



February 12, 2025

**New Mexico Oil Conservation Division**

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

**Re: Deferral Request Addendum  
Big Eddy Unit DI 4 Battery  
Incident Number nAPP2424035474  
Eddy County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared the following *Deferral Request Addendum (Addendum)* to a *Deferral Request* submitted on November 18, 2024, related to the Big Eddy Unit DI 4 Battery (Site). This *Addendum* provides an update to the additional delineation activities completed at the Site in response to the denial by the New Mexico Oil Conservation Division (NMOCD) of the previously submitted *Deferral Request*. In the denial, NMOCD expressed concern that lateral delineation was insufficient. Based on the additional delineation soil sampling activities described below, XTO is requesting deferral of final remediation for Incident Number nAPP2424035474 until the Site is reconstructed, and/or the well pad is abandoned.

**BACKGROUND**

The Site is located in Unit L, Section 5, Township 20 South, Range 31 East, in Eddy County, New Mexico (32.60879°, -103.89074°) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM).

On August 19, 2024, a produced water pump failed resulting in the release of approximately 21 barrels (bbls) of produced water into a lined containment and onto the surface of the pad. A vacuum truck was immediately dispatched to the Site to recover free-standing fluids; 20 bbls of produced water were recovered. XTO submitted a Notification of Release (NOR) and Initial C-141 Application (C-141) on August 27, 2024. The release was assigned Incident Number nAPP2424035474.

The *Deferral Request* detailed Site characterization according to 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). The Site characterization results were included in the previously submitted *Deferral Request* prepared for Incident Number nAPP2424035474. The *Deferral Request* report is included in Appendix A. Based on the results of the Site characterization, the following NMOCD Table I Closure Criteria apply:

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

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- Chloride: 600 mg/kg

As documented in the *Deferral Request*, Site assessment, delineation, and soil sampling activities were conducted to evaluate the release. Four delineation soil samples (SS01 through SS04) were collected around the release extent from a depth of approximately 0.5 feet below ground surface (bgs). One borehole (BH01) was advanced via core drill to a terminal depth of 9 feet bgs within the release extent. Discrete soil samples were collected from BH01 at depths ranging from 0.5 feet to 9 feet bgs. Soil samples SS01 through SS04 indicated soil concentrations were below Closure Criteria. Chloride impacted soil was identified in soil samples BH01 through BH01D collected at depths ranging from 0.5 feet bgs to 4 feet bgs. Field screening results within the borehole suggests impacted soil exists to at least 9 feet bgs, where chloride concentrations are 320 mg/kg (BH01I).

A liner integrity inspection was conducted by Ensolum personnel and the inspection determined the liner was in good working condition. XTO requested deferral of final remediation due to the presence of active production equipment and surface pipelines surrounding the lined containment and release extent area, preventing excavation of impacted soil. The impacted soil is limited to the area between the lined containment and active production equipment, where remediation would require a major facility deconstruction. The impacted soil remaining in place is delineated vertically by delineation soil sample BH01I, collected at 9 feet bgs. The impacted soil is laterally defined by delineation soil samples SS01 through SS03 and the lined containment walls.

On November 21, 2024, NMOCD denied the *Deferral Request* for Incident Number nAPP2424035474 for the following reasons:

- *Deferral denied. Pursuant to 19.15.29.12(C)2 NMAC, “the deferral may be granted so long as the contamination is fully delineated and does not cause an imminent risk to human health, the environment, or ground water. Horizontal delineation still needs achieved before a deferral can be granted. You state that “On August 19, 2024, a produced water pump failed resulting in the release of approximately 21 barrels (bbls) of produced water into a lined containment and onto the surface of the pad.” Was it spray? Did the containment overflow? This needs further explanation. Resubmit an updated deferral request by 2/19/25.*

As described above and in the original *Deferral Request* report, the release occurred inside the containment and overflowed onto the surface of the pad. Immediately following the release, a total of 20 bbls were recovered from the containment, leaving 1 bbl of fluid unrecovered, saturated in the well pad surficial soil. Based on the denial response provided by the NMOCD, additional horizontal delineation activities were warranted.

## ADDITIONAL DELINEATION ACTIVITIES

Between December 11, 2024 and January 20, 2025, Ensolum personnel returned to the Site to conduct additional horizontal delineation around the deferral area proposed in the *Deferral Request*. Three boreholes (DP01 through DP03) were advanced via core drill around the deferral area to a terminal depth of 9 feet bgs. Discrete soil samples were field screened at every foot in each borehole for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride utilizing Hach® chloride QuanTab® test strips. Delineation soil samples were submitted in each borehole at depths of 0.5 feet, 2 feet, 4 feet, 6 feet, and 9 feet bgs, all of which correlate to impacted soil identified in borehole BH01. Field screening results and observations were logged on lithologic/soil sampling logs, which are included in Appendix B. The release extent, borehole locations, and delineation soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 1. Photographic documentation is included in Appendix C.

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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 contaminants of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following Standard Method SM4500.

## LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for all newly collected delineation soil samples indicated COC concentrations were below Closure Criteria and successfully defines the deferral area laterally. Laboratory analytical results are summarized in Table 1 and laboratory analytical reports are included in Appendix D.

## DEFERRAL REQUEST

XTO is requesting deferral of final remediation due to the presence of active production equipment and surface pipelines surrounding the release extent area, preventing excavation of impacted soil. The impacted soil is limited to the area of active production equipment, the smaller lined containment wall immediately east of where the release occurred, and the larger lined containment wall immediately south of where the release occurred, where remediation would require a major facility deconstruction. The impacted soil remaining in place is delineated vertically by delineation soil sample BH01I collected at 9 feet bgs. The impacted soil is laterally delineated by soil samples SS01 through SS03, all delineation soil samples collected in boreholes DP01 through DP03 advanced to a terminal depth of 9 feet bgs, and the lined containment walls. The estimated area of remaining impacted soil measures approximately 780 square feet and a total of approximately 260 cubic yards of impacted soil remains in place. The proposed deferral area and the soil samples that define the deferral area are presented on Figure 2.

Additionally, Ensolum recognized a *Historical Deferral Request* that overlaps the proposed deferral area. The *Historical Deferral Request* was submitted to NMOCD on July 25, 2024, and approved by NMOCD on August 15, 2024, and is in response to remediation work completed for a produced water release (incident number nAPP2404359783) that occurred on January 29, 2024. The existence of this approved deferral area overlapping the release area potentially explains the depth of impacted soil, since only 1 bbl of fluid was unrecovered following initial response efforts. Based on the existence of the January 2024 produced water release for incident number nAPP2404359783, and the approved *Historical Deferral Request*, XTO believes the NMOCD should consider the size and depth of the deferral area to be acceptable.

XTO does not believe deferment will result in imminent risk to human health, the environment, or groundwater. The impacted soil remaining in place is limited to the areal and vertical extents described above and the liner was inspected and determined to be in good working condition.

Based on initial response efforts, the presence of active production equipment within the release area and the complete lateral and vertical delineation of impacted soil remaining in place, XTO requests deferral of final remediation for Incident Number nAPP2424035474 until final reclamation of the well pad or major construction, whichever comes first.

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

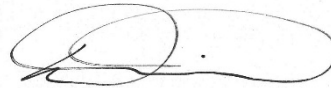
XTO Energy, Inc  
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Big Eddy Unit DI 4 Battery

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Sincerely,  
**Ensolum, LLC**



Benjamin J. Belill  
Senior Geologist



Daniel R. Moir, PG (licensed in WY & TX)  
Senior Managing Geologist

cc: Ashley McAfee, XTO  
Kaylan Dirkx, XTO  
BLM

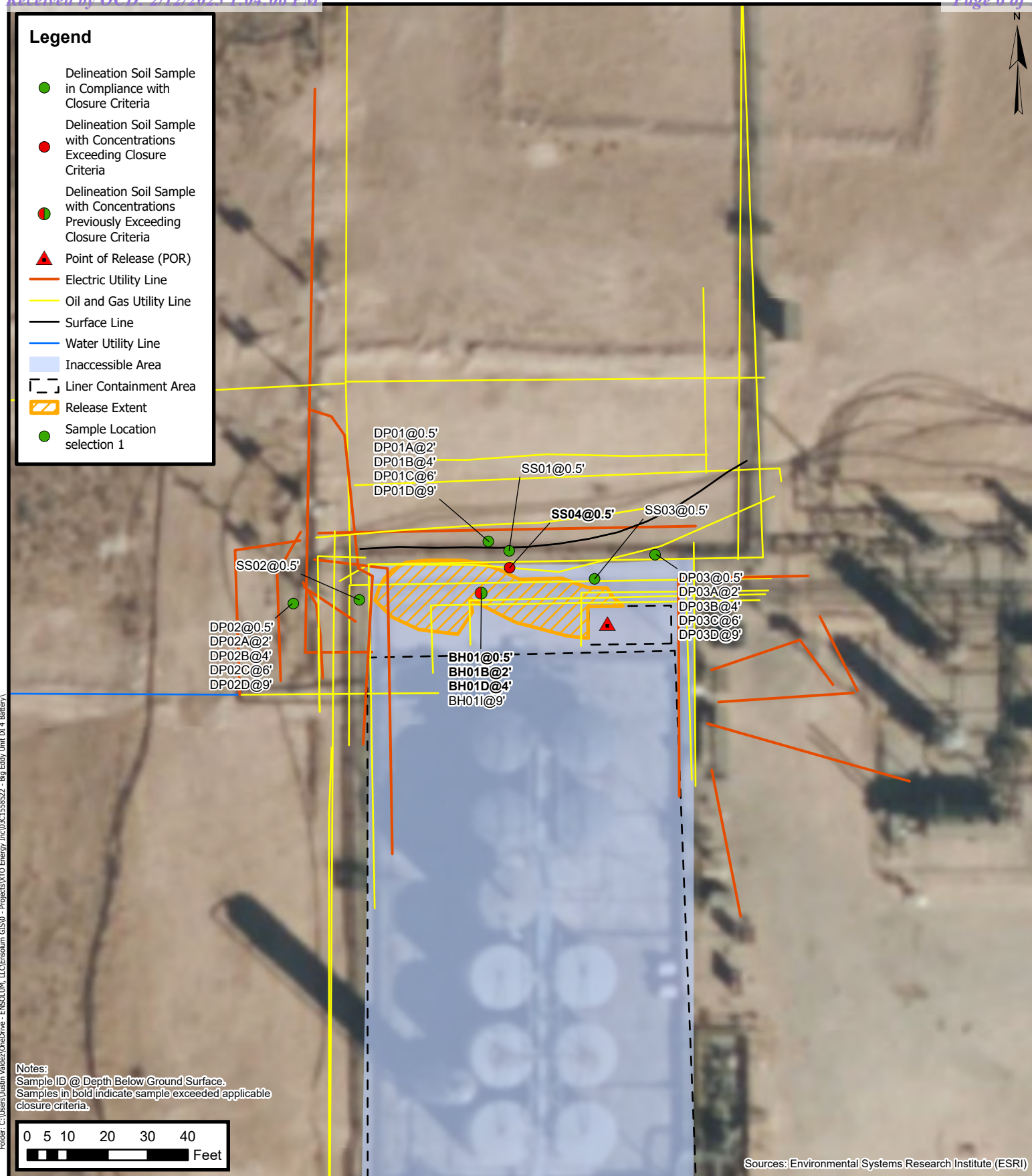
Appendices:

Figure 1	Delineation Soil Sample Locations
Figure 2	Deferral Area Map
Table 1	Soil Sample Analytical Results
Appendix A	Deferral Request Report, dated November 18, 2024
Appendix B	Lithologic / Soil Sampling Logs
Appendix C	Photographic Log
Appendix D	Laboratory Analytical Reports & Chain-of-Custody Documentation



