



February 4, 2025

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

**Re: Remediation Work Plan
Big Eddy Unit 248H and 249H
Incident Numbers: nAPP2418043567, nAPP2432147637, nAPP2432531235, &
nAPP2502042071
API: 30-015-40714 & 30-015-40715
Eddy County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared the following *Remediation Work Plan (Work Plan)* to document the assessment and delineation activities completed to date and propose a plan to address impacted soil identified at the Big Eddy Unit 248H and Big Eddy Unit 249H (Site), where a total of four releases occurred on the same pad. The purpose of the assessment and delineation activities was to assess the lateral and vertical extent of impacted soil resulting from multiple releases of produced water and crude oil at the Site. The following *Work Plan* proposes to excavate impacted soil within the release extent areas.

SITE DESCRIPTION AND RELEASE BACKGROUND

All releases occurred in Eddy County, New Mexico (32.62087°, -103.83145°), at the Big Eddy Unit 248H and Big Eddy Unit 249H wellhead locations. Release extent areas located west of the wellheads are located in Unit A, Section 35, Township 19 South, Range 31 East, and are associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM). Release extent areas located east of the wellheads are located in Unit D, Section 36, Township 19 South, and Range 31 on State Land managed by New Mexico State Land Office (SLO) under Lease ID V0-6323-0003.

Incident Number: nAPP2418043567

On June 21, 2024, the packing on the wellhead stuffing box failed, resulting in the release of approximately 5 barrels (bbls) of crude oil and 9 bbls of produced water onto the surface of the pad and lightly over-spraying the northwest area of the pad and surrounding pasture following the dominant wind direction that day. A vacuum truck was immediately dispatched to the Site to recover free-standing fluids; approximately 5 bbls of fluids were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) and submitted a Notification of Release (NOR) and Initial C-141 Application (C-141) on June 28, 2024. The release was assigned Incident Number nAPP2418043567.

On September 20, 2024, XTO submitted a Remediation Work Plan (*September 2024 Work Plan*) to the NMOCD describing Site assessment and delineation activities completed. The *September 2024 Work Plan* proposed the following remediation activities:

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- Excavation of an estimated 1,500 cubic yards of total petroleum hydrocarbon (TPH)- and chloride-impacted soil to be removed;
- The excavation will be backfilled and recontoured to match pre-existing conditions. Reclamation and reseeding of the on-pad area will occur during pad abandonment; and
- The area of investigation will continue to be monitored, and photo documentation of the vegetation will be included in the final *Closure Report*.

On November 6, 2024, NMOCD approved the *September 2024 Work Plan* with the following conditions:

All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards from Table 1 of the OCD Spill Rule for site assessment/characterization/proven depth to water determination. Sidewall/Edge samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. The release area will need confirmation floor/sidewall samples representing no more than 200 ft². All sidewall samples should be taken from the sidewall of the excavation. Please make sure that the edge of the release extent is accurately defined. Confirmation samples will need to be conducted at surface and at 0.5 feet in the "Area of Investigation" to ensure that contaminants didn't get carried/deposited in this area. All off-pad areas must meet reclamation/revegetation standards set forth in the OCD Spill Rule.

On January 16, 2025, and after Site discussions with the NMOCD, XTO requested a sampling variance for the "area of investigation" confirmation floor soil sample size to be 1,000 square feet. The NMOCD approved the sampling variance the same day.

Incident Numbers: nAPP2432147637, nAPP2432531235, and nAPP2502042071

On November 16, 2024, the packing on the stuffing box of the Big Eddy Unit 249H well failed, resulting in the release of approximately 10 bbls of crude oil onto the surface of the well pad. No fluids were recovered. XTO reported the release to the NMOCD and submitted a NOR and C-141 on November 16, 2024. The release was assigned Incident Number nAPP2432147637.

On November 19, 2024, an equipment failure at the Big Eddy Unit 248H wellhead resulted in the release of approximately 22 bbls of crude oil and 1 bbls of produced water onto the surface of the well pad. Four bbls of fluids were recovered. XTO reported the release to the NMOCD and submitted a NOR and C-141 on November 20, 2024. The release was assigned Incident Number nAPP2432531235.

