
 Unit A, Sec 34, T19S, R31E
 Eddy Co, New Mexico, United States

FIGURE

3





TABLES



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
 Big Eddy Unit 251H
 XTO Energy, Inc
 Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Delineation Soil Samples										
SS01	07/12/2024	0.5	<0.050	<0.300	<10.0	17.1	<10.0	17.1	17.1	48.0
SS02	07/12/2024	0.5	<0.050	<0.300	<10.0	13.4	<10.0	13.4	13.4	64.0
SS03	07/12/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	256
SS04	07/12/2024	0.5	<0.050	1.07	<10.0	64.8	15.7	64.8	80.5	352
SS05	07/12/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	176
SS06	07/12/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	112
SS07	07/12/2024	0.5	<0.050	0.41	25.9	148	43.8	174	218	11,400
SS07A	08/07/2024	4	<0.050	<0.300	<10.0	11.4	<10.0	11.4	11.4	1,150
SS07B	08/07/2024	9	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	240
SS08	07/12/2024	0.5	102	1,890	16,100	39,900	7,410	56,000	63,400	80
SS08A	08/07/2024	4	<0.050	0.322	<10.0	213	35.9	213	249	80
SS08B	08/07/2024	8	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	592
Confirmation Soil Samples										
FS01	08/07/2024	1	<0.050	<0.300	<10.0	198	56.6	198	260	1,060
FS02	08/06/2024	2	<0.050	<0.300	<10.0	66.6	11	66.6	77.6	4,040
FS03	08/07/2024	1	<0.050	<0.300	11.3	269	60.1	280	340	1,950
FS04	08/06/2024	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	3,400
FS05	08/06/2024	1	<0.050	<0.300	<10.0	36.6	12	36.6	48.6	160
FS06	08/06/2024	2	<0.050	<0.300	<10.0	16.8	<10.0	16.8	16.8	80
SW01	08/07/2024	0-2	<0.050	<0.300	<10.0	14	<10.0	14	14	320
SW02	08/07/2024	0-1	<0.050	<0.300	<10.0	20.2	<10.0	20.2	20.2	320

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

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

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

NMAC: New Mexico Administrative Code

Grey text indicates soil sample removed during excavation activities



APPENDIX A

Referenced Well Records



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER


www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) POD1 (BH-01)		WELL TAG ID NO. n/a		OSE FILE NO(S). C-1864 CP 1864			
	WELL OWNER NAME(S) XTO Energy (Kyle Littrell)				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 6401 Holiday Hill Dr.				CITY Midland	STATE TX	ZIP 79707	
	WELL LOCATION (FROM GPS)	LATITUDE 32° 37' 14.58" N	DEGREES 32°	MINUTES 37'	SECONDS 14.58"	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84		
LONGITUDE -103° 51' 31.48" W								
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE SW SE Sec. 15 T24S R31E								
2. DRILLING & CASING INFORMATION	LICENSE NO. 1249		NAME OF LICENSED DRILLER Jackie D. Atkins			NAME OF WELL DRILLING COMPANY Atkins Engineering Associates, Inc.		
	DRILLING STARTED 02/26/2021		DRILLING ENDED 02/26/2021		DEPTH OF COMPLETED WELL (FT) temporary well material	BORE HOLE DEPTH (FT) 110	DEPTH WATER FIRST ENCOUNTERED (FT) n/a	
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input checked="" type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)						STATIC WATER LEVEL IN COMPLETED WELL (FT) n/a	
	DRILLING FLUID: <input type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input checked="" type="checkbox"/> OTHER - SPECIFY: Hollow Stem Auger							
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	FROM	TO						
	0	110	±6.5	Boring- HSA	--	--	--	--
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT		
	FROM	TO						

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/30/17)

FILE NO. CP-1864	POD NO. 1	TRN NO. 686596
LOCATION 214 T19S R31E Sec 34	WELL TAG ID NO. NA	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL	DEPTH (feet bgl)		THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER- BEARING ZONES (gpm)
	FROM	TO				
	0	1.5	1.5	Caliche w/ sand, no odor, no stain, tan, off white, dry	Y ✓ N	
	1.5	13	11.5	Sand, no odor, no stain, m-f, well sorted, gray, trace silt, some caliche, dry	Y ✓ N	
	13	24	11	Sandstone, m-f, low consolidation, gray, little coarse gravel, dry	Y ✓ N	
	24	34	10	Sand w/ caliche, gray, tan, moist, m-f, well sorted	Y ✓ N	
	34	41	7	Caliche /Sand, m-f, well sorted, tan, offwhite, mod. consolidation, moist	Y ✓ N	
	41	50	9	Clayey sand, gray, fine grain, well sorted, med. plasticity, cohesive, moist, w/ cal	Y ✓ N	
	50	69	19	Caliche w/ sandy clay, m-f, no cohesion, no plasticity, dry	Y ✓ N	
	69	79	10	Sandstone, tan, m-f, , high consolidation, dry	Y ✓ N	
	79	92	13	Clayey sand, medium plasticity, cohesive, fine grained sand, brown, moist	Y ✓ N	
	92	110	18	Claystone, brown, high plasticity, cohesive, no odor, no stain, moist	Y ✓ N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:					TOTAL ESTIMATED WELL YIELD (gpm): 0.00	
<input type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input type="checkbox"/> OTHER - SPECIFY:						
5. TEST; RIG SUPERVISION	WELL TEST	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.				
	MISCELLANEOUS INFORMATION: Temporary well materials removed and the soil boring backfilled using drill cuttings from total depth to ten feet below ground surface, then hydrated bentonite chips from ten feet below ground surface to surface. Logs adapted from WSP on-site geologist.					
PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Shane Eldridge OSE DJJ MAR 11 2021 PM 4:27						
6. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:					
	 SIGNATURE OF DRILLER / PRINT SIGNEE NAME			Jackie D. Atkins DATE		