FIGURES

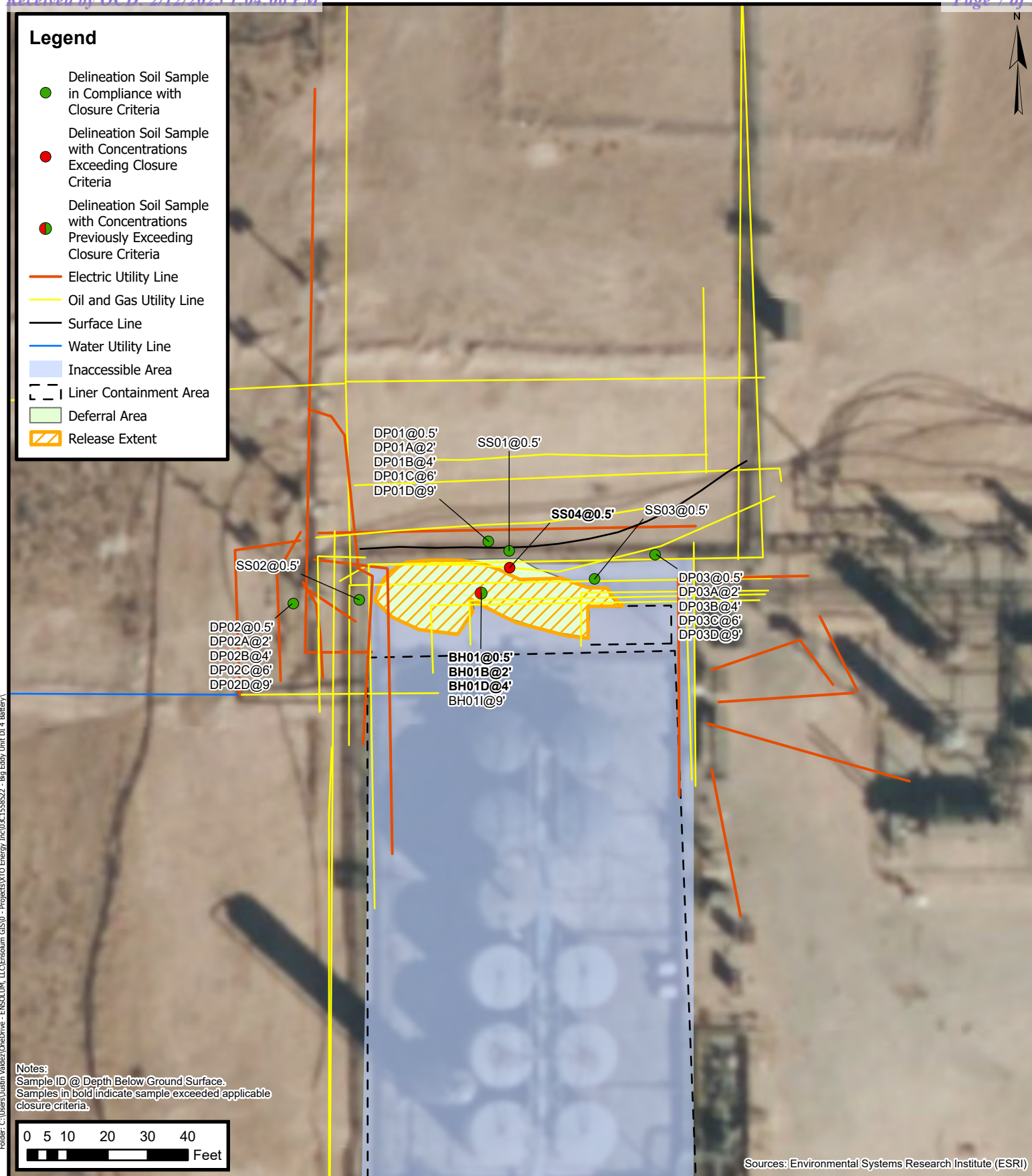




## Delineation Soil Sample Locations

XTO Energy Inc.  
 Big Eddy Unit DI 4 Battery  
 Incident Number: nAPP2424035474  
 Unit L, Sec 05, T20S, R31E  
 Eddy County, New Mexico

**FIGURE**  
**1**



## Deferral Area Map

XTO Energy Inc.  
 Big Eddy Unit DI 4 Battery  
 Incident Number: nAPP2424035474  
 Unit L, Sec 05, T20S, R31E  
 Eddy County, New Mexico

**FIGURE**  
**2**



TABLES



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
 Big Eddy Unit DI 4 Battery  
 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	NE	100	600
Delineation Soil Samples										
SS01	11/07/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	96.0
SS02	11/07/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
SS03	11/07/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
DP01	01/20/2025	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	80.0
DP01A	12/17/2024	2	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	304
DP01B	12/17/2024	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	112
DP01C	12/18/2024	6	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	112
DP01D	12/18/2024	9	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	96.0
DP02	01/20/2025	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
DP02A	12/12/2024	2	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
DP02B	12/12/2024	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
DP02C	12/17/2024	6	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	80.0
DP02D	12/17/2024	9	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	224
DP03	01/20/2025	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	368
DP03A	12/11/2024	2	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	224
DP03B	12/11/2024	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	64.0
DP03C	12/11/2024	6	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
DP03D	12/12/2024	9	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SS04	11/07/2024	0.5	<0.050	<0.300	<10.0	141	209	141	<b>350</b>	48.0
BH01	11/07/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<b>1,620</b>
BH01B	11/07/2024	2	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<b>23,600</b>
BH01D	11/07/2024	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<b>10,000</b>
BH01I	11/07/2024	9	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	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



## APPENDIX A

*Deferral Request* Report, dated November 18, 2024

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November 18, 2024

**New Mexico Oil Conservation Division**

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

**Re: Deferral Request  
Big Eddy Unit DI 4 Battery  
Incident Number nAPP2424035474  
Eddy County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum) on behalf of XTO Energy, Inc. (XTO), has prepared this *Deferral Request* to document assessment, delineation and soil sampling activities at the Big Eddy Unit DI 4 Battery (Site). The purpose of the assessment and soil sampling activities was to assess for the presence or absence of impacts to soil following an incident of produced water releasing into a lined containment and onto the pad surface. Based on field observations, field screening activities, and soil sample laboratory analytical results, XTO is submitting this *Deferral Request*, describing assessment and delineation activities that have occurred and requesting deferral of final remediation for Incident Number nAPP2424035474 until the Site is reconstructed, and/or the well pad is abandoned.

**SITE DESCRIPTION AND RELEASE SUMMARY**

The Site is located in Unit L, Section 5, Township 20 South, Range 31 East, in Eddy County, New Mexico (32.60879°, -103.89074°) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM).

On August 19, 2024, a produced water pump failed resulting in the release of approximately 21 barrels (bbls) of produced water into a lined containment and onto the surface of the pad. A vacuum truck was immediately dispatched to the Site to recover free-standing fluids; 20 bbls of produced water were recovered. XTO submitted a Notification of Release (NOR) and Initial C-141 Application (C-141) on August 27, 2024. The release was assigned Incident Number nAPP2424035474.

**SITE CHARACTERIZATION AND CLOSURE CRITERIA**

The Site was characterized to determine 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 and potential Site receptors are identified on Figure 1.

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Depth to groundwater at the Site is greater than 100 feet below ground surface (bgs) based on nearby depth to groundwater data. The closest permitted groundwater well with depth to groundwater data is Office of the State Engineer (OSE) permitted well CP-722, located approximately 1.16 miles northeast of the Site. Well CP-722 was completed on August 28, 2020, and was drilled to a total depth of 220 feet bgs. The groundwater well has a reported depth to groundwater of 103 feet bgs. All wells used to determine depth to groundwater are depicted on Figure 1. The Well Record and Log for CP-722 is included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a freshwater emergent wetland located approximately 4,263 feet southwest of the Site. The Site is greater than 200 feet from any 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 nearest groundwater well data exceeding the NMOCD preferred distance of 0.5 miles from the Site, the following NMOCD Table I Closure Criteria apply:

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

## SITE ASSESSMENT ACTIVITIES

On November 7, 2024, Ensolum personnel visited the Site to evaluate the release extent based on information provided on the C-141 and visual observations and oversee delineation activities. Four delineation soil samples (SS01 through SS04) were collected around the release extent from a depth of approximately 0.5 feet bgs. One borehole (BH01) was advanced via core drill to a terminal depth of 9 feet bgs within the release extent. Discrete soil samples were collected from the borehole at depths ranging from 0.5 feet bgs to 9 feet bgs. The delineation soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride utilizing Hach® chloride QuanTab® test strips. Field screening results and observations were logged on lithologic/soil sampling logs, which are included in Appendix B. The release extent, borehole BH01, and delineation soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation is included in Appendix C.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to 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-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following Standard Method SM4500.

The release occurred within the lined containment, on the well pad and entirely within the area of production equipment and surface pipelines. XTO safety policy restricts soil disturbing activities to a 2-foot radius of any on-site production equipment. The estimated area of remaining impacted soil and delineation soil sample locations are presented on Figure 3. The estimated area of remaining impacted

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Big Eddy Unit DI 4 Battery

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soil measures approximately 780 square feet and, a total of approximately 260 cubic yards of impacted soil remains in place.

## **LINER INTEGRITY INSPECTION ACTIVITIES**

A 48-hour advance notice of the liner inspection was submitted to the NMOCD and on November 13, 2024, a liner integrity inspection was conducted by Ensolum personnel. The lined containment was inspected and was determined to be operating as designed. Upon inspection, no rips, tears, holes, or damage was observed and the liner was free of all debris and any fluids. The liner was determined to be sufficient, and all released fluids were recovered. Photographic documentation of the inspection is included in Appendix C.

## **LABORATORY ANALYTICAL RESULTS**

Laboratory analytical results for delineation soil samples SS01 through SS03 indicated all COCs were in compliance with Closure Criteria, successfully defining the lateral extent of the release. Delineation soil sample SS04 indicated TPH concentrations (350 mg/kg) that exceeded Closure Criteria. Borehole delineation soil samples, BH01 through BH01D, indicated chloride concentrations (ranging from 23,600 mg/kg to 1,620 mg/kg) that exceeded Closure Criteria. Delineation soil sample BH01I, collected at the terminal depth of 9 feet bgs, indicated all COCs were in compliance with Closure Criteria, successfully defining the vertical extent of the release. Laboratory analytical results are summarized in Table 1 and laboratory analytical reports are included in Appendix D.

## **DEFERRAL REQUEST**

XTO is requesting deferral of final remediation due to the presence of active production equipment and surface pipelines surrounding the lined containment and release extent area preventing excavation of impacted soil. The impacted soil is limited to the area between the lined containment and active production equipment, where remediation would require a major facility deconstruction. The impacted soil remaining in place is delineated vertically by delineation soil sample BH01I, collected at 9 feet bgs. The soil is laterally defined by delineation soil samples SS01 through SS03.

XTO does not believe deferment will result in imminent risk to human health, the environment, or groundwater. Depth to groundwater is estimated to be greater than 100 feet bgs, the entirety of the release was contained within the lined containment and within active production equipment and surface pipelines area. The liner was inspected and determined to be in good working condition, and the impacted soil remaining in place is limited in areal and vertical extent.

Based on the presence of active production equipment within the release area and the complete lateral and vertical delineation of impacted soil remaining in place, XTO requests deferral of final remediation for Incident Number nAPP2424035474 until final reclamation of the well pad or major construction, whichever comes first.