On January 17, 2025, an equipment failure at the Big Eddy Unit 249H wellhead resulted in the release of approximately 33 bbls of crude oil and 29 bbls of produced water onto the surface of the pad. A vacuum truck was immediately dispatched to the Site to recover free-standing fluids; approximately 35 bbls of fluids were recovered. Furthermore, approximately 73 thousand cubic feet (Mcf) of natural gas were vented during the release. XTO reported the release to the NMOCD and submitted a NOR and C-141 on November 20, 2024. The release was assigned Incident Number nAPP2502042071.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site was characterized to assess the applicability of Table I, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC). Results from the characterization desktop review are presented below.

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Based on the results of the Site Characterization, presented in the approved *September 2024 Work Plan*, the following NMOCD Table I Closure Criteria (Closure Criteria) apply:

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

NMSLO CULTURAL RESOURCES AND BIOLOGICAL REVIEW

Cultural Properties Protection

Since the release occurred on the well pad in the area governed by SLO, the Site is exempt from the Cultural Properties Protection Rule (CPP). As such, no additional cultural resource surveys were completed in connection with these releases.

Biological Review

Ensolum personnel conducted a desktop review to establish if the Site is within an area of possible threatened, endangered, and sensitive wildlife and plant species, environmentally sensitive areas, surface waters, and sensitive soils.

- A review of the U.S. Fish and Wildlife Services Information for Planning and Consultation (IPaC) resources indicated there are no critical wildlife habitats at the Site. A review of the Bureau of Land Management (BLM) New Mexico Plant Wildlife Habitat maps indicated potential habitats for Dunes Sage Brush Lizard and Lesser Prairie Chicken near the Site. Threatened and endangered species are potentially present in the area surrounding the Site; however, no native vegetation outside of the well pad extent will be disturbed during remediation activities.
 - From March 1st through June 15th, no remediation activities will occur between the hours of 3:00 am to 9:00 am to protect any Lesser Prairie Chickens within the area.
- No sensitive receptors were identified near the Site as determined by the Site Characterization. The strictest Table I Closure Criteria is being applied to the Site due to a lack of recent depth to groundwater within 0.5 miles.
- The Natural Resources Conservation Service (NRCS) Web Soil Survey classifies the soil type at the Site as Wink loamy fine sand. The Wink loamy fine sand is not considered a sensitive soil per the SLO guidelines. The release occurred on the caliche surface of the well pad limiting contact with potentially sensitive native soil.

SITE ASSESSMENT ACTIVITIES

On November 20, 2024 and January 17, 2025, Ensolum personnel conducted Site assessment activities to evaluate the three additional releases based on information provided on the C-141 and visual observations. Ensolum personnel mapped the four releases utilizing a handheld Global Positioning System (GPS) unit. It was confirmed that the November 2024 and January 2025 releases overlapped the proposed area of excavation presented in the *September 2024 Work Plan*, but did not overlap the area of investigation. All release extent areas are depicted on Figure 1. Both November 2024 release extents covered the same area and are presented on Figure 1 as a single release extent.

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ADDITIONAL DELINEATION SOIL SAMPLING ACTIVITIES

On January 31, 2025, Ensolum conducted delineation activities. Five potholes (PH01 through PH05) were advanced within the release extent via backhoe to a maximum depth of 9 feet below ground surface (bgs). Discrete soil samples were collected from each delineation pothole at depths ranging from 0.5 feet to 9 feet bgs. Due to open excavations from ongoing remediation activities conducted for Incident Number nAPP2418043567, delineation pothole PH01 was advanced in the open excavation where discrete soil sampling started at 5 feet bgs and delineation pothole PH04 began at 1-foot 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 A. Delineation pothole locations are depicted on Figure 1. Photographic documentation was completed during all Site visits and is presented on a Photographic Log included in Appendix B.

The delineation soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to Cardinal Laboratories (Cardinal) in Hobbs, New Mexico, for analysis of the following constituents of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following Standards Method SM4500.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for all delineation soil samples collected in PH01, collected on January 31, 2025, indicated all COCs were in compliance with Closure Criteria. Laboratory analytical results for soil sample PH02, collected at 1-foot bgs on January 31, 2025, contained elevated TPH concentrations that were within range of the concentrations detected from a sample collected from the same location in 2024. Laboratory analytical results for pothole PH03 indicated chloride concentrations exceeded Closure Criteria at 1-foot bgs but were in compliance with Closure Criteria at 4 feet bgs, successfully defining the vertical extent of that release area. Delineation soil sample PH04, collected at 4 feet bgs, indicated TPH and chloride concentrations exceeded Closure Criteria. The soil sample collected from PH05 at 1-foot bgs contained elevated BTEX, TPH, and chloride concentrations. The sample collected one foot deeper (PH05 at 2 feet bgs) did not exceed Closure Criteria for VOCs, but remained elevated for chloride. All other delineation soil samples collected on January 31, 2025, indicated COC concentrations were in compliance with Closure Criteria. All laboratory analytical results are summarized on Table 1. This includes all soil samples collected before January 31, 2025, which are presented in the *September 2024 Work Plan* included in Appendix C. All laboratory analytical reports are included in Appendix D.