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/30/2017)

FILE NO. CP-1864	POD NO. 1	TRN NO. 686596
LOCATION 214 T19S R31E Sec 34	WELL TAG ID NO. NA	PAGE 2 OF 2

John R. D Antonio, Jr., P.E.
State Engineer



Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

**STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER**

Trn Nbr: 686596
File Nbr: CP 01864
Well File Nbr: CP 01864 POD1

Apr. 07, 2021

KYLE ITTRELL
XTO ENERGY INC
6401 HOLIDAY HILL ROAD
MIDLAND, TX 79707

Greetings:

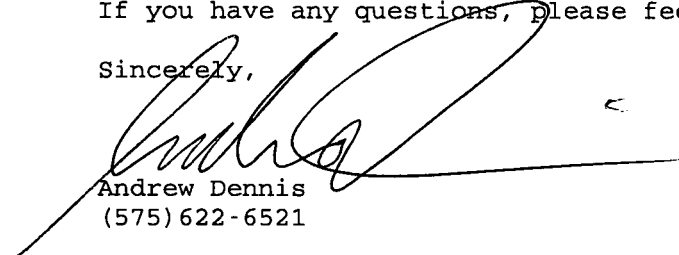
The above numbered permit was issued in your name on 01/29/2021.

The Well Record was received in this office on 03/11/2021, stating that it had been completed on 02/26/2021, and was a dry well. The well is to be plugged according to 19.27.4.30 NMAC.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 01/28/2022.

If you have any questions, please feel free to contact us.

Sincerely,


Andrew Dennis
(575) 622-6521

drywell



APPENDIX B

Photographic Log

**Photographic Log**

XTO Energy, Inc

Big Eddy Unit 251H

Incident Number NAPP2419336478

170°S (T) • 32.622571, -103.8518 ±3m ▲ 1034m



Photograph: 1 Date: 6/28/2024
Description: Staining after discovery of release.
View: South



Photograph: 2 Date: 8/5/2024
Description: Site assessment activities.
View: North



Photograph: 3 Date: 8/7/2024
Description: Excavation extent area.
View: Southeast





Photograph: 4 Date: 8/7/2024
Description: Excavation extent area.
View: North



APPENDIX C

Lithologic Soil Sampling Logs

 ENSOLUM								Sample Name: SS07		Date: 8/7/2024	
								Site Name: Big Eddy Unit 251H			
								Incident Number: nAPP2419336478			
								Job Number: 03C1558452			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: JB		Method: Hand Auger	
Coordinates: 32.62233, 103.85177								Hole Diameter: 4"		Total Depth: 9'	
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. No correction factors included.											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
						0	SP-SC	(0-9') CLAYEY SAND, moist, pale, dark brown-brown, well graded, trace silt, strong H/C odor, dark brown staining.			
D	11,400	218	Y	SS07	0.5						
D	6782	>5000	Y		1	1					
D	462.4	303.4	Y		2	2					
D	462	81.2	Y		3	3					
D	1472	10.1	N	SS07A	4	4		(@4') poorly graded			
D	1472	6.7	N		5	5		(@5') no odor			
D	2380	6.7	N		6	6					
D	2380	6.7	N		7	7					
D	632.8	6.7	N		8	8					
D	173.6	6.7	N	SS07B	9	9					
Total depth @ 9 feet bgs											

 ENSOLUM		Sample Name: SS08		Date: 8/7/2024				
		Site Name: Big Eddy Unit 251H						
		Incident Number: nAPP2419336478						
		Job Number: 03C1558452						
LITHOLOGIC / SOIL SAMPLING LOG								
Coordinates: 32.62233, 103.85177			Logged By: JB		Method: Hand Auger			
			Hole Diameter: 4"		Total Depth: 8'			
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. No correction factors included.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
D	63,400	80	Y	SS08	0.5	0	SP-SC	(0-8') CLAYEY SAND, moist, pale, dark brown-brown, well graded, trace silt, strong H/C odor, dark brown staining.
D						1		
D	464.2	304.6	Y		2	2		
D	464.2	357.4	Y		3	3		
D	464	363	Y	SS08A	4	4		(@4') poorly graded
D	464	321	Y		5	5		
D	464	306	N		6	6		
D	464	290	N		7	7		
D	347.2	14.8	N	SS08B	8	8		(@8') no odor
Total depth @ 8 feet bgs								



APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation

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

July 23, 2024

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 251H

Enclosed are the results of analyses for samples received by the laboratory on 07/12/24 15:14.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. 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/ga/lab_accred_certif.html.

Cardinal Laboratories is accredited 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

Lab Director/Quality Manager



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

Analytical Results For:ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:Reported:
23-Jul-24 15:30

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS 01 0.5'	H244185-01	Soil	12-Jul-24 09:35	12-Jul-24 15:14
SS 02 0.5'	H244185-02	Soil	12-Jul-24 09:40	12-Jul-24 15:14
SS 03 0.5'	H244185-03	Soil	12-Jul-24 09:45	12-Jul-24 15:14
SS 04 0.5'	H244185-04	Soil	12-Jul-24 09:50	12-Jul-24 15:14
SS 05 0.5'	H244185-05	Soil	12-Jul-24 09:55	12-Jul-24 15:14
SS 06 0.5'	H244185-06	Soil	12-Jul-24 10:00	12-Jul-24 15:14

07/23/24 - Client changed the project name (see COC). This is the revised report and will replace the one sent on 07/18/24.