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

Sincerely,  
**Ensolum, LLC**

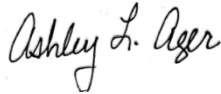


XTO Energy, Inc  
Deferral Request  
Big Eddy Unit DI 4 Battery

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Benjamin J. Belill  
Senior Geologist



Ashley L. Ager, M.S., P.G.  
Program Director

cc: Ashley McAfee, XTO  
Kaylan Dirkx, XTO  
Bureau of Land Management

Appendices:

Figure 1	Site Receptor Map
Figure 2	Delineation Soil Sample Locations
Figure 3	Deferral Area Map
Table 1	Soil Sample Analytical Results
Appendix A	Referenced Well Records
Appendix B	Lithologic / Soil Sampling Logs
Appendix C	Photographic Log
Appendix D	Laboratory Analytical Reports & Chain-of-Custody Documentation



FIGURES

## Site Receptor Map

XTO Energy Inc.  
Big Eddy Unit DI 4 Battery  
Incident Number: nAPP2424035474  
Unit L, Sec 05, T20S, R31E  
Eddy County, New Mexico

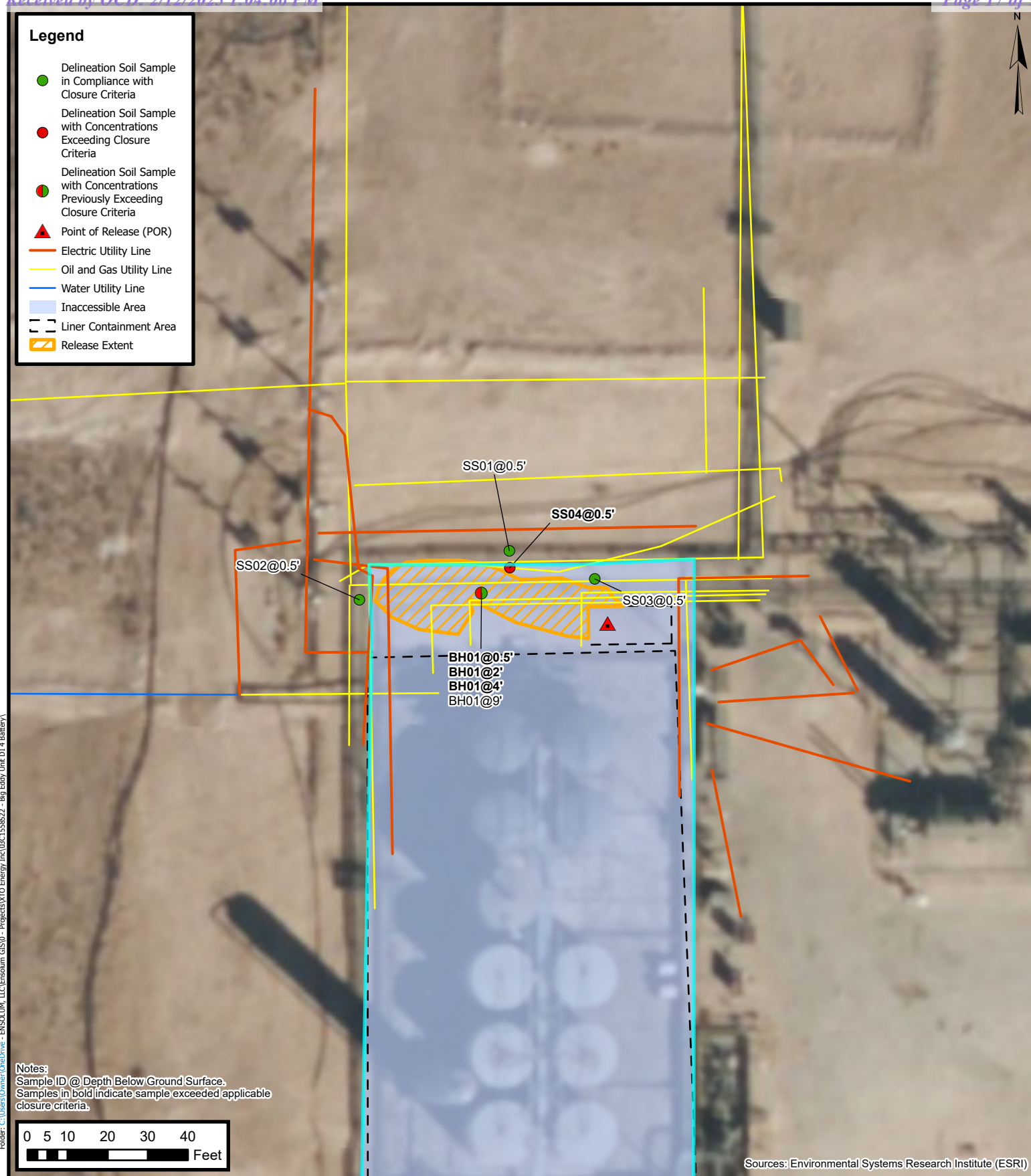
## FIGURE

1



**Legend**

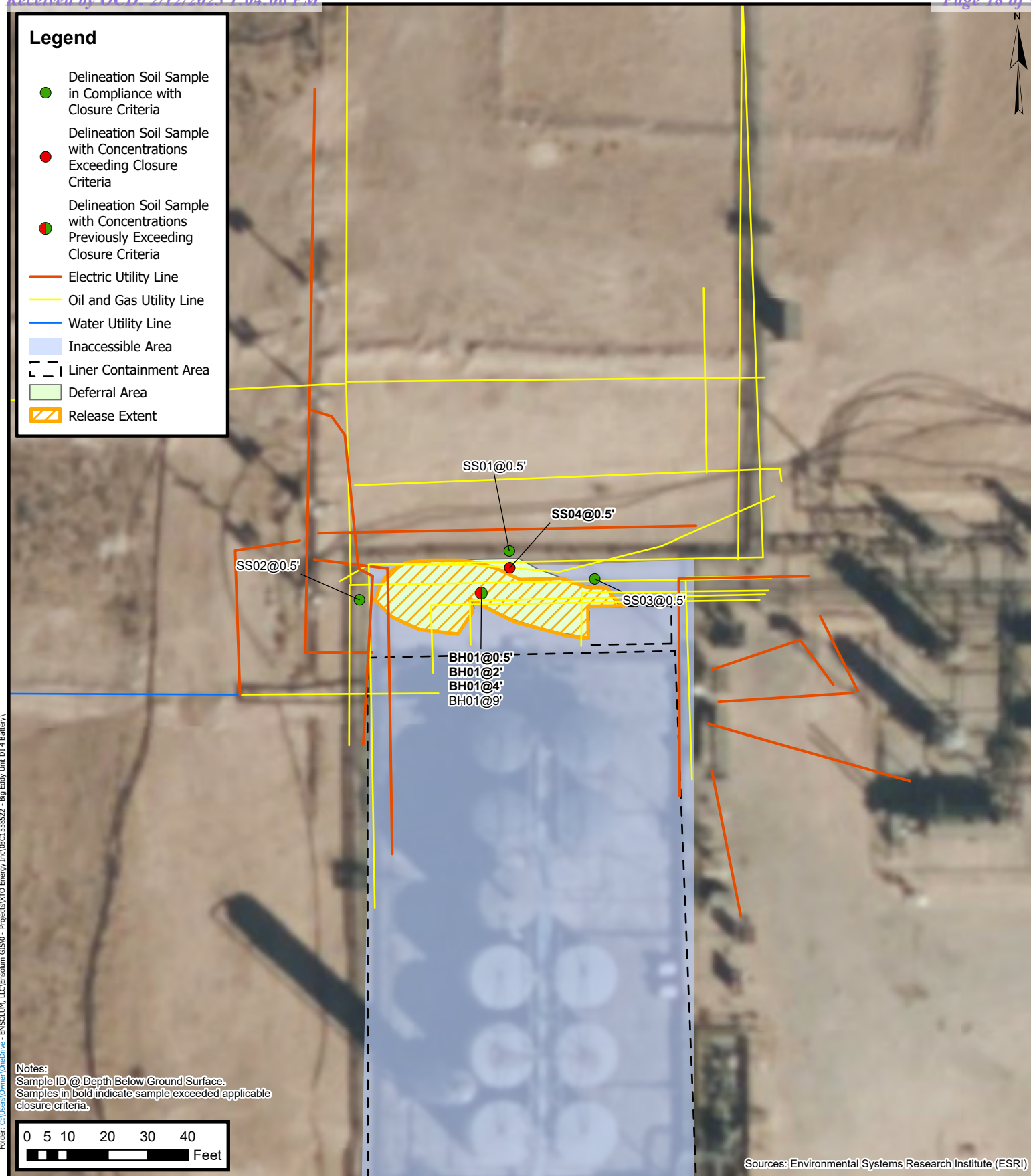
- Delineation Soil Sample in Compliance with Closure Criteria
- Delineation Soil Sample with Concentrations Exceeding Closure Criteria
- Delineation Soil Sample with Concentrations Previously Exceeding Closure Criteria
- ▲ Point of Release (POR)
- Electric Utility Line
- Oil and Gas Utility Line
- Water Utility Line
- Inaccessible Area
- Liner Containment Area
- Release Extent



## Delineation Soil Sample Locations

XTO Energy Inc.  
Big Eddy Unit DI 4 Battery  
Incident Number: nAPP2424035474  
Unit L, Sec 05, T20S, R31E  
Eddy County, New Mexico

**FIGURE**  
**2**



## Deferral Area Map

XTO Energy Inc.  
 Big Eddy Unit DI 4 Battery  
 Incident Number: nAPP2424035474  
 Unit L, Sec 05, T20S, R31E  
 Eddy County, New Mexico

**FIGURE**

**3**





TABLES



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
 Big Eddy Unit DI 4 Battery  
 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	NE	100	600
Assessment Soil Samples										
SS01	11/07/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	96.0
SS02	11/07/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
SS03	11/07/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SS04	11/07/2024	0.5	<0.050	<0.300	<10.0	141	209	141	350	48.0
Delineation Soil Samples										
BH01	11/07/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	1,620
BH01B	11/07/2024	2	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	23,600
BH01D	11/07/2024	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	10,000
BH01I	11/07/2024	9	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	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

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# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

[www.ose.state.nm.us](http://www.ose.state.nm.us)

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) POD1		WELL TAG ID NO. 20C1A		OSE FILE NO(S). CP-722			
	WELL OWNER NAME(S) G & L CATTLE, LLC				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 2904 W 2ND ST				CITY ROSWELL	STATE NM	ZIP 88201	
	WELL LOCATION (FROM GPS)	DEGREES 32	MINUTES 37	SECONDS 30	* ACCURACY REQUIRED: ONE TENTH OF A SECOND			
	LATITUDE	LONGITUDE	* DATUM REQUIRED: WGS 84					
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE SECTION    TOWNSHIP    RANGE								
2. DRILLING & CASING INFORMATION	LICENSE NO. WD-1753		NAME OF LICENSED DRILLER JACOB FRIESSEN			NAME OF WELL DRILLING COMPANY VANGUARD		
	DRILLING STARTED 8-28-20	DRILLING ENDED 8-28-20	DEPTH OF COMPLETED WELL (FT) 220	BORE HOLE DEPTH (FT) 220	DEPTH WATER FIRST ENCOUNTERED (FT) 100			
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input type="checkbox"/> DRY HOLE <input checked="" type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) 150			
	DRILLING FLUID: <input type="checkbox"/> AIR <input checked="" type="checkbox"/> MUD    ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:							
	DEPTH (feet bgl)		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						
	-1	160	12.25	BLANK PVC SCH40	GLUE 6.56	6	.25	
	160	220	12.25	SCREEN PVC SHC40	GLUE 6.56	6	.25	.035
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						
	0	20	12.25	CONCRETE	11	POURED		
	20	220	12.25	3/8 GRAVEL	116	POURED		