PROPOSED REMEDIATION WORK PLAN

The delineation soil sampling results indicated soil containing elevated BTEX, TPH, and chloride concentrations exists across an approximate 34,375 square foot area in the release extents on pad and extends to depths ranging from 0.5 feet to 4 feet bgs. As such, XTO proposes to complete the following remediation activities:

- Excavation of impacted soil will proceed vertically and laterally until confirmation floor and sidewall soil samples confirm all COC concentrations are compliant with the Closure Criteria. The proposed excavation extent is depicted in Figure 2;

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- An estimated 3,800 cubic yards of impacted soil will be excavated. The excavated soil will be transferred a New Mexico approved landfill facility for disposal;
- As stated in the approved sampling variance for Incident Number nAPP2418043567, the “area of investigation” will be composite sampled in a 1,000 square-foot sampling frequency. The initial proposed excavation for Incident Number nAPP2418043567 will be sampled in a 200 square-foot sampling frequency. The approved sampling variance email is provided in Appendix E;
- Due to the size of the release extent for the November 2024 and January 2025 releases, XTO requests a variance for the frequency of confirmation soil samples. XTO proposes 5-point composite soil samples to be collected at a sampling frequency of 400 square feet along the excavation floor, outside of the June 21, 2024 release extent area, and a sampling frequency of 200 square feet along all excavation sidewalls. The proposed sampling frequency would reduce the total number of samples from approximately 395 confirmation soil samples (200 square feet) to approximately 339 confirmation soil samples. The soil samples will be handled and submitted for the same COCs described above. The NMOCD approved sampling grid is presented on Figure 2 and the newly proposed sampling grid is presented on Figure 3; and,
- The excavation will be backfilled and recontoured to match pre-existing conditions. Reclamation and reseeded of the on-pad area will occur during pad abandonment.

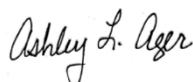
XTO will complete the excavation and soil sampling activities within 90 days of the date of approval of this *Work Plan* by the NMOCD.

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

Sincerely,
Ensolum, LLC



Tracy Hillard
Project Engineer



Ashley Ager, PG, MS
Principal

cc: Ashley McAfee, XTO
Kaylan Dirkx, XTO
New Mexico State Land Office
Bureau of Land Management

Appendices:

- Figure 1 Delineation Soil Sample Locations
- Figure 2 Proposed Excavation Extent - 200 Square Foot Frequency
- Figure 3 Proposed Excavation Extent - 400 Square Foot Frequency
- Table 1 Soil Sample Analytical Results
- Appendix A Lithologic / Soil Sampling Logs
- Appendix B Photographic Log
- Appendix C *Remediation Work Plan*; dated September 20, 2024