Cardinal Laboratories

*=Accredited Analyte

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 client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:30

SS 01 0.5'
H244185-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	-----------------	-------	----------	-------	---------	----------	--------	-------

Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	4071619	AC	16-Jul-24	4500-Cl-B	
-----------------	-------------	--	------	-------	---	---------	----	-----------	-----------	--

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Toluene*	<0.050	0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	4071505	JH	15-Jul-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)	109 %	71.5-134	4071505	JH	15-Jul-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
DRO >C10-C28*	17.1	10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	

Surrogate: 1-Chlorooctane	110 %	48.2-134	4071521	MS	15-Jul-24	8015B	
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Surrogate: 1-Chlorooctadecane	128 %	49.1-148	4071521	MS	15-Jul-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:30

SS 02 0.5'
H244185-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	64.0		16.0	mg/kg	4	4071619	AC	16-Jul-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4071505	JH	15-Jul-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			113 %		71.5-134	4071505	JH	15-Jul-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
DRO >C10-C28*	13.4		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	

Surrogate: 1-Chlorooctane			102 %		48.2-134	4071521	MS	15-Jul-24	8015B	
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Surrogate: 1-Chlorooctadecane			118 %		49.1-148	4071521	MS	15-Jul-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:30

SS 03 0.5'
H244185-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	256		16.0	mg/kg	4	4071619	AC	16-Jul-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4071505	JH	15-Jul-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)		112 %		71.5-134		4071505	JH	15-Jul-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	

Surrogate: 1-Chlorooctane		97.7 %		48.2-134		4071521	MS	15-Jul-24	8015B	
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Surrogate: 1-Chlorooctadecane		112 %		49.1-148		4071521	MS	15-Jul-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:30

SS 04 0.5'
H244185-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	352		16.0	mg/kg	4	4071619	AC	16-Jul-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Toluene*	0.442		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Ethylbenzene*	0.197		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total Xylenes*	0.430		0.150	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total BTEX	1.07		0.300	mg/kg	50	4071505	JH	15-Jul-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)		111 %		71.5-134		4071505	JH	15-Jul-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
DRO >C10-C28*	64.8		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
EXT DRO >C28-C36	15.7		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	

Surrogate: 1-Chlorooctane		96.6 %		48.2-134		4071521	MS	15-Jul-24	8015B	
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Surrogate: 1-Chlorooctadecane		114 %		49.1-148		4071521	MS	15-Jul-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:30

SS 05 0.5'
H244185-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	176		16.0	mg/kg	4	4071619	AC	16-Jul-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4071505	JH	15-Jul-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			109 %		71.5-134	4071505	JH	15-Jul-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	

Surrogate: 1-Chlorooctane			86.3 %		48.2-134	4071521	MS	15-Jul-24	8015B	
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Surrogate: 1-Chlorooctadecane			100 %		49.1-148	4071521	MS	15-Jul-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:30

SS 06 0.5'
H244185-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	112		16.0	mg/kg	4	4071619	AC	16-Jul-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4071505	JH	15-Jul-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			114 %		71.5-134	4071505	JH	15-Jul-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4071521	MS	15-Jul-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			102 %		48.2-134	4071521	MS	15-Jul-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			116 %		49.1-148	4071521	MS	15-Jul-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:30

Inorganic Compounds - Quality Control**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch 4071619 - 1:4 DI Water									
Blank (4071619-BLK1)				Prepared & Analyzed: 16-Jul-24					
Chloride	ND	16.0	mg/kg						
LCS (4071619-BS1)				Prepared & Analyzed: 16-Jul-24					
Chloride	432	16.0	mg/kg	400		108	80-120		
LCS Dup (4071619-BSD1)				Prepared & Analyzed: 16-Jul-24					
Chloride	432	16.0	mg/kg	400		108	80-120	0.00	20

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:30

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
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Batch 4071505 - Volatiles**Blank (4071505-BLK1)**

Prepared & Analyzed: 15-Jul-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)	0.0552		mg/kg	0.0500		110	71.5-134			

LCS (4071505-BS1)

Prepared & Analyzed: 15-Jul-24

Benzene	2.10	0.050	mg/kg	2.00		105	82.8-130			
Toluene	2.28	0.050	mg/kg	2.00		114	86-128			
Ethylbenzene	2.35	0.050	mg/kg	2.00		118	85.9-128			
m,p-Xylene	4.95	0.100	mg/kg	4.00		124	89-129			
o-Xylene	2.34	0.050	mg/kg	2.00		117	86.1-125			
Total Xylenes	7.29	0.150	mg/kg	6.00		122	88.2-128			
Surrogate: 4-Bromofluorobenzene (PID)	0.0531		mg/kg	0.0500		106	71.5-134			

LCS Dup (4071505-BSD1)

Prepared & Analyzed: 15-Jul-24

Benzene	2.01	0.050	mg/kg	2.00		101	82.8-130	4.24	15.8	
Toluene	2.18	0.050	mg/kg	2.00		109	86-128	4.58	15.9	
Ethylbenzene	2.23	0.050	mg/kg	2.00		111	85.9-128	5.47	16	
m,p-Xylene	4.74	0.100	mg/kg	4.00		118	89-129	4.35	16.2	
o-Xylene	2.23	0.050	mg/kg	2.00		111	86.1-125	5.09	16.7	
Total Xylenes	6.96	0.150	mg/kg	6.00		116	88.2-128	4.59	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0524		mg/kg	0.0500		105	71.5-134			

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:30

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
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Batch 4071521 - General Prep - Organics**Blank (4071521-BLK1)**

Prepared & Analyzed: 15-Jul-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	51.2		mg/kg	50.0		102	48.2-134			
Surrogate: 1-Chlorooctadecane	57.9		mg/kg	50.0		116	49.1-148			

LCS (4071521-BS1)

Prepared & Analyzed: 15-Jul-24

GRO C6-C10	181	10.0	mg/kg	200		90.5	66.4-123			
DRO >C10-C28	176	10.0	mg/kg	200		88.2	66.5-118			
Total TPH C6-C28	357	10.0	mg/kg	400		89.3	77.6-123			
Surrogate: 1-Chlorooctane	55.5		mg/kg	50.0		111	48.2-134			
Surrogate: 1-Chlorooctadecane	61.5		mg/kg	50.0		123	49.1-148			