FOR OSE INTERNAL USE

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

FILE NO. CP-722	POD NO. 4	TRN NO. 683034
LOCATION 433 T19S R31E Sec 28	WELL TAG ID NO. 20C1A	PAGE 1 OF 2

#### 4. HYDROGEOLOGIC LOG OF WELL

FOR OSE INTERNAL USE






## APPENDIX B

### Lithologic Soil Sampling Logs

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								Sample Name: BH01		Date: 11/07/24	
								Site Name: Big Eddy Unit DI 4 Battery			
								Incident Number: nAPP2424035474			
								Job Number: 03C1558522			
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								Logged By: SB		Method: Core drill	
Coordinates: 32.608814, -103.890787								Hole Diameter: 3"		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. A 40% correction factor is included.											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
						0					
moist	1,159	0.0	Y	BH01	0.5'		CCHE	Caliche with gravel. Light tan. Well graded. Odor or staining.			
moist	7,392	0.0	N		1'	1	CCHE	Caliche with gravel. Light tan. Well graded. No odor or staining.			
moist	12,768	0.0	N	BH01B	2'	2	CCHE	Caliche with gravel. Light tan. Well graded. No odor or staining.			
moist	8,635	0.0	N		3'	3	CCHE	Caliche with gravel. Light tan. Well graded. No odor or staining.			
moist	4,552	0.0	N	BH01D	4'	4	CCHE	Solid rock with caliche. No odor or staining.			
moist	3,494	0.0	N		5'	5	CCHE	Solid rock with clay. Poorly graded. No odor or staining.			
moist	1,360	0.0	N		6'	6	CL	Poorly graded clay. No odor or staining.			
moist	823	0.0	N		7'	7	CL	Poorly graded clay. No odor or staining.			
moist	554	0.0	N		8'	8	CL	Poorly graded clay with sand. No odor or staining.			
moist	230	0.0	N	BH01I	9'	9	CL	Poorly graded clay with sand. No odor or staining.			
							TD	Total depth at 9' bgs.			
						10					
						11					
						12					



## APPENDIX C

### Photographic Log

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**Photographic Log**

XTO Energy, Inc.  
Big Eddy Unit DI 4 Battery  
nAPP2424035474



Photograph: 1 Date: 8/29/2024  
Description: Release extent area.  
View: East



Photograph: 2 Date: 8/29/2024  
Description: Release extent area.  
View: West



Photograph: 3 Date: 11/7/2024  
Description: Delineation activities, deferral area.  
View: West



Photograph: 4 Date: 11/7/2024  
Description: Delineation activities, deferral area.  
View: East





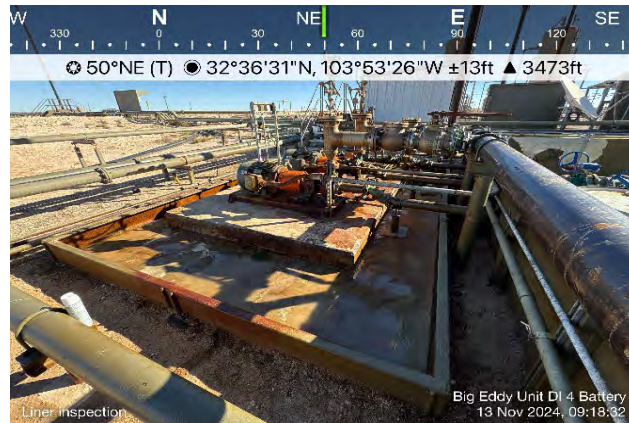
# Photographic Log

XTO Energy, Inc.  
Big Eddy Unit DI 4 Battery  
nAPP2424035474

Date & Time: Thu Nov 07 2024 at 14:17:50 MST  
Position: 32°36'31"N, 103°53'26"W  
Altitude: 3473ft (±23.2ft)  
Datum: WGS84  
Azimuth Bearing: 053.1455 (Magnetic True Azimuth)  
Elevation Angle: 44.5  
Horizon Angle: 95.4  
Zoom: 0.5X  
BEU DI 4 Battery



Photograph: 5 Date: 11/7/2024  
Description: Delineation activities, BH01.  
View: South



Photograph: 6 Date: 11/13/2024  
Description: Liner inspection activities  
View: Northeast



Photograph: 7 Date: 11/13/2024  
Description: Liner inspection activities  
View: South



Photograph: 8 Date: 11/13/2024  
Description: Liner inspection activities  
View: East





## APPENDIX D

### Laboratory Analytical Reports & Chain of Custody Documentation

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

---

November 13, 2024

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BEU DI 4 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 11/11/24 12:20.

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](http://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, flowing style.

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: 11/11/2024  
Reported: 11/13/2024  
Project Name: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Location: XTO

Sampling Date: 11/07/2024  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SS 01 0.5' (H246853-01)**

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	11/12/2024	ND	2.09	104	2.00	4.86		
Toluene*	<0.050	0.050	11/12/2024	ND	2.01	101	2.00	5.13		
Ethylbenzene*	<0.050	0.050	11/12/2024	ND	2.09	104	2.00	5.86		
Total Xylenes*	<0.150	0.150	11/12/2024	ND	6.14	102	6.00	6.14		
Total BTEX	<0.300	0.300	11/12/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	96.0	16.0	11/12/2024	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	11/12/2024	ND	187	93.6	200	0.0727	
DRO >C10-C28*	<10.0	10.0	11/12/2024	ND	180	90.1	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	11/12/2024	ND					

Surrogate: 1-Chlorooctane 94.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 82.7 % 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: 11/11/2024  
Reported: 11/13/2024  
Project Name: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Location: XTO

Sampling Date: 11/07/2024  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SS 02 0.5' (H246853-02)**

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	11/12/2024	ND	2.09	104	2.00	4.86		
Toluene*	<0.050	0.050	11/12/2024	ND	2.01	101	2.00	5.13		
Ethylbenzene*	<0.050	0.050	11/12/2024	ND	2.09	104	2.00	5.86		
Total Xylenes*	<0.150	0.150	11/12/2024	ND	6.14	102	6.00	6.14		
Total BTEX	<0.300	0.300	11/12/2024	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	48.0	16.0	11/12/2024	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	11/12/2024	ND	187	93.6	200	0.0727	
DRO >C10-C28*	<10.0	10.0	11/12/2024	ND	180	90.1	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	11/12/2024	ND					

Surrogate: 1-Chlorooctane 112 % 48.2-134

Surrogate: 1-Chlorooctadecane 99.2 % 49.1-148

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\*=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: 11/11/2024  
Reported: 11/13/2024  
Project Name: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Location: XTO

Sampling Date: 11/07/2024  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SS 03 0.5' (H246853-03)**

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	11/12/2024	ND	2.09	104	2.00	4.86	
Toluene*	<0.050	0.050	11/12/2024	ND	2.01	101	2.00	5.13	
Ethylbenzene*	<0.050	0.050	11/12/2024	ND	2.09	104	2.00	5.86	
Total Xylenes*	<0.150	0.150	11/12/2024	ND	6.14	102	6.00	6.14	
Total BTEX	<0.300	0.300	11/12/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 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	32.0	16.0	11/12/2024	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	11/12/2024	ND	187	93.6	200	0.0727	
DRO >C10-C28*	<10.0	10.0	11/12/2024	ND	180	90.1	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	11/12/2024	ND					

Surrogate: 1-Chlorooctane 112 % 48.2-134

Surrogate: 1-Chlorooctadecane 96.8 % 49.1-148

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\*=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: 11/11/2024  
 Reported: 11/13/2024  
 Project Name: BEU DI 4 BATTERY  
 Project Number: 03C1558522  
 Project Location: XTO

Sampling Date: 11/07/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SS 04 0.5' (H246853-04)**

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	11/12/2024	ND	2.09	104	2.00	4.86	
Toluene*	<0.050	0.050	11/12/2024	ND	2.01	101	2.00	5.13	
Ethylbenzene*	<0.050	0.050	11/12/2024	ND	2.09	104	2.00	5.86	
Total Xylenes*	<0.150	0.150	11/12/2024	ND	6.14	102	6.00	6.14	
Total BTEX	<0.300	0.300	11/12/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	48.0	16.0	11/12/2024	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	11/12/2024	ND	187	93.6	200	0.0727	
DRO >C10-C28*	141	10.0	11/12/2024	ND	180	90.1	200	2.50	
EXT DRO >C28-C36	209	10.0	11/12/2024	ND					

Surrogate: 1-Chlorooctane 119 % 48.2-134

Surrogate: 1-Chlorooctadecane 109 % 49.1-148

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\*=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: 11/11/2024  
 Reported: 11/13/2024  
 Project Name: BEU DI 4 BATTERY  
 Project Number: 03C1558522  
 Project Location: XTO

Sampling Date: 11/07/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BH 01 0.5' (H246853-05)**

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	11/12/2024	ND	2.09	104	2.00	4.86	
Toluene*	<0.050	0.050	11/12/2024	ND	2.01	101	2.00	5.13	
Ethylbenzene*	<0.050	0.050	11/12/2024	ND	2.09	104	2.00	5.86	
Total Xylenes*	<0.150	0.150	11/12/2024	ND	6.14	102	6.00	6.14	
Total BTEX	<0.300	0.300	11/12/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 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	1620	16.0	11/12/2024	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	11/12/2024	ND	187	93.6	200	0.0727	
DRO >C10-C28*	<10.0	10.0	11/12/2024	ND	180	90.1	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	11/12/2024	ND					

Surrogate: 1-Chlorooctane 117 % 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: 11/11/2024  
Reported: 11/13/2024  
Project Name: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Location: XTO

Sampling Date: 11/07/2024  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: BH 01 B 2' (H246853-06)**

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	11/12/2024	ND	2.09	104	2.00	4.86		
Toluene*	<0.050	0.050	11/12/2024	ND	2.01	101	2.00	5.13		
Ethylbenzene*	<0.050	0.050	11/12/2024	ND	2.09	104	2.00	5.86		
Total Xylenes*	<0.150	0.150	11/12/2024	ND	6.14	102	6.00	6.14		
Total BTEX	<0.300	0.300	11/12/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 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	23600	16.0	11/12/2024	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	11/12/2024	ND	187	93.6	200	0.0727	
DRO >C10-C28*	<10.0	10.0	11/12/2024	ND	180	90.1	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	11/12/2024	ND					

Surrogate: 1-Chlorooctane 114 % 48.2-134

Surrogate: 1-Chlorooctadecane 102 % 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: 11/11/2024  
 Reported: 11/13/2024  
 Project Name: BEU DI 4 BATTERY  
 Project Number: 03C1558522  
 Project Location: XTO

Sampling Date: 11/07/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BH 01 D 4' (H246853-07)**

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	11/12/2024	ND	2.09	104	2.00	4.86		
Toluene*	<0.050	0.050	11/12/2024	ND	2.01	101	2.00	5.13		
Ethylbenzene*	<0.050	0.050	11/12/2024	ND	2.09	104	2.00	5.86		
Total Xylenes*	<0.150	0.150	11/12/2024	ND	6.14	102	6.00	6.14		
Total BTEX	<0.300	0.300	11/12/2024	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	10000	16.0	11/12/2024	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	11/12/2024	ND	187	93.6	200	0.0727	
DRO >C10-C28*	<10.0	10.0	11/12/2024	ND	180	90.1	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	11/12/2024	ND					

Surrogate: 1-Chlorooctane 134 % 48.2-134

Surrogate: 1-Chlorooctadecane 120 % 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: 11/11/2024  
Reported: 11/13/2024  
Project Name: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Location: XTO

Sampling Date: 11/07/2024  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: BH 01 I 9' (H246853-08)**