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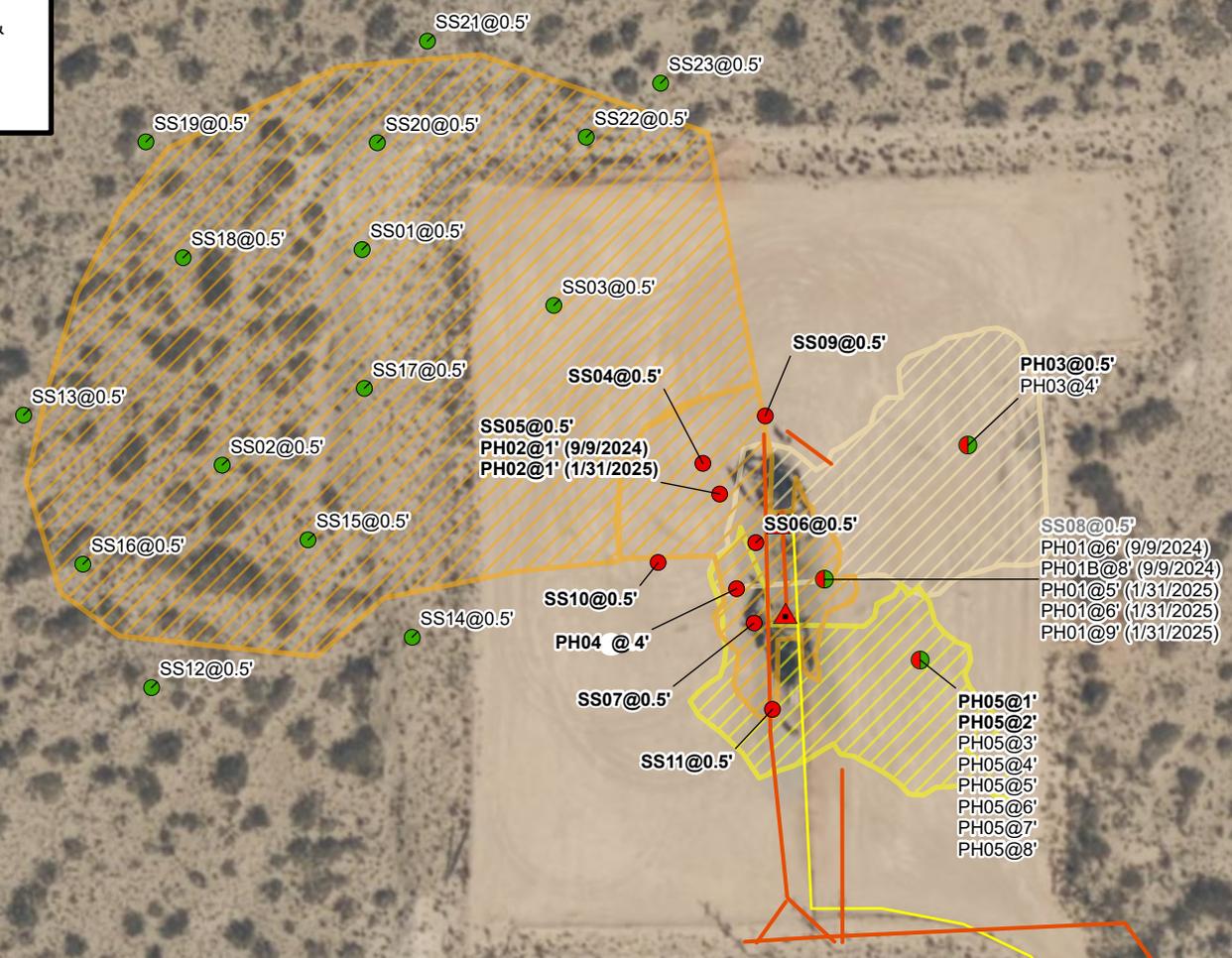
Appendix D Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix E NMOCD Correspondence



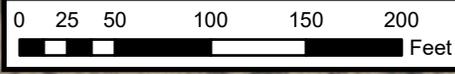
FIGURES

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
- Release Extent - nAPP2418043567
- Release Extent - nAPP24321476375 & nAPP2432531235
- Release Extent - nAPP2502042071



Notes:
 Sample ID @ Depth Below Ground Surface.
 Samples in bold indicate sample exceeded applicable closure criteria.
 Grey text indicate soil sample was removed during excavation activities.



Sources: Environmental Systems Research Institute (ESRI)