LCS Dup (4071521-BSD1)

Prepared & Analyzed: 15-Jul-24

GRO C6-C10	192	10.0	mg/kg	200		96.2	66.4-123	6.12	17.7	
DRO >C10-C28	198	10.0	mg/kg	200		99.0	66.5-118	11.5	21	
Total TPH C6-C28	390	10.0	mg/kg	400		97.6	77.6-123	8.82	18.5	
Surrogate: 1-Chlorooctane	56.5		mg/kg	50.0		113	48.2-134			
Surrogate: 1-Chlorooctadecane	62.7		mg/kg	50.0		125	49.1-148			

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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

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ensolum, LLC
 Project Manager: Ben Belli
 Address: 3122 National Parks Hwy
 City: Carlisbad
 Phone #: 89854-0852
 Project #: 0301558452
 Project Name: Big Eddy Unit 31 Hackberry Battery Flowline
 Project Location: 312 Eddy Unit 31 Hackberry Battery Flowline
 Sampler Name: Marianna O'Dell

State: NM Zip: 88220
 Project Owner: *
 City: Carlisbad
 Address: 3184 E. Greenest
 State: NM Zip: 88220
 Phone #: 89854-0852
 Fax #:

FOR LAB USE ONLY

Lab I.D.	Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX	PRESERV	SAMPLING	DATE	TIME	Chlorides	TPH	BTEX
144185	SS01	0.5	G	1	GROUNDWATER			7/12/24	9:35	X	X	X
	SS02	0.5	G	1	WASTEWATER				9:40	X	X	X
	SS03	0.5	G	1	SOIL				9:45	X	X	X
	SS04	0.5	G	1	OIL				9:50	X	X	X
	SS05	0.5	G	1	SLUDGE				10:00	X	X	X
	SS06	0.5	G	1	OTHER:							
					ACID/BASE:							
					ICE / COOL							
					OTHER:							

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Refiniquished By: *[Signature]*
 Date: 7/12/24
 Time: 15:14
 Received By: *[Signature]*

Delivered By: (Circle One)
 Sample - UPS - Bus - Other:
 Observed Temp. °C: 5.5
 Corrected Temp. °C: 5.5
 Sample Condition: Cool Intact
 Checked By: *[Signature]*

Remarks: Incident #: nAPP2419330478
 CC: 1140091001
 *Customer requested Project Name
 Standard: *[Signature]*
 Bacteria (only) Sample Condition: Cool Intact
 Observed Temp. °C: 5.5
 Corrected Temp. °C: 5.5

Verbal Result: ☐ Yes ☒ No Add'l Phone #:
 All Results are emailed. Please provide Email address:
 bellensolum.com, model@ensolum.com

Thermometer ID: #1140
 Correction Factor: -0.5°C
 Corrected Temp. °C: 5.0

Cardinal cannot accept verbal changes. Please email changes to caley@ensolum.com

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

July 23, 2024

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 251H

Enclosed are the results of analyses for samples received by the laboratory on 07/12/24 15:14.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. 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/ga/lab_accred_certif.html.

Cardinal Laboratories is accredited 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

Lab Director/Quality Manager



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

Analytical Results For:ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:Reported:
23-Jul-24 15:34

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS 07 0.5'	H244186-01	Soil	12-Jul-24 10:05	12-Jul-24 15:14
SS 08 0.5'	H244186-02	Soil	12-Jul-24 10:10	12-Jul-24 15:14

07/23/24 - Client changed the project name (see COC). This is the revised report and will replace the one sent on 07/18/24.

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:34

SS 07 0.5'
H244186-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	11400		16.0	mg/kg	4	4071619	AC	16-Jul-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Toluene*	<0.050	0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Ethylbenzene*	0.059	0.050	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total Xylenes*	0.351	0.150	mg/kg	50	4071505	JH	15-Jul-24	8021B	
Total BTEX	0.410	0.300	mg/kg	50	4071505	JH	15-Jul-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)	122 %	71.5-134	4071505	JH	15-Jul-24	8021B
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	25.9	10.0	mg/kg	1	4071521	MS	16-Jul-24	8015B
DRO >C10-C28*	148	10.0	mg/kg	1	4071521	MS	16-Jul-24	8015B
EXT DRO >C28-C36	43.8	10.0	mg/kg	1	4071521	MS	16-Jul-24	8015B

Surrogate: 1-Chlorooctane	114 %	48.2-134	4071521	MS	16-Jul-24	8015B
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Surrogate: 1-Chlorooctadecane	134 %	49.1-148	4071521	MS	16-Jul-24	8015B
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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:34

SS 08 0.5'
H244186-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	80.0		16.0	mg/kg	4	4071619	AC	16-Jul-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	102		5.00	mg/kg	5000	4071505	JH	16-Jul-24	8021B	
Toluene*	720		5.00	mg/kg	5000	4071505	JH	16-Jul-24	8021B	
Ethylbenzene*	372		5.00	mg/kg	5000	4071505	JH	16-Jul-24	8021B	
Total Xylenes*	699		15.0	mg/kg	5000	4071505	JH	16-Jul-24	8021B	
Total BTEX	1890		30.0	mg/kg	5000	4071505	JH	16-Jul-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			124 %		71.5-134	4071505	JH	16-Jul-24	8021B	
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Petroleum Hydrocarbons by GC FID**S-06**

GRO C6-C10*	16100		50.0	mg/kg	5	4071521	MS	16-Jul-24	8015B	
DRO >C10-C28*	39900		50.0	mg/kg	5	4071521	MS	16-Jul-24	8015B	
EXT DRO >C28-C36	7410		50.0	mg/kg	5	4071521	MS	16-Jul-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			560 %		48.2-134	4071521	MS	16-Jul-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			648 %		49.1-148	4071521	MS	16-Jul-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:34