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	11/12/2024	ND	2.09	104	2.00	4.86	
Toluene*	<0.050	0.050	11/12/2024	ND	2.01	101	2.00	5.13	
Ethylbenzene*	<0.050	0.050	11/12/2024	ND	2.09	104	2.00	5.86	
Total Xylenes*	<0.150	0.150	11/12/2024	ND	6.14	102	6.00	6.14	
Total BTEX	<0.300	0.300	11/12/2024	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	320	16.0	11/12/2024	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	11/12/2024	ND	187	93.6	200	0.0727	
DRO >C10-C28*	<10.0	10.0	11/12/2024	ND	180	90.1	200	2.50	
EXT DRO >C28-C36	<10.0	10.0	11/12/2024	ND					

Surrogate: 1-Chlorooctane 121 % 48.2-134

Surrogate: 1-Chlorooctadecane 108 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





---

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---

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

---

Celey D. Keene, Lab Director/Quality Manager



1 of 2

REMARKS: All results are correct. Please provide email address: [bbell@cmsdum.com](mailto:bbell@cmsdum.com), [ethomas@cmsdum.com](mailto:ethomas@cmsdum.com)



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ensolum, LLC				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>				
Project Manager: Ben Belli				P.O. #:								
Address: 3122 National Parks Hwy				Company: XTO Energy Inc								
City: Carlsbad				Attn: Colton Brown								
State: NM Zip: 88220				Address: 2304 E Green St.								
Phone #: 989-851-0852 Fax #:				City: Carlsbad								
Project #: 03C158522 Project Owner:				State: NM Zip: 88220								
Project Name: BEU DI 4 Bakken				Phone #:								
Project Location:				Fax #:								
Sampler Name: Shaele Brooks				PRESERV				SAMPLING				
FOR LAB USE ONLY												
Lab I.D.	Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX	DATE	TIME	TESTS				
H246853	B101	0.5'		1	GROUNDWATER	11/17/24	14:20	BTX				
	B101B	2'		1	WASTEWATER		10:55	TPH				
	B101D	4'		1	SOIL		11:20	Chloride				
	B101I	9'		1	OIL		13:47					
					SLUDGE							
					OTHER :							
					ACID/BASE:							
					ICE / COOL							
					OTHER :							
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Relinquished By: [Signature]				Received By: [Signature]								
Date: 11/17/24				Time: 10:20								
Relinquished By: [Signature]				Received By: [Signature]								
Date: 11/17/24				Time: 12:20								
Delivered By: (Circle One)				Observed Temp. °C: 34				Sample Condition				
Sampler - UPS - Bus - Other:				Corrected Temp. °C: 2.8				Cool Intact: Yes [X] No [ ]				
								CHECKED BY: [Signature]				
								Turnaround Time: 48 hrs [X] Rush [ ]				
								Thermometer ID: #1140				
								Bacteria (only) Sample Condition				
								Cool Intact: Yes [X] No [ ]				
								Observed Temp. °C:				
								Corrected Temp. °C:				

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





## APPENDIX B


### Lithologic Soil Sampling Logs


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								Sample Name: BH01		Date: 11/07/2024	
								Site Name: Big Eddy Unit DI 4 Battery			
								Incident Number: nAPP2424035474			
								Job Number: 03C1558522			
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								Logged By: SB		Method: Core Drill	
Coordinates: 32.608814, -103.890786								Hole Diameter: 3"		Total Depth: 9'	
Comments: Field screening conducted with HACH Chloride Test Strips for chloride and PID for vapor. Chloride tests performed with 1:4 dilution factor of soil to distilled water. 40% correction factor added on chloride screening.											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
M	1,159	0.0	N	BH01	0.5	0	CCHE	CALICHE, well graded, tan, medium grain to gravel size, no odor, well consolidated			
M	7,392	0.0	N			1					
M	12,768	0.0	N	BH01B	2	2					
M	8,635	0.0	N			3					
M	4,552	0.0	N	BH01D	4	4	CCHE	CALICHE, indurated solid caliche, No odor or staining.			
M	3,494	0.0	N			5	CL	CLAY, low plasticity, cohesive, no odor or stain.			
M	1,360	0.0	N			6					
M	823	0.0	N			7					
M	554	0.0	N			8	CL				
M	230	0.0	N	BH01I	9	9					
Total depth @ 9' (bgs)											

 <b>ENSOLUM</b>		Sample Name: DP01		Date: 12/18/2024				
		Site Name: Big Eddy Unit DI 4 Battery						
		Incident Number: nAPP2424035474						
		Job Number: 03C1558522						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								
Coordinates: 32.608849, -103.890780			Logged By: JD		Method: Core Drill			
			Hole Diameter: 3"		Total Depth: 9'			
Comments: Field screening conducted with HACH Chloride Test Strips for chloride and PID for vapor. Chloride tests performed with 1:4 dilution factor of soil to distilled water. 40% correction factor added on chloride screening.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	<168	0.0	N	DP01	0.5	0	CCHE	(0-3'), CALICHE, well graded, tan, medium grain to gravel size, no odor, well consolidated.
M	235	0.0	N			1		
M	319	0.0	N	DP01A	2	2		
M	235,2	0.0	N			3		
M	<162.4	0.0	N	DP01B	4	4		
M	<162.4	0.0	N			5		
M	<162.4	0.0	N	DP01C	6	6		
M	<162.4	0.0	N			7		
M	<162.4	0.0	N			8		
M	<162.4	0.0	N	DP01D	9	9		
some clay @ 8' bgs.								
TD @ 9'								

 <b>ENSOLUM</b>		Sample Name: DP02		Date: 12/12/2024				
		Site Name: Big Eddy Unit DI 4 Battery						
		Incident Number: nAPP2424035474						
		Job Number: 03C1558522						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								
Coordinates: 32.608808, -103.890938			Logged By: JD		Method: Core Drill			
			Hole Diameter: 3"		Total Depth: 9'			
Comments: Field screening conducted with HACH Chloride Test Strips for chloride and PID for vapor. Chloride tests performed with 1:4 dilution factor of soil to distilled water. 40% correction factor added on chloride screening.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	<168	0.0	N	DP02	0.5	0	CCHE	(0-9'), CALICHE, well graded, tan, medium grain to gravel size, no odor, well consolidated.
M	<162.4	0.0	N			1		
M	<162.4	0.0	N	DP02A	2	2		
M	<16.4	0.0	N			3		
M	<162.4	0.0	N	DP02B	4	4		
M	<162.4	0.0	N			5		
M	<162.4	0.0	N	DP02C	6	6		
M	<162.4	0.0	N			7		
M	<162.4	0.0	N			8		
M	<162.4	0.0	N	DP02D	9	9	SP-SC-S	(@9') SANDSTONE W/ CLAY, Fine to medium grained, Poorly Graded, poorly consolidated, dark brown, Medium plasticity, non cohesive.
TD @ 9'								

		Sample Name: DP03		Date: 12/12/2024				
		Site Name: Big Eddy Unit DI 4 Battery						
		Incident Number: nAPP2424035474						
		Job Number: 03C1558522						
<b>LITHOLOGIC / SOIL SAMPLING LOG</b>								
Coordinates: 32.608838, -103.890646			Logged By: JD		Method: Core Drill			
			Hole Diameter: 3"		Total Depth: 9'			
Comments: Field screening conducted with HACH Chloride Test Strips for chloride and PID for vapor. Chloride tests performed with 1:4 dilution factor of soil to distilled water. 40% correction factor added on chloride screening.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	558	0.0	N	DP03	0.5	0	CCHE	(0-3'), CALICHE, well graded, tan, medium grain to gravel size, no odor, well consolidated.
M	<162.4	0.0	N			1		
M	<162.4	0.0	N	DP03A	2	2		
M	<16.4	0.0	N			3	SP-S	(3-5') SANDSTONE, Fine to medium grained, Poorly Graded, poorly consolidated, dark brown.
M	<162.4	0.0	N	DP03B	4	4		
M	<162.4	0.0	N			5	CCHE	(5-6'), CALICHE, well graded, tan, medium grain to gravel size, no odor, well consolidated.
M	<162.4	0.0	N	DP03C	6	6	SP-SC-S	
M	<162.4	0.0	N			7		(5-9') SANDSTONE W/ CLAY, Fine to medium grained, Poorly Graded, poorly consolidated, dark brown, Medium plasticity, non cohesive.
M	<162.4	0.0	N			8		
M	<162.4	0.0	N	DP03D	9	9		
Total Depth @ 9' BGS								



## APPENDIX C

### Photographic Log

---

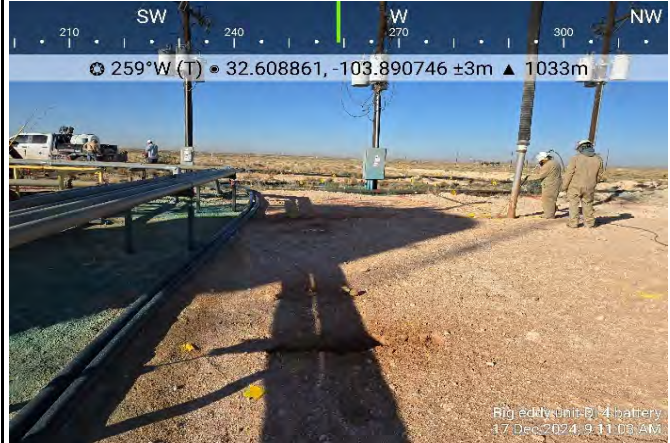




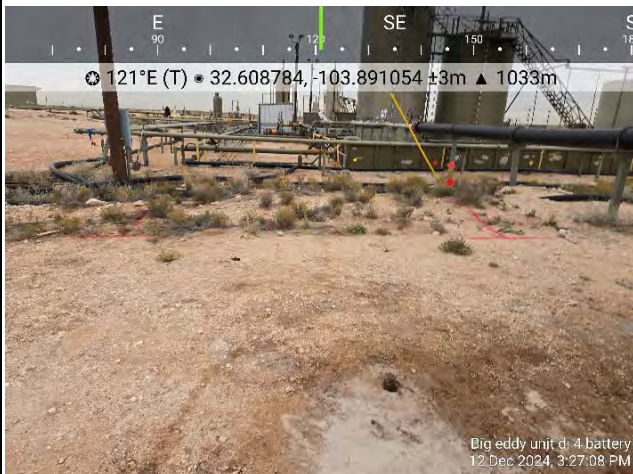
**Photographic Log**  
XTO Energy, Inc.  
Big Eddy Unit DI 4 Battery  
nAPP2424035474



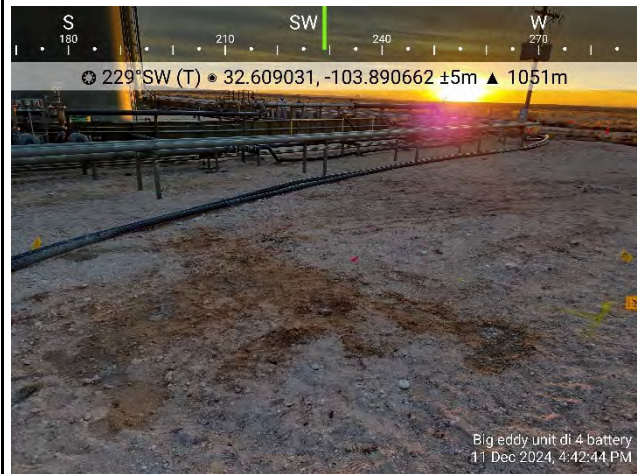
Photograph: 1 Date: 12/18/2024  
Description: Delineation activities, DP01.  
View: Southwest



Photograph: 2 Date: 12/17/2024  
Description: Work area north of deferral area.  
View: West



Photograph: 3 Date: 12/12/2024  
Description: Delineation activities, DP02.  
View: East



Photograph: 4 Date: 12/11/2024  
Description: Delineation activities, DP03.  
View: Southwest



## APPENDIX D

### Laboratory Analytical Reports & Chain of Custody Documentation

---



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

January 27, 2025

TRACY HILLARD

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT DI 4 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 01/23/25 14:00.