Delineation Soil Sample Locations

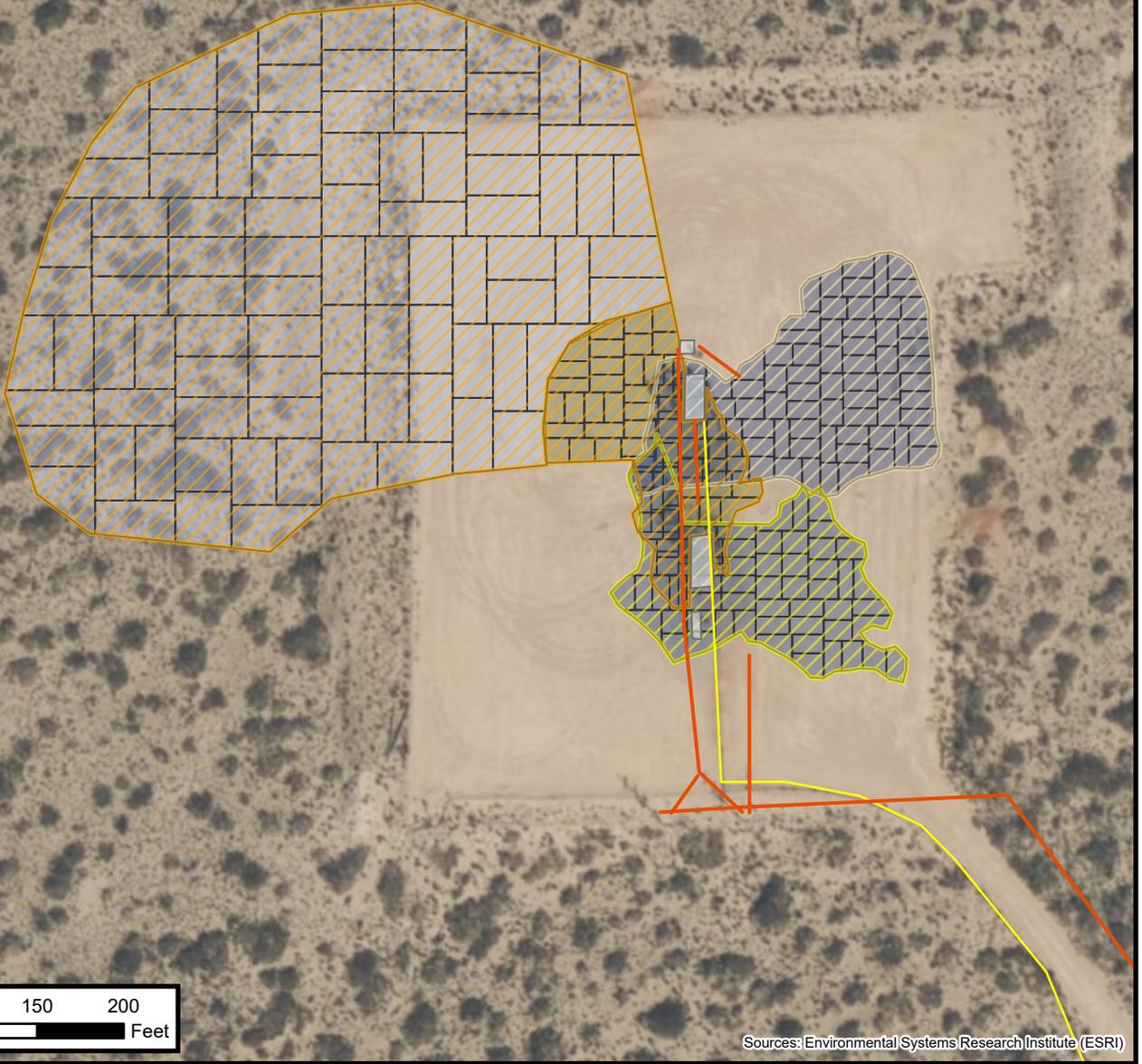
XTO Energy, Inc
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 Incident Numbers: nAPP2418043567,
 nAPP2432147637, nAPP2432531235, and nAPP2502042071
 Unit A, Section 35, T 19S, R 31E
 Eddy County, New Mexico

FIGURE 1

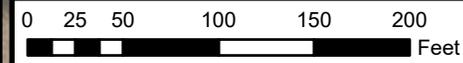


Legend

-  Electric Utility Line
-  Oil and Gas Utility Line
-  Release Extent - nAPP2418043567
-  Release Extent - nAPP24321476375 & nAPP2432531235
-  Release Extent - nAPP2502042071
-  Production Equipment
-  Sample Grid 1000 Sqft
-  Sample Grid 200 Sqft
-  Sample Grid 200 Sqft



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Sources: Environmental Systems Research Institute (ESRI)