Inorganic Compounds - Quality Control**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch 4071619 - 1:4 DI Water									
Blank (4071619-BLK1)					Prepared & Analyzed: 16-Jul-24				
Chloride	ND	16.0	mg/kg						
LCS (4071619-BS1)					Prepared & Analyzed: 16-Jul-24				
Chloride	432	16.0	mg/kg	400		108	80-120		
LCS Dup (4071619-BSD1)					Prepared & Analyzed: 16-Jul-24				
Chloride	432	16.0	mg/kg	400		108	80-120	0.00	20

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:34

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
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Batch 4071505 - Volatiles**Blank (4071505-BLK1)**

Prepared & Analyzed: 15-Jul-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)	0.0552		mg/kg	0.0500		110	71.5-134			

LCS (4071505-BS1)

Prepared & Analyzed: 15-Jul-24

Benzene	2.10	0.050	mg/kg	2.00		105	82.8-130			
Toluene	2.28	0.050	mg/kg	2.00		114	86-128			
Ethylbenzene	2.35	0.050	mg/kg	2.00		118	85.9-128			
m,p-Xylene	4.95	0.100	mg/kg	4.00		124	89-129			
o-Xylene	2.34	0.050	mg/kg	2.00		117	86.1-125			
Total Xylenes	7.29	0.150	mg/kg	6.00		122	88.2-128			
Surrogate: 4-Bromofluorobenzene (PID)	0.0531		mg/kg	0.0500		106	71.5-134			

LCS Dup (4071505-BSD1)

Prepared & Analyzed: 15-Jul-24

Benzene	2.01	0.050	mg/kg	2.00		101	82.8-130	4.24	15.8	
Toluene	2.18	0.050	mg/kg	2.00		109	86-128	4.58	15.9	
Ethylbenzene	2.23	0.050	mg/kg	2.00		111	85.9-128	5.47	16	
m,p-Xylene	4.74	0.100	mg/kg	4.00		118	89-129	4.35	16.2	
o-Xylene	2.23	0.050	mg/kg	2.00		111	86.1-125	5.09	16.7	
Total Xylenes	6.96	0.150	mg/kg	6.00		116	88.2-128	4.59	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0524		mg/kg	0.0500		105	71.5-134			

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220

Project: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Manager: BEN BELILL
Fax To:

Reported:
23-Jul-24 15:34

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
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Batch 4071521 - General Prep - Organics**Blank (4071521-BLK1)**

Prepared & Analyzed: 15-Jul-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	51.2		mg/kg	50.0		102	48.2-134			
Surrogate: 1-Chlorooctadecane	57.9		mg/kg	50.0		116	49.1-148			

LCS (4071521-BS1)

Prepared & Analyzed: 15-Jul-24

GRO C6-C10	181	10.0	mg/kg	200		90.5	66.4-123			
DRO >C10-C28	176	10.0	mg/kg	200		88.2	66.5-118			
Total TPH C6-C28	357	10.0	mg/kg	400		89.3	77.6-123			
Surrogate: 1-Chlorooctane	55.5		mg/kg	50.0		111	48.2-134			
Surrogate: 1-Chlorooctadecane	61.5		mg/kg	50.0		123	49.1-148			

LCS Dup (4071521-BSD1)

Prepared & Analyzed: 15-Jul-24

GRO C6-C10	192	10.0	mg/kg	200		96.2	66.4-123	6.12	17.7	
DRO >C10-C28	198	10.0	mg/kg	200		99.0	66.5-118	11.5	21	
Total TPH C6-C28	390	10.0	mg/kg	400		97.6	77.6-123	8.82	18.5	
Surrogate: 1-Chlorooctane	56.5		mg/kg	50.0		113	48.2-134			
Surrogate: 1-Chlorooctadecane	62.7		mg/kg	50.0		125	49.1-148			

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

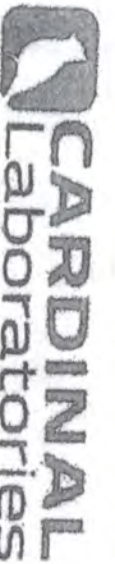
S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	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

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Celey D. Keene, Lab Director/Quality Manager



101 East Martand, Hobbs, NM 88240
(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ensolum, LLC

Project Manager: Ben Bell

Address: 3122 National Parks Hwy

City: Carlsbad

Phone #: (505) 854-0852 Fax #:

Project #: 0301558452 Project Owner:

Project Name: Big Eddy Unit 211

Project Location: 3180 Eddy Unit 211

Sample Name: Mariaha Oilcell

P.O. #:

Company: XTO Energy

Attn: Amy Ruth

Address: 3104 E. Greenest

City: Carlsbad

State: NM Zip: 88220

Phone #:

Fax #:

ANALYSIS REQUEST

Address: 3122 National Parks Hwy City: Carlsbad State: NM Zip: 88220 Phone #: (989) 854-0852 Fax #: Project #: 03G1558452 Project Owner: Project Name: Big Eddy Unit 24 Hackberry Battery Field Project Location: 3280 Eddy Unit 25 NW Sampler Name: Mahaha O'Dell										Company: XTO Energy Attn: Amy Ruth Address: 3104 E. Green St City: Carlsbad State: NM Zip: 88220 Phone #: Fax #:																			
FOR LAB USE ONLY																													
Lab I.D.	Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING																	
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME														
#244180	1	0.5'	G	1		X						X		11/24	10:05	X	X	X											
	2	0.5'	G	1		X						X		↑	10:10	X	X	X											
										Chlorides																			
										TPH																			
										BTEX																			



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

August 14, 2024

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 251H

Enclosed are the results of analyses for samples received by the laboratory on 08/08/24 13:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. 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 accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/07/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: FS 01 1' (H244786-01)