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](http://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,

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

ENSOLUM  
TRACY HILLARD  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220  
Fax To:

Received: 01/23/2025  
Reported: 01/27/2025  
Project Name: BIG EDDY UNIT DI 4 BATTERY  
Project Number: 03C1558522  
Project Location: XTO 32.608794, -103.890669

Sampling Date: 01/20/2025  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: DP 01 0.5 (H250409-01)**

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	01/24/2025	ND	2.07	104	2.00	3.35	
Toluene*	<0.050	0.050	01/24/2025	ND	2.09	104	2.00	0.793	
Ethylbenzene*	<0.050	0.050	01/24/2025	ND	2.22	111	2.00	4.46	
Total Xylenes*	<0.150	0.150	01/24/2025	ND	6.81	113	6.00	4.85	
Total BTEX	<0.300	0.300	01/24/2025	ND					

Surrogate: 4-Bromofluorobenzene (PID) 122 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	01/24/2025	ND	432	108	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/24/2025	ND	199	99.7	200	0.0601	
DRO >C10-C28*	<10.0	10.0	01/24/2025	ND	192	96.0	200	0.964	
EXT DRO >C28-C36	<10.0	10.0	01/24/2025	ND					

Surrogate: 1-Chlorooctane 95.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 96.1 % 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  
TRACY HILLARD  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220  
Fax To:

Received: 01/23/2025  
Reported: 01/27/2025  
Project Name: BIG EDDY UNIT DI 4 BATTERY  
Project Number: 03C1558522  
Project Location: XTO 32.608794, -103.890669

Sampling Date: 01/20/2025  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: DP 02 0.5 (H250409-02)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/24/2025	ND	2.07	104	2.00	3.35		
Toluene*	<0.050	0.050	01/24/2025	ND	2.09	104	2.00	0.793		
Ethylbenzene*	<0.050	0.050	01/24/2025	ND	2.22	111	2.00	4.46		
Total Xylenes*	<0.150	0.150	01/24/2025	ND	6.81	113	6.00	4.85		
Total BTEX	<0.300	0.300	01/24/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 120 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	01/24/2025	ND	432	108	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/24/2025	ND	199	99.7	200	0.0601	
DRO >C10-C28*	<10.0	10.0	01/24/2025	ND	192	96.0	200	0.964	
EXT DRO >C28-C36	<10.0	10.0	01/24/2025	ND					

Surrogate: 1-Chlorooctane 97.6 % 48.2-134

Surrogate: 1-Chlorooctadecane 98.0 % 49.1-148

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\*=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  
TRACY HILLARD  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220  
Fax To:

Received: 01/23/2025  
Reported: 01/27/2025  
Project Name: BIG EDDY UNIT DI 4 BATTERY  
Project Number: 03C1558522  
Project Location: XTO 32.608794, -103.890669

Sampling Date: 01/20/2025  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: DP 03 0.5 (H250409-03)**

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	01/24/2025	ND	2.07	104	2.00	3.35		
Toluene*	<0.050	0.050	01/24/2025	ND	2.09	104	2.00	0.793		
Ethylbenzene*	<0.050	0.050	01/24/2025	ND	2.22	111	2.00	4.46		
Total Xylenes*	<0.150	0.150	01/24/2025	ND	6.81	113	6.00	4.85		
Total BTX	<0.300	0.300	01/24/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 121 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	368	16.0	01/24/2025	ND	432	108	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/24/2025	ND	199	99.7	200	0.0601	
DRO >C10-C28*	<10.0	10.0	01/24/2025	ND	192	96.0	200	0.964	
EXT DRO >C28-C36	<10.0	10.0	01/24/2025	ND					

Surrogate: 1-Chlorooctane 84.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 83.5 % 49.1-148

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### Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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 "C. D. Keene", is written over a horizontal line.

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: Tracy Hillard  
Address: 3122 National Parks Hwy  
City: Carlsbad State: NM Zip: 88220  
Phone #: 575 937 3906 Fax #:  
Project #: 0301558522 Project Owner: XTO  
Project Name: Big Edly Unit VI 4 Battering  
Project Location: 32,608 Hwy - 103, 890669  
Sample Name: Joshua Boxley  
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						DATE	TIME	ANALYSIS REQUEST									
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :			ACID/BASE:	ICE / COOL	OTHER :	Chlorides	TPH	BTEX				
H50409	DP01	0.5	G	1			X				10.25	1526	X	X	X							
	DP02	0.5	G	1			X				10.25	1526	X	X	X							
	DP03	0.5	G	1			X				10.25	1524	X	X	X							

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Relinquished By:

Date: 10/23/25 Received By:

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

All Results are emailed. Please provide Email address: @ensolum.com, TMorrissey@ensolum.com, KThomason@ensolum.com

Relinquished By:

Date: 10/23/25 Received By:

REMARKS: APP 24240354714 Incident: 1080851001

Delivered By: (Circle One)

Observed Temp.: 1.3 Corrected Temp.: 0.6

Turnaround Time: 48 hr

Thermometer ID: #486

Standard Rush

Bacteria (only) Sample Condition

Cool Intact Observed Temp.: °C

Corrected Temp.: °C

Sampler - UPS - Bus - Other:

Observed Temp.: 1.3 Corrected Temp.: 0.6

Thermometer ID: #486

Standard Rush

Bacteria (only) Sample Condition

Cool Intact Observed Temp.: °C

Corrected Temp.: °C

FORM-006 R 3.2 10/07/21

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

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

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January 13, 2025

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BEU DI 4 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 12/12/24 14:10.

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](http://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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:Reported:  
13-Jan-25 16:18

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP 03 A 2'	H247531-01	Soil	11-Dec-24 14:20	12-Dec-24 14:10
DP 03 B 4'	H247531-02	Soil	11-Dec-24 15:15	12-Dec-24 14:10
DP 03 C 6'	H247531-03	Soil	11-Dec-24 16:00	12-Dec-24 14:10

01/13/25 - Client changed the sample IDs (see COC). This is the revised report and will replace the one sent on 12/16/24.

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A handwritten signature in cursive script, 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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:18

**DP 03 A 2'**  
**H247531-01 (Soil)**

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

<b>Chloride</b>	<b>224</b>		16.0	mg/kg	4	4121345	CT	13-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Toluene*	<0.050	0.050	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	4121311	JH	13-Dec-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)		104 %		71.5-134	4121311	JH	13-Dec-24	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	4121231	MS	12-Dec-24	8015B	
DRO >C10-C28*	<10.0	10.0	mg/kg	1	4121231	MS	12-Dec-24	8015B	
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	4121231	MS	12-Dec-24	8015B	

Surrogate: 1-Chlorooctane		123 %		48.2-134	4121231	MS	12-Dec-24	8015B	
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Surrogate: 1-Chlorooctadecane		113 %		49.1-148	4121231	MS	12-Dec-24	8015B	
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**Analytical Results For:**

ENSOLUM  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:18

**DP 03 B 4'**  
**H247531-02 (Soil)**

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

<b>Chloride</b>	<b>64.0</b>		16.0	mg/kg	4	4121345	CT	13-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4121311	JH	13-Dec-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 103 % 71.5-134 4121311 JH 13-Dec-24 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	4121231	MS	12-Dec-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4121231	MS	12-Dec-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4121231	MS	12-Dec-24	8015B	

Surrogate: 1-Chlorooctane 129 % 48.2-134 4121231 MS 12-Dec-24 8015B

Surrogate: 1-Chlorooctadecane 118 % 49.1-148 4121231 MS 12-Dec-24 8015B

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**Analytical Results For:**

ENSOLUM  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:18

**DP 03 C 6'**  
**H247531-03 (Soil)**

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

Chloride	16.0		16.0	mg/kg	4	4121345	CT	13-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4121311	JH	13-Dec-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4121311	JH	13-Dec-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134 4121311 JH 13-Dec-24 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	4121231	MS	13-Dec-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4121231	MS	13-Dec-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4121231	MS	13-Dec-24	8015B	

Surrogate: 1-Chlorooctane 118 % 48.2-134 4121231 MS 13-Dec-24 8015B

Surrogate: 1-Chlorooctadecane 112 % 49.1-148 4121231 MS 13-Dec-24 8015B

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**Analytical Results For:**

ENSOLUM  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:18

**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4121345 - 1:4 DI Water</b>									
<b>Blank (4121345-BLK1)</b>					Prepared & Analyzed: 13-Dec-24				
Chloride	ND	16.0	mg/kg						
<b>LCS (4121345-BS1)</b>					Prepared & Analyzed: 13-Dec-24				
Chloride	432	16.0	mg/kg	400	108	80-120			
<b>LCS Dup (4121345-BSD1)</b>					Prepared & Analyzed: 13-Dec-24				
Chloride	432	16.0	mg/kg	400	108	80-120	0.00	20	

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**Analytical Results For:**

ENSOLUM  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:18

**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 4121311 - Volatiles****Blank (4121311-BLK1)**

Prepared &amp; Analyzed: 13-Dec-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)	0.0507		mg/kg	0.0500		101	71.5-134			

**LCS (4121311-BS1)**

Prepared &amp; Analyzed: 13-Dec-24

Benzene	1.96	0.050	mg/kg	2.00		97.8	82.8-130			
Toluene	1.87	0.050	mg/kg	2.00		93.7	86-128			
Ethylbenzene	1.90	0.050	mg/kg	2.00		95.2	85.9-128			
m,p-Xylene	3.82	0.100	mg/kg	4.00		95.4	89-129			
o-Xylene	1.89	0.050	mg/kg	2.00		94.3	86.1-125			
Total Xylenes	5.70	0.150	mg/kg	6.00		95.0	88.2-128			
Surrogate: 4-Bromofluorobenzene (PID)	0.0513		mg/kg	0.0500		103	71.5-134			

**LCS Dup (4121311-BSD1)**

Prepared &amp; Analyzed: 13-Dec-24

Benzene	1.97	0.050	mg/kg	2.00		98.4	82.8-130	0.617	15.8	
Toluene	1.95	0.050	mg/kg	2.00		97.6	86-128	4.03	15.9	
Ethylbenzene	2.01	0.050	mg/kg	2.00		101	85.9-128	5.51	16	
m,p-Xylene	4.03	0.100	mg/kg	4.00		101	89-129	5.42	16.2	
o-Xylene	2.01	0.050	mg/kg	2.00		100	86.1-125	6.16	16.7	
Total Xylenes	6.04	0.150	mg/kg	6.00		101	88.2-128	5.66	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0509		mg/kg	0.0500		102	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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:18

**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 4121231 - General Prep - Organics****Blank (4121231-BLK1)**

Prepared &amp; Analyzed: 12-Dec-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	61.2		mg/kg	50.0		122	48.2-134			
Surrogate: 1-Chlorooctadecane	56.6		mg/kg	50.0		113	49.1-148			

**LCS (4121231-BS1)**

Prepared &amp; Analyzed: 12-Dec-24

GRO C6-C10	187	10.0	mg/kg	200		93.6	81.5-123			
DRO >C10-C28	180	10.0	mg/kg	200		90.0	77.7-122			
Total TPH C6-C28	367	10.0	mg/kg	400		91.8	80.9-121			
Surrogate: 1-Chlorooctane	64.4		mg/kg	50.0		129	48.2-134			
Surrogate: 1-Chlorooctadecane	59.8		mg/kg	50.0		120	49.1-148			