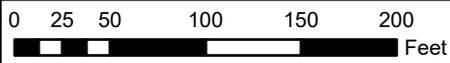
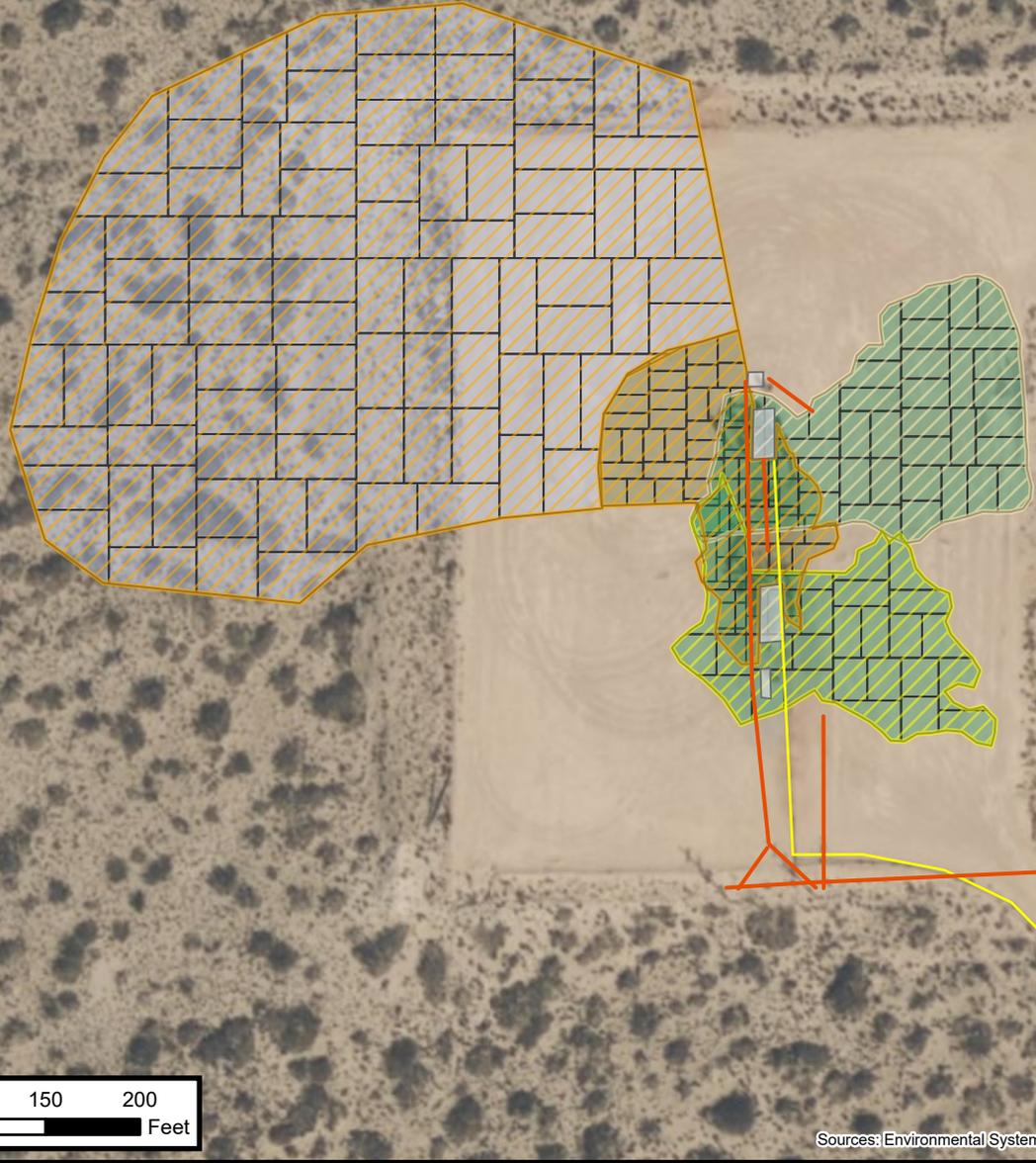
Proposed Excavation Extent - 200 square foot frequency

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 Big Eddy Unit 248H and 249H
 Incident Numbers: nAPP2418043567,
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 Unit A, Section 35, T 19S, R 31E
 Eddy County, New Mexico

FIGURE
2

Legend

-  Electric Utility Line
-  Oil and Gas Utility Line
-  Production Equipment
-  Release Extent - nAPP2418043567
-  Release Extent - nAPP24321476375 & nAPP2432531235
-  Release Extent - nAPP2502042071
-  Sample Grid 1000 Sqft
-  Sample Grid 200 Sqft
-  Sample Grid 400 Sqft



Sources: Environmental Systems Research Institute (ESRI)



Proposed Excavation Extent - 400 square foot frequency
 XTO Energy, Inc
 Big Eddy Unit 248H and 249H
 Incident Numbers: nAPP2418043567,
 nAPP2432147637, nAPP2432531235, and nAPP2502042071
 Unit A, Section 35, T 19S, R 31E
 Eddy County, New Mexico