BTX 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	08/09/2024	ND	2.13	107	2.00	1.13	
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466	
Ethylbenzene*	0.063	0.050	08/09/2024	ND	2.14	107	2.00	0.578	
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268	
Total BTX	<0.300	0.300	08/09/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	1060	16.0	08/09/2024	ND	416	104	400	3.77	

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	08/09/2024	ND	198	99.0	200	7.92	
DRO >C10-C28*	198	10.0	08/09/2024	ND	194	97.0	200	8.94	
EXT DRO >C28-C36	56.6	10.0	08/09/2024	ND					

Surrogate: 1-Chlorooctane 81.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 93.2 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/06/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: FS 02 2' (H244786-02)

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	08/09/2024	ND	2.13	107	2.00	1.13		
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466		
Ethylbenzene*	<0.050	0.050	08/09/2024	ND	2.14	107	2.00	0.578		
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268		
Total BTEX	<0.300	0.300	08/09/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 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	4040	16.0	08/09/2024	ND	416	104	400	0.00	QM-07	

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	08/09/2024	ND	198	99.0	200	7.92	
DRO >C10-C28*	66.6	10.0	08/09/2024	ND	194	97.0	200	8.94	
EXT DRO >C28-C36	11.0	10.0	08/09/2024	ND					

Surrogate: 1-Chlorooctane 89.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 101 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/07/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: FS 03 1' (H244786-03)

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	08/09/2024	ND	2.13	107	2.00	1.13	
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466	
Ethylbenzene*	0.088	0.050	08/09/2024	ND	2.14	107	2.00	0.578	
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268	
Total BTEx	<0.300	0.300	08/09/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1950	16.0	08/09/2024	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	11.3	10.0	08/09/2024	ND	198	99.0	200	7.92	
DRO >C10-C28*	269	10.0	08/09/2024	ND	194	97.0	200	8.94	
EXT DRO >C28-C36	60.1	10.0	08/09/2024	ND					

Surrogate: 1-Chlorooctane 79.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 93.7 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/06/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: FS 04 1' (H244786-04)

BTX 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	08/09/2024	ND	2.13	107	2.00	1.13		
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466		
Ethylbenzene*	<0.050	0.050	08/09/2024	ND	2.14	107	2.00	0.578		
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268		
Total BTX	<0.300	0.300	08/09/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3400	16.0	08/09/2024	ND	416	104	400	0.00		

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	08/08/2024	ND	208	104	200	4.84	
DRO >C10-C28*	<10.0	10.0	08/08/2024	ND	210	105	200	3.51	
EXT DRO >C28-C36	<10.0	10.0	08/08/2024	ND					

Surrogate: 1-Chlorooctane 75.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 92.1 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/06/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: FS 05 1' (H244786-05)

BTX 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	08/09/2024	ND	2.13	107	2.00	1.13		
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466		
Ethylbenzene*	<0.050	0.050	08/09/2024	ND	2.14	107	2.00	0.578		
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268		
Total BTX	<0.300	0.300	08/09/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 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	160	16.0	08/09/2024	ND	416	104	400	0.00		

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	08/08/2024	ND	208	104	200	4.84	
DRO >C10-C28*	36.6	10.0	08/08/2024	ND	210	105	200	3.51	
EXT DRO >C28-C36	12.0	10.0	08/08/2024	ND					

Surrogate: 1-Chlorooctane 75.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 91.4 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
 BEN BELILL
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 08/08/2024
 Reported: 08/14/2024
 Project Name: BIG EDDY UNIT 251H
 Project Number: 03C1558452
 Project Location: XTO 32.62233-103.85177

Sampling Date: 08/06/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: FS 06 2' (H244786-06)

BTX 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	08/09/2024	ND	2.13	107	2.00	1.13		
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466		
Ethylbenzene*	<0.050	0.050	08/09/2024	ND	2.14	107	2.00	0.578		
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268		
Total BTX	<0.300	0.300	08/09/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	08/09/2024	ND	416	104	400	0.00		

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	08/08/2024	ND	208	104	200	4.84	
DRO >C10-C28*	16.8	10.0	08/08/2024	ND	210	105	200	3.51	
EXT DRO >C28-C36	<10.0	10.0	08/08/2024	ND					

Surrogate: 1-Chlorooctane 85.6 % 48.2-134

Surrogate: 1-Chlorooctadecane 105 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/07/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SW 01 0-2' (H244786-07)

BTX 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	08/09/2024	ND	2.13	107	2.00	1.13	
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466	
Ethylbenzene*	<0.050	0.050	08/09/2024	ND	2.14	107	2.00	0.578	
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268	
Total BTEX	<0.300	0.300	08/09/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	08/09/2024	ND	416	104	400	0.00	

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	08/08/2024	ND	208	104	200	4.84	
DRO >C10-C28*	14.0	10.0	08/08/2024	ND	210	105	200	3.51	
EXT DRO >C28-C36	<10.0	10.0	08/08/2024	ND					

Surrogate: 1-Chlorooctane 85.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 105 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/07/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SW 02 0-1' (H244786-08)

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	08/09/2024	ND	2.13	107	2.00	1.13		
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466		
Ethylbenzene*	<0.050	0.050	08/09/2024	ND	2.14	107	2.00	0.578		
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268		
Total BTEx	<0.300	0.300	08/09/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	08/09/2024	ND	416	104	400	0.00	

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	08/08/2024	ND	208	104	200	4.84	
DRO >C10-C28*	20.2	10.0	08/08/2024	ND	210	105	200	3.51	
EXT DRO >C28-C36	<10.0	10.0	08/08/2024	ND					

Surrogate: 1-Chlorooctane 86.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 108 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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