**LCS Dup (4121231-BS1)**

Prepared &amp; Analyzed: 12-Dec-24

GRO C6-C10	186	10.0	mg/kg	200		92.9	81.5-123	0.824	13	
DRO >C10-C28	180	10.0	mg/kg	200		89.9	77.7-122	0.148	15.6	
Total TPH C6-C28	365	10.0	mg/kg	400		91.4	80.9-121	0.492	18.5	
Surrogate: 1-Chlorooctane	64.1		mg/kg	50.0		128	48.2-134			
Surrogate: 1-Chlorooctadecane	59.1		mg/kg	50.0		118	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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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		<b>BILL TO</b>		ANALYSIS REQUEST					
Project Manager: Ben Bellil		P.O. #:							
Address: 3122 National Parks Hwy		Company: XTO Energy Inc.							
City: Carlsbad		Attn: Colton Brown							
Phone #: 989-854-0852		Address: 3104 E. Green St.							
Fax #:		City: Carlsbad							
Project #: 03C1558522		State: NM Zip: 88220							
Project Name: Big Eddy Unit DI 4 Battery		Phone #:							
Project Location: 32.608794, -103.890669		Fax #:							
Sampler Name: Jesse Dorman									

Lab I.D.		Sample I.D.	Sample Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING		BTEX	TPH	CHLORIDE		
						GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME			
1	14347531	* DP5603A	2'	✓	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	12/11/21	1420	✓	✓	✓
2		DP5603B	4'	✓	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	12/11/21	1515	✓	✓	✓
3		DP5603C	6'	✓	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	12/11/21	1600	✓	✓	✓
<div> <div>317</div> <div>✓</div> </div>																			

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Reinquisitioned By:	Date:	12/18/24	Received By:		Verbal Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Phone #:	
	Time:				All Results are emailed. Please provide Email address:	Thillard@ensolum.com			
Reinquisitioned By:	Date:	1/10	Received By:	0909000	BBellill@ensolum.com	TMorrissey@ensolum.com, kthomason@ensolum.com			
	Time:				REMARKS:	Cost Center: 108085 1001 Incident ID: nAP2424035474			
Delivered By: (Circle One)	Observed Temp. °C	33.2	Sample Condition	Cool <input checked="" type="checkbox"/> Intact <input type="checkbox"/>	CHECKED BY:	(Initials)			
Sampler - UPS - Bus - Other:	Corrected Temp. °C	20.0	Cool <input type="checkbox"/> Intact <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>		Turnaround Time: Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>			
						Thillard@ensolum.com 1/10			
						Thermistor ID 4443			
						Correction Factor: +0.5°C			
						Cool <input type="checkbox"/> Intact <input type="checkbox"/>			
						Observed Temp. °C			
						Corrected Temp. °C			

\* Customer requested ID charges.

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

---

January 13, 2025

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BEU DI 4 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 12/16/24 11:47.

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](http://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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:Reported:  
13-Jan-25 16:23

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP 03 D 9	H247585-01	Soil	12-Dec-24 09:50	16-Dec-24 11:47
DP 02 A 2	H247585-02	Soil	12-Dec-24 13:50	16-Dec-24 11:47
DP 02 B 4	H247585-03	Soil	12-Dec-24 14:50	16-Dec-24 11:47

01/13/25 - Client changed the sample IDs (see COC). This is the revised report and will replace the one sent on 12/18/24.

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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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:23

**DP 03 D 9**  
**H247585-01 (Soil)**

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

<b>Chloride</b>	<b>32.0</b>		16.0	mg/kg	4	4121719	KV	17-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Toluene*	<0.050	0.050	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	4121611	JH	16-Dec-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)		102 %		71.5-134	4121611	JH	16-Dec-24	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	4121618	MS	17-Dec-24	8015B	
DRO >C10-C28*	<10.0	10.0	mg/kg	1	4121618	MS	17-Dec-24	8015B	
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	4121618	MS	17-Dec-24	8015B	

Surrogate: 1-Chlorooctane		116 %		48.2-134	4121618	MS	17-Dec-24	8015B	
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Surrogate: 1-Chlorooctadecane		108 %		49.1-148	4121618	MS	17-Dec-24	8015B	
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\*=Accredited Analyte

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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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:23

**DP 02 A 2**  
**H247585-02 (Soil)**

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

<b>Chloride</b>	<b>48.0</b>		16.0	mg/kg	4	4121719	KV	17-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Toluene*	<0.050	0.050	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	4121611	JH	16-Dec-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>		101 %		71.5-134	4121611	JH	16-Dec-24	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	4121618	MS	17-Dec-24	8015B	
DRO >C10-C28*	<10.0	10.0	mg/kg	1	4121618	MS	17-Dec-24	8015B	
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	4121618	MS	17-Dec-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>		110 %		48.2-134	4121618	MS	17-Dec-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>		101 %		49.1-148	4121618	MS	17-Dec-24	8015B	
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**Analytical Results For:**

ENSOLUM  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:23

**DP 02 B 4**  
**H247585-03 (Soil)**

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

<b>Chloride</b>	<b>48.0</b>		16.0	mg/kg	4	4121719	KV	17-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4121611	JH	16-Dec-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4121611	JH	16-Dec-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			103 %	71.5-134		4121611	JH	16-Dec-24	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	4121618	MS	17-Dec-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4121618	MS	17-Dec-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4121618	MS	17-Dec-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			114 %	48.2-134		4121618	MS	17-Dec-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			106 %	49.1-148		4121618	MS	17-Dec-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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:23

**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4121719 - 1:4 DI Water</b>									
<b>Blank (4121719-BLK1)</b>					Prepared & Analyzed: 17-Dec-24				
Chloride	ND	16.0	mg/kg						
<b>LCS (4121719-BS1)</b>					Prepared & Analyzed: 17-Dec-24				
Chloride	432	16.0	mg/kg	400	108	80-120			
<b>LCS Dup (4121719-BSD1)</b>					Prepared & Analyzed: 17-Dec-24				
Chloride	432	16.0	mg/kg	400	108	80-120	0.00	20	

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**Analytical Results For:**

ENSOLUM  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:23

**Volatile Organic Compounds by EPA Method 8021 - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4121611 - Volatiles****Blank (4121611-BLK1)**

Prepared &amp; Analyzed: 16-Dec-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)	0.0506		mg/kg	0.0500		101	71.5-134			

**LCS (4121611-BS1)**

Prepared &amp; Analyzed: 16-Dec-24

Benzene	1.95	0.050	mg/kg	2.00		97.5	82.8-130			
Toluene	1.87	0.050	mg/kg	2.00		93.7	86-128			
Ethylbenzene	1.88	0.050	mg/kg	2.00		93.8	85.9-128			
m,p-Xylene	3.75	0.100	mg/kg	4.00		93.7	89-129			
o-Xylene	1.85	0.050	mg/kg	2.00		92.5	86.1-125			
Total Xylenes	5.60	0.150	mg/kg	6.00		93.3	88.2-128			
Surrogate: 4-Bromofluorobenzene (PID)	0.0512		mg/kg	0.0500		102	71.5-134			

**LCS Dup (4121611-BSD1)**

Prepared &amp; Analyzed: 16-Dec-24

Benzene	2.11	0.050	mg/kg	2.00		105	82.8-130	7.80	15.8	
Toluene	2.02	0.050	mg/kg	2.00		101	86-128	7.72	15.9	
Ethylbenzene	2.02	0.050	mg/kg	2.00		101	85.9-128	7.38	16	
m,p-Xylene	4.05	0.100	mg/kg	4.00		101	89-129	7.61	16.2	
o-Xylene	1.99	0.050	mg/kg	2.00		99.4	86.1-125	7.19	16.7	
Total Xylenes	6.03	0.150	mg/kg	6.00		101	88.2-128	7.47	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0510		mg/kg	0.0500		102	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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:23

**Petroleum Hydrocarbons by GC FID - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4121618 - General Prep - Organics****Blank (4121618-BLK1)**

Prepared: 16-Dec-24 Analyzed: 17-Dec-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	64.3		mg/kg	50.0		129	48.2-134			
Surrogate: 1-Chlorooctadecane	61.0		mg/kg	50.0		122	49.1-148			

**LCS (4121618-BS1)**

Prepared: 16-Dec-24 Analyzed: 17-Dec-24

GRO C6-C10	182	10.0	mg/kg	200		91.1	81.5-123			
DRO >C10-C28	179	10.0	mg/kg	200		89.6	77.7-122			
Total TPH C6-C28	361	10.0	mg/kg	400		90.3	80.9-121			
Surrogate: 1-Chlorooctane	66.5		mg/kg	50.0		133	48.2-134			
Surrogate: 1-Chlorooctadecane	63.4		mg/kg	50.0		127	49.1-148			

**LCS Dup (4121618-BS1)**

Prepared: 16-Dec-24 Analyzed: 17-Dec-24

GRO C6-C10	188	10.0	mg/kg	200		93.9	81.5-123	3.10	13	
DRO >C10-C28	182	10.0	mg/kg	200		91.0	77.7-122	1.50	15.6	
Total TPH C6-C28	370	10.0	mg/kg	400		92.4	80.9-121	2.31	18.5	
Surrogate: 1-Chlorooctane	69.1		mg/kg	50.0		138	48.2-134			S-05
Surrogate: 1-Chlorooctadecane	64.5		mg/kg	50.0		129	49.1-148			

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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### Notes and Definitions

S-05	The surrogate recovery is outside of lab established statistical control limits but still within method limits. Data is not adversely affected.
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 cursive script, appearing to read "Celey D. Keene", written in black ink.

---

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

[illegible]

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

---

January 13, 2025

BEN BELILL

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BEU DI 4 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 12/19/24 14:15.

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](http://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, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:29

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP 02C 6'	H247673-01	Soil	17-Dec-24 09:02	19-Dec-24 14:15
DP 02D 9'	H247673-02	Soil	17-Dec-24 10:30	19-Dec-24 14:15
DP 01A 2'	H247673-03	Soil	17-Dec-24 13:25	19-Dec-24 14:15
DP 01B 4'	H247673-04	Soil	17-Dec-24 14:15	19-Dec-24 14:15
DP 01C 6'	H247673-05	Soil	18-Dec-24 09:15	19-Dec-24 14:15
DP 01D 9'	H247673-06	Soil	18-Dec-24 11:30	19-Dec-24 14:15

01/13/25 - Client changed the sample IDs (see COC). This is the revised report and will replace the one sent on 12/23/24.