FIGURE
3



TABLES



**TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Big Eddy Unit 248H and 249H
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	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SS02	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS03	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	240
SS04	07/29/2024	0.5	<0.050	<0.300	<10.0	182	55.3	182	237	560
SS05	07/29/2024	0.5	<0.050	<0.300	<10.0	1,870	465	1,870	2,335	1,650
PH02	09/09/2024	1	<0.050	<0.300	<10.0	87.4	13.3	87.4	101	192
PH02	01/31/2025	1	<0.050	<0.300	<10.0	135	54.7	135	190	176
SS06	07/29/2024	0.5	<0.050	5.16	75.7	2,710	613	2,786	3,399	1,250
SS07	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	640
SS08	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	13,600
PH01	09/09/2024	6	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	752
PH01B	09/09/2024	8	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
PH01	01/31/2025	5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	224
PH01	01/31/2025	6	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	256
PH01	01/31/2025	9	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	144
SS09	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	1,060
SS10	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	1,570
SS11	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	1,060
SS12	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS13	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SS14	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS15	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS16	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS17	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS18	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS19	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0



**TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Big Eddy Unit 248H and 249H
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
SS20	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS21	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS22	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS23	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
PH03	01/31/2025	1	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	4,040
PH03	01/31/2025	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	80.0
PH04	01/31/2025	4	<0.050	<0.300	<10.0	179	41.8	179	221	1,010
PH05	01/31/2025	1	1.15	53.1	419	1,550	277	1,969	2,246	2,480
PH05	01/31/2025	2	<0.050	0.474	<10.0	20.7	<10.0	20.7	20.7	640
PH05	01/31/2025	3	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	144
PH05	01/31/2025	4	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
PH05	01/31/2025	5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
PH05	01/31/2025	6	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
PH05	01/31/2025	7	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
PH05	01/31/2025	8	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0

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

Lithologic Soil Sampling Logs

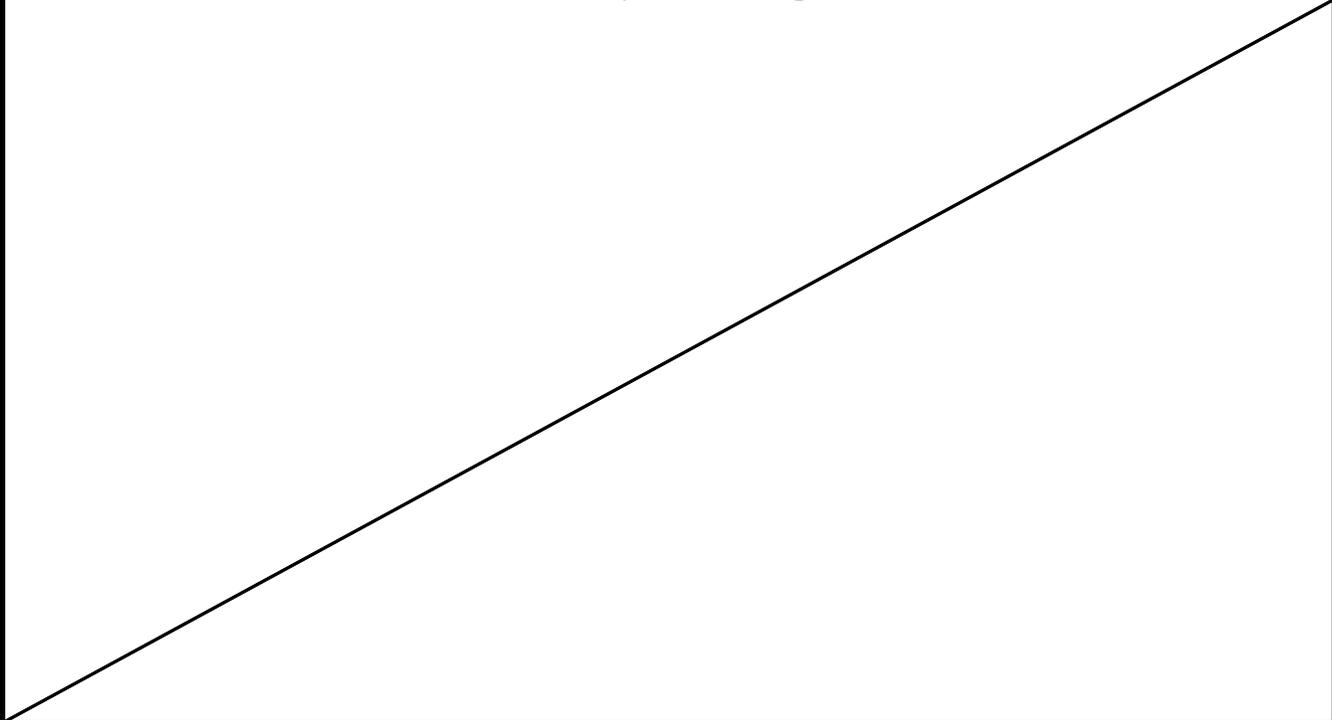
		Sample Name: PH01	Date: 9/9/2024					
		Site Name: Big Eddy Unit 248H						
		Incident Number: NAPP2418043567						
		Job Number: 03C1558453						
LITHOLOGIC / SOIL SAMPLING LOG								
Coordinates: 32.620931, -103.831294		Hole Diameter: 24"	Method: Backhoe					
			Total Depth: 8'					
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 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
D	12,611	0.0	N	SS08	0.5	0	CCHE	(0-8') CALICHE, tan, fine grained, some sand, well sorted, no odor
						1		
						2		
						3		
						4		Soil excavated to 4' bgs between 9/4/24 and 9/9/2024
						5		
D	929.6	0.0		PH01	6	6		
D	1,495	0.0				7		
D	<162	0.0		PH01A	8	8		
						Total Depth @ 8 feet bgs		