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*=Accredited Analyte

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

BILL TO				ANALYSIS REQUEST			
Company Name: Ensolum, LLC				P.O. #:			
Project Manager: Ben Bell				Company: XTO Energy Inc.			
Address: 3122 National Parks Hwy				Attn: Amy Ruth			
City: Midland TX Zip: 79701				Address: 3124 E Green St			
Phone #: 949 854 0852 Fax #:				City: Corsicana			
Project #: 03E1558 452 Project Owner: XTO				State: NM Zip: 87220			
Project Name: Big Eddy Unit 251H				Phone #:			
Project Location: 32.6223, -103.85177				Fax #:			
Sampler Name: Joshua Boxley				MATRIX	PRESERV	SAMPLING	
FOR LAB USE ONLY				# CONTAINERS	GROUNDWATER	WASTEWATER	
Lab I.D.				SOIL	OIL	SLUDGE	
Sample I.D.				OTHER :	ACID/BASE:	ICE / COOL	
Depth (feet)				OTHER :	DATE	TIME	
(G)RAB OR (C)OMP.				X	8/1/24	1315	Chloride
# CONTAINERS				X	8/1/24	1315	TPH
X				X	8/1/24	1315	BTEX
F501				X	8/1/24	1315	
F502					8/1/24	1320	
F503					8/1/24	1330	
F504					8/6/24	0855	
F505					8/6/24	0845	
F506					8/7/24	1330	
Sv01					8/1/24	1340	
Sv02							

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Relinquished By: [Signature] **Date:** 8-8-24 **Received By:** [Signature] **Date:** 8-8-24

Time: 1345 **Received By:** [Signature]

Turnaround Time: Standard ☒ Rush ☐

Thermometer ID: 4446 **Correction Factor:** -0.6°C

Remarks: COT center: 1140091001
Turbidity: 24193 36478
ATP: 3045-4049

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

Verbal Result: ☐ Yes ☐ No **Add'l Phone #:**

All Results are emailed. Please provide Email address:



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

August 14, 2024

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 251H

Enclosed are the results of analyses for samples received by the laboratory on 08/08/24 13:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. 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 accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/07/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SS 07 A 4' (H244787-01)

BTX 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	08/09/2024	ND	2.13	107	2.00	1.13		
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466		
Ethylbenzene*	<0.050	0.050	08/09/2024	ND	2.14	107	2.00	0.578		
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268		
Total BTX	<0.300	0.300	08/09/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 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	1150	16.0	08/09/2024	ND	416	104	400	0.00		

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	08/08/2024	ND	208	104	200	4.84	
DRO >C10-C28*	11.4	10.0	08/08/2024	ND	210	105	200	3.51	
EXT DRO >C28-C36	<10.0	10.0	08/08/2024	ND					

Surrogate: 1-Chlorooctane 88.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 111 % 49.1-148

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/07/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SS 08 A 4' (H244787-02)

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	08/09/2024	ND	2.13	107	2.00	1.13	
Toluene*	0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466	
Ethylbenzene*	0.066	0.050	08/09/2024	ND	2.14	107	2.00	0.578	
Total Xylenes*	0.206	0.150	08/09/2024	ND	6.38	106	6.00	0.0268	
Total BTEX	0.322	0.300	08/09/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	80.0	16.0	08/09/2024	ND	416	104	400	0.00		

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	08/08/2024	ND	208	104	200	4.84	
DRO >C10-C28*	213	10.0	08/08/2024	ND	210	105	200	3.51	
EXT DRO >C28-C36	35.9	10.0	08/08/2024	ND					

Surrogate: 1-Chlorooctane 80.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 101 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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

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A handwritten signature in black ink, appearing to read "C. D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



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

August 14, 2024

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 251H

Enclosed are the results of analyses for samples received by the laboratory on 08/08/24 13:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. 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 accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is fluid and cursive, with the first name "Celey" and last name "Keene" clearly distinguishable.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/07/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SS 07 B 9' (H244788-01)

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	08/09/2024	ND	2.13	107	2.00	1.13		
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466		
Ethylbenzene*	<0.050	0.050	08/09/2024	ND	2.14	107	2.00	0.578		
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268		
Total BTEX	<0.300	0.300	08/09/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	240	16.0	08/09/2024	ND	416	104	400	0.00		

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	08/08/2024	ND	208	104	200	4.84	
DRO >C10-C28*	<10.0	10.0	08/08/2024	ND	210	105	200	3.51	
EXT DRO >C28-C36	<10.0	10.0	08/08/2024	ND					

Surrogate: 1-Chlorooctane 81.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 100 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
BEN BELILL
3122 NATIONAL PARKS HWY
CARLSBAD NM, 88220
Fax To:

Received: 08/08/2024
Reported: 08/14/2024
Project Name: BIG EDDY UNIT 251H
Project Number: 03C1558452
Project Location: XTO 32.62233-103.85177

Sampling Date: 08/07/2024
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SS 08 B 8' (H244788-02)

BTX 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	08/09/2024	ND	2.13	107	2.00	1.13		
Toluene*	<0.050	0.050	08/09/2024	ND	2.12	106	2.00	0.466		
Ethylbenzene*	<0.050	0.050	08/09/2024	ND	2.14	107	2.00	0.578		
Total Xylenes*	<0.150	0.150	08/09/2024	ND	6.38	106	6.00	0.0268		
Total BTX	<0.300	0.300	08/09/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	592	16.0	08/09/2024	ND	416	104	400	0.00		

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	08/08/2024	ND	208	104	200	4.84	
DRO >C10-C28*	<10.0	10.0	08/08/2024	ND	210	105	200	3.51	
EXT DRO >C28-C36	<10.0	10.0	08/08/2024	ND					

Surrogate: 1-Chlorooctane 80.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 98.7 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

1 of 1

Company Name: Ensolum, LLC

Project Manager: Ben Bell

Address: 3122 National Parks Hwy

City: Midland, NM State: NM Zip: 88220

Phone #: 944 854 0852 Fax #:

Project #: 03C1558 452 Project Owner: XTO

Project Name: Big Eddy Unit 251H

Project Location: 32.6223, -103.85177

Sampler Name: Joshua Boxley

P.O. #:

Company: XTO Energy Inc.