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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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:29

**DP 02C 6'**  
**H247673-01 (Soil)**

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

<b>Chloride</b>	<b>80.0</b>		16.0	mg/kg	4	4122018	KV	20-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Toluene*	<0.050	0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	4121923	JH	20-Dec-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)		111 %		71.5-134	4121923	JH	20-Dec-24	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
DRO >C10-C28*	<10.0	10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	

Surrogate: 1-Chlorooctane		97.8 %		48.2-134	4121925	MS	20-Dec-24	8015B	
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Surrogate: 1-Chlorooctadecane		113 %		49.1-148	4121925	MS	20-Dec-24	8015B	
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Cardinal Laboratories

\*=Accredited Analyte

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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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:29

**DP 02D 9'**  
**H247673-02 (Soil)**

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

<b>Chloride</b>	<b>224</b>		16.0	mg/kg	4	4122018	KV	20-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Toluene*	<0.050	0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	4121923	JH	20-Dec-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)	113 %	71.5-134	4121923	JH	20-Dec-24	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
DRO >C10-C28*	<10.0	10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	

Surrogate: 1-Chlorooctane	98.3 %	48.2-134	4121925	MS	20-Dec-24	8015B	
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Surrogate: 1-Chlorooctadecane	113 %	49.1-148	4121925	MS	20-Dec-24	8015B	
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\*=Accredited Analyte

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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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:29

**DP 01A 2'**  
**H247673-03 (Soil)**

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

<b>Chloride</b>	<b>304</b>		16.0	mg/kg	4	4122018	KV	20-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4121923	JH	20-Dec-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			110 %		71.5-134	4121923	JH	20-Dec-24	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			97.1 %		48.2-134	4121925	MS	20-Dec-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			111 %		49.1-148	4121925	MS	20-Dec-24	8015B	
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\*=Accredited Analyte

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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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:29

**DP 01B 4'**  
**H247673-04 (Soil)**

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

<b>Chloride</b>	<b>112</b>		16.0	mg/kg	4	4122018	KV	20-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Toluene*	<0.050	0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	4121923	JH	20-Dec-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>		114 %		71.5-134	4121923	JH	20-Dec-24	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
DRO >C10-C28*	<10.0	10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>		99.2 %		48.2-134	4121925	MS	20-Dec-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>		114 %		49.1-148	4121925	MS	20-Dec-24	8015B	
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\*=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  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:29

**DP 01C 6'**  
**H247673-05 (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	4122018	KV	20-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4121923	JH	20-Dec-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)	111 %		71.5-134			4121923	JH	20-Dec-24	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	

Surrogate: 1-Chlorooctane	97.6 %		48.2-134			4121925	MS	20-Dec-24	8015B	
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Surrogate: 1-Chlorooctadecane	113 %		49.1-148			4121925	MS	20-Dec-24	8015B	
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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  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:29

**DP 01D 9'**  
**H247673-06 (Soil)**

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

<b>Chloride</b>	<b>96.0</b>		16.0	mg/kg	4	4122018	KV	20-Dec-24	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4121923	JH	20-Dec-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4121923	JH	20-Dec-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			111 %	71.5-134		4121923	JH	20-Dec-24	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4121925	MS	20-Dec-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			99.0 %	48.2-134		4121925	MS	20-Dec-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			114 %	49.1-148		4121925	MS	20-Dec-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: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:29

**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4122018 - 1:4 DI Water</b>									
<b>Blank (4122018-BLK1)</b>									
					Prepared & Analyzed: 20-Dec-24				
Chloride	ND	16.0	mg/kg						
<b>LCS (4122018-BS1)</b>									
					Prepared & Analyzed: 20-Dec-24				
Chloride	448	16.0	mg/kg	400	112	80-120			
<b>LCS Dup (4122018-BSD1)</b>									
					Prepared & Analyzed: 20-Dec-24				
Chloride	432	16.0	mg/kg	400	108	80-120	3.64	20	

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**Analytical Results For:**

ENSOLUM  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:29

**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 4121923 - Volatiles****Blank (4121923-BLK1)**

Prepared: 19-Dec-24 Analyzed: 20-Dec-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)	0.0562		mg/kg	0.0500		112	71.5-134			

**LCS (4121923-BS1)**

Prepared: 19-Dec-24 Analyzed: 20-Dec-24

Benzene	1.78	0.050	mg/kg	2.00		89.0	82.8-130			
Toluene	1.74	0.050	mg/kg	2.00		86.8	86-128			
Ethylbenzene	1.79	0.050	mg/kg	2.00		89.3	85.9-128			
m,p-Xylene	3.61	0.100	mg/kg	4.00		90.3	89-129			
o-Xylene	1.81	0.050	mg/kg	2.00		90.6	86.1-125			
Total Xylenes	5.42	0.150	mg/kg	6.00		90.4	88.2-128			
Surrogate: 4-Bromofluorobenzene (PID)	0.0511		mg/kg	0.0500		102	71.5-134			

**LCS Dup (4121923-BS1)**

Prepared: 19-Dec-24 Analyzed: 20-Dec-24

Benzene	2.05	0.050	mg/kg	2.00		103	82.8-130	14.3	15.8	
Toluene	1.99	0.050	mg/kg	2.00		99.4	86-128	13.6	15.9	
Ethylbenzene	2.00	0.050	mg/kg	2.00		100	85.9-128	11.3	16	
m,p-Xylene	3.96	0.100	mg/kg	4.00		98.9	89-129	9.10	16.2	
o-Xylene	2.01	0.050	mg/kg	2.00		100	86.1-125	10.3	16.7	
Total Xylenes	5.96	0.150	mg/kg	6.00		99.4	88.2-128	9.49	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0496		mg/kg	0.0500		99.2	71.5-134			

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**Analytical Results For:**

ENSOLUM  
3122 NATIONAL PARKS HWY  
CARLSBAD NM, 88220

Project: BEU DI 4 BATTERY  
Project Number: 03C1558522  
Project Manager: BEN BELILL  
Fax To:

Reported:  
13-Jan-25 16:29

**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 4121925 - General Prep - Organics****Blank (4121925-BLK1)**

Prepared: 19-Dec-24 Analyzed: 20-Dec-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	44.8		mg/kg	50.0		89.5	48.2-134			
Surrogate: 1-Chlorooctadecane	50.3		mg/kg	50.0		101	49.1-148			

**LCS (4121925-BS1)**

Prepared: 19-Dec-24 Analyzed: 20-Dec-24

GRO C6-C10	216	10.0	mg/kg	200		108	81.5-123			
DRO >C10-C28	199	10.0	mg/kg	200		99.7	77.7-122			
Total TPH C6-C28	416	10.0	mg/kg	400		104	80.9-121			
Surrogate: 1-Chlorooctane	48.1		mg/kg	50.0		96.2	48.2-134			
Surrogate: 1-Chlorooctadecane	51.7		mg/kg	50.0		103	49.1-148			

**LCS Dup (4121925-BS1)**

Prepared: 19-Dec-24 Analyzed: 20-Dec-24

GRO C6-C10	213	10.0	mg/kg	200		106	81.5-123	1.58	13	
DRO >C10-C28	197	10.0	mg/kg	200		98.3	77.7-122	1.43	15.6	
Total TPH C6-C28	409	10.0	mg/kg	400		102	80.9-121	1.51	18.5	
Surrogate: 1-Chlorooctane	47.4		mg/kg	50.0		94.8	48.2-134			
Surrogate: 1-Chlorooctadecane	51.0		mg/kg	50.0		102	49.1-148			

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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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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

[illegible]



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

QUESTIONS

Action 431274

QUESTIONS

Operator:  XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID:  5380
	Action Number:  431274
	Action Type:  [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2424035474
Incident Name	NAPP2424035474 BIG EDDY UNIT DI 4 BATTERY @ 0
Incident Type	Produced Water Release
Incident Status	Deferral Request Received
Incident Facility	[fAPP2123044252] BIG EDDY UNIT DI 4

Location of Release Source	
Please answer all the questions in this group.	
Site Name	BIG EDDY UNIT DI 4 BATTERY
Date Release Discovered	08/19/2024
Surface Owner	Federal

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

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Not answered.
Produced Water Released (bbls) Details	Cause: Equipment Failure   Pump   Produced Water   Released: 21 BBL   Recovered: 20 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.

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QUESTIONS, Page 2

Action 431274

**QUESTIONS (continued)**

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 431274
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

**QUESTIONS**

<b>Nature and Volume of Release (continued)</b>	
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: Alan Romero Title: Regulatory Analyst Email: alan.romero1@exxonmobil.com Date: 08/27/2024
--	--

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QUESTIONS, Page 3

Action 431274

**QUESTIONS (continued)**

Operator:  XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID:
	5380
	Action Number: 431274
Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)	

**QUESTIONS**

<b>Site Characterization</b>	
<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
<b>What is the minimum distance, between the closest lateral extents of the release and the following surface areas:</b>	
A continuously flowing watercourse or any other significant watercourse	Between ½ and 1 (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 ½ and 1 (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

<b>Remediation Plan</b>	
<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
<b>Soil Contamination Sampling:</b> (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	23600
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	350
GRO+DRO (EPA SW-846 Method 8015M)	141
BTEX (EPA SW-846 Method 8021B or 8260B)	0
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	11/07/2024
On what date will (or did) the final sampling or liner inspection occur	01/20/2025
On what date will (or was) the remediation complete(d)	01/20/2025
What is the estimated surface area (in square feet) that will be reclaimed	780
What is the estimated volume (in cubic yards) that will be reclaimed	260
What is the estimated surface area (in square feet) that will be remediated	780
What is the estimated volume (in cubic yards) that will be remediated	260
<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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**Santa Fe, NM 87505**

QUESTIONS, Page 4

Action 431274

**QUESTIONS (continued)**

Operator:  XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID:  5380
	Action Number:  431274
	Action Type:  [C-141] Deferral Request C-141 (C-141-v-Deferral)

**QUESTIONS**

<b>Remediation Plan (continued)</b>	
<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>	
<b>This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:</b>	
<i>(Select all answers below that apply.)</i>	
(Ex Situ) Excavation and <b>off-site</b> disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for <b>off-site</b> disposal	HALFWAY DISPOSAL AND LANDFILL [FEEM0112334510]
<b>OR</b> which OCD approved well (API) will be used for <b>off-site</b> disposal	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, out-of-state	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and <b>on-site</b> remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.
<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: Ashley McAfee Email: <a href="mailto:ashley.a.mcafee@exxonmobil.com">ashley.a.mcafee@exxonmobil.com</a> Date: 02/12/2025
<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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QUESTIONS, Page 5

Action 431274

**QUESTIONS (continued)**

Operator:  XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID:  5380
	Action Number:  431274
	Action Type:  [C-141] Deferral Request C-141 (C-141-v-Deferral)

**QUESTIONS**

<b>Deferral Requests Only</b>	
<i>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.</i>	
Requesting a deferral of the remediation closure due date with the approval of this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	Yes
Is the remaining contamination in areas immediately under or around production equipment where remediation could cause a major facility deconstruction	Yes
Please list or describe the production equipment and how (re)moving the equipment would cause major facility deconstruction	surface pipelines pipeline support beams pipeline risers buried electrical lines surface electrical lines.
What is the remaining surface area (in square feet) that will still need to be remediated if a deferral is granted	780
What is the remaining volume (in cubic yards) that will still need to be remediated if a deferral is granted	260
<i>Per Paragraph (2) of Subsection C of 19.15.29.12 NMAC if contamination is located in areas immediately under or around production equipment such as production tanks, wellheads and pipelines where remediation could cause a major facility deconstruction, the remediation, restoration and reclamation may be deferred with division written approval until the equipment is removed during other operations, or when the well or facility is plugged or abandoned, whichever comes first.</i>	
Enter the facility ID (f#) on which this deferral should be granted	BIG EDDY UNIT DI 4 [fAPP2123044252]
Enter the well API (30-) on which this deferral should be granted	Not answered.
Contamination does not cause an imminent risk to human health, the environment, or groundwater	True
<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: Ashley McAfee Email: ashley.a.mcafee@exxonmobil.com Date: 02/12/2025

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 6

Action 431274

**QUESTIONS (continued)**

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 431274
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

**QUESTIONS**

Sampling Event Information	
Last sampling notification (C-141N) recorded	411745
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	12/20/2024
What was the (estimated) number of samples that were to be gathered	20
What was the sampling surface area in square feet	4000

**Remediation Closure Request**

Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.

Requesting a remediation closure approval with this submission	No
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CONDITIONS

Action 431274

CONDITIONS

Operator:  XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID:  5380
	Action Number:  431274
	Action Type:  [C-141] Deferral Request C-141 (C-141-v-Deferral)

CONDITIONS

Created By	Condition	Condition Date
scwells	Deferral approved. Deferral of BH01 and SS04 is approved until plugging and abandonment or a major facility deconstruction, whichever comes first. A complete and accurate remediation report and/or reclamation report will need to be submitted at that time.	2/17/2025