Attn: Amy Ruth

Address: 3104 E Green St

City: Carlsbad

State: NM Zip: 88220

Phone #:

Fax #:

BILL TO

ANALYSIS REQUEST

FOR LAB USE ONLY

Lab I.D. Sample I.D.

Depth (feet)

(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

Chloride

TPH

BTX

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 analysis. 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: 8-8-24

Received By:

Date: 8/13/24

Time: 1:345

Received By:

Verbal Result: ☐ Yes ☐ No Add'l Phone #:

All Results are emailed. Please provide Email address:

Relinquished By:

Date:

Received By:

Date:

Time:

Received By:

Verbal Result: ☐ Yes ☐ No Add'l Phone #:

All Results are emailed. Please provide Email address:

Delivered By: (Circle One)

Observed Temp. °C

Sample Condition

CHECKED BY: (Initials)

Turnaround Time:

Standard

Bacteria (only)

Cool Intact

Observed Temp. °C

Corrected Temp. °C

Sampler - UPS - Bus - Other:

Observed Temp. °C

Sample Condition

CHECKED BY: (Initials)

Turnaround Time:

Standard

Bacteria (only)

Cool Intact

Observed Temp. °C

Corrected Temp. °C

FORM-000 R 3-2 (10/07/21)

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

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/ocd/contact-us>

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

QUESTIONS

Action 415136

QUESTIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 415136
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2419336478
Incident Name	NAPP2419336478 BIG EDDY HACKBERRY 34 BATT @ 0
Incident Type	Release Other
Incident Status	Remediation Closure Report Received
Incident Facility	[fAPP2126341665] BIG EDDY HACKBERRY 34 BATT

Location of Release Source	
Please answer all the questions in this group.	
Site Name	BIG EDDY HACKBERRY 34 BATT
Date Release Discovered	06/28/2024
Surface Owner	Federal

Incident Details	
Please answer all the questions in this group.	
Incident Type	Release Other
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: Corrosion Flow Line - Production Crude Oil Released: 9 BBL Recovered: 4 BBL Lost: 5 BBL.
Produced Water Released (bbls) Details	Cause: Corrosion Flow Line - Production Produced Water Released: 2 BBL Recovered: 1 BBL Lost: 1 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/ocd/contact-us>

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

QUESTIONS, Page 2

Action 415136

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 415136
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

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: Colton Brown Title: Environmental Advisor Email: colton.s.brown@exxonmobil.com Date: 12/26/2024
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QUESTIONS, Page 3

Action 415136

QUESTIONS (continued)

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	Action Number: 415136
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
<i>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.</i>	
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	OCD Imaging Records Lookup
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 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 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 1 and 5 (mi.)
A subsurface mine	Between 1 and 5 (mi.)
An (non-karst) unstable area	Between 1 and 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	No

Remediation Plan	
<i>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.</i>	
Requesting a remediation plan approval with this submission	Yes
<i>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.</i>	
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)	4040
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	340
GRO+DRO (EPA SW-846 Method 8015M)	280
BTEX (EPA SW-846 Method 8021B or 8260B)	1.1
Benzene (EPA SW-846 Method 8021B or 8260B)	0
<i>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>	
On what estimated date will the remediation commence	07/12/2024
On what date will (or did) the final sampling or liner inspection occur	10/26/2024
On what date will (or was) the remediation complete(d)	10/26/2024
What is the estimated surface area (in square feet) that will be reclaimed	1090
What is the estimated volume (in cubic yards) that will be reclaimed	132
What is the estimated surface area (in square feet) that will be remediated	1090
What is the estimated volume (in cubic yards) that will be remediated	132
<i>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.</i>	
<i>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.</i>	

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Action 415136

QUESTIONS (continued)

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	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
<i>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.</i>	
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	HALFWAY DISPOSAL AND LANDFILL [FEEM0112334510]
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	No
OR is the off-site disposal site, to be used, an NMED facility	No
(Ex Situ) Excavation and on-site remediation (i.e. On-Site Land Farms)	No
(In Situ) Soil Vapor Extraction	No
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	No
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	No
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	No
Ground Water Abatement pursuant to 19.15.30 NMAC	No
OTHER (Non-listed remedial process)	No
<i>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>	
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: Colton Brown Title: Environmental Advisor Email: colton.s.brown@exxonmobil.com Date: 12/26/2024
<i>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.</i>	

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Action 415136

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
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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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Action 415136

QUESTIONS (continued)

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	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	416629
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	01/10/2025
What was the (estimated) number of samples that were to be gathered	1
What was the sampling surface area in square feet	200

Remediation Closure Request	
<i>Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.</i>	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	1090
What was the total volume (cubic yards) remediated	132
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	1090
What was the total volume (in cubic yards) reclaimed	132
Summarize any additional remediation activities not included by answers (above)	Excavation activities were conducted at the Site as indicated in the RWP to address the June 2024 release of produced water with FR. Laboratory analytical results for all excavation soil samples collected indicate COC concentrations were compliant with the Closure Criteria. Based on the soil sample laboratory analytical results, no further remediation is required. The excavation has been backfilled with material purchased locally and the Site has been recontoured to match pre-existing site conditions.
<i>The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (in .pdf format) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.</i>	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.	
I hereby agree and sign off to the above statement	Name: Colton Brown Title: Environmental Advisor Email: colton.s.brown@exxonmobil.com Date: 12/26/2024

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Action 415136

QUESTIONS (continued)

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	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Action 415136

CONDITIONS

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	Action Number: 415136
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
scott.rodgers	A reclamation report will not be accepted until reclamation of the release area, including areas reasonably needed for production or drilling activities, is complete and meet the requirements of 19.15.29.13 NMAC. Areas not reasonably needed for production or drilling activities will still need to be reclaimed and revegetated as early as practicable.	1/13/2025
scott.rodgers	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. The OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	1/13/2025