					Sample Name: PH01		Date: 1/31/2025			
					Site Name: Big Eddy Unit 248H & 249H				Incident Numbers: nAPP2418043567, nAPP2432147637, nAPP2432531235, & nAPP2502042071	
					LITHOLOGIC / SOIL SAMPLING LOG				Logged By: ER	
Coordinates: 32.620930, -103.831295					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. 40% correction factors included.										
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions		
						0		(0-5') Open excavation		
						1				
						2				
						3				
						4				
D	274	0.4	Y	PH01	5	5	CCHE	(0-9') CALICHE, tan-gray, coarse - fine grained, non-cohesive		
D	162	0.4	Y	PH01	6	6				
D	<162	0.7	Y			7				
D	<162	0.6	Y			8				
D	<162	0.5	Y	PH01	9	9	SP-SC	(@9') SAND, brown, fine to medium grained sand w/silt		
Total Depth @ 9 feet bgs										

		Sample Name: PH02		Date: 9/9/2024				
		Site Name: Big Eddy Unit 248H						
		Incident Number: NAPP2418043567						
		Job Number: 03C1558453						
LITHOLOGIC / SOIL SAMPLING LOG								
Coordinates: 32.621056, -103.831474			Logged By: JD		Method: Backhoe			
			Hole Diameter: 24"		Total Depth: 1'			
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
D	1,609	24.8	Y	SS05	0.5	0	CCHE	(0-1') CALICHE, tan, fine grained, some sand, well sorted, odor
D	201.6	0.0	N	PH02	1	1		(@1') no odor
						Total Depth @ 1-foot bgs		

					Sample Name: PH02		Date: 1/31/2025	
					Site Name: Big Eddy Unit 248H & 249H			
					Incident Numbers: nAPP2418043567, nAPP2432147637, nAPP2432531235, & nAPP2502042071			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: ER		Method: BackHoe	
Coordinates: 32.621056, -103.831472					Hole Diameter: 3'		Total Depth: 1'	
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 40% correction factors included.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
D	<162	0.2	Y	PH02	1	0 1	CCHE	(0-1') CALICHE, tan, fine to coarse grained, w/ silt
						Total Depth @ 1-foot bgs		

							Sample Name: PH03		Date: 1/31/2025			
							Site Name: Big Eddy Unit 248H & 249H				Incident Numbers: nAPP2418043567, nAPP2432147637, nAPP2432531235, & nAPP2502042071	
							LITHOLOGIC / SOIL SAMPLING LOG				Logged By: ER	
Coordinates: 32.621123, -103.831045							Hole Diameter: 3'		Total Depth: 4'			
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 40% correction factors included.												
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions				
D	4356	0.2	Y	PH03	1	0	CCHE	(0-4') CALICHE, grey-brown, fine to coarse grained, non-cohesive, w/silt				
D	1540	0.1	Y		2							
D	1713	0.0	Y		3							
D	<162	0.5	Y	PH03	4	4						
Total depth @ 4 feet bgs												

					Sample Name: PH04		Date: 1/31/2025			
					Site Name: Big Eddy Unit 248H & 249H				Incident Numbers: nAPP2418043567, nAPP2432147637, nAPP2432531235, & nAPP2502042071	
					LITHOLOGIC / SOIL SAMPLING LOG		Logged By: ER		Method: BackHoe	
Coordinates: 32.620918, -103.831444					Hole Diameter: 3'		Total Depth: 4'			
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 40% correction factors included.										
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions		
						0 1 2 3 4		(0-1') Open excavation		
D	464	0.4	Y	PH04	4	4	CCHE	(@4') CALICHE, tan-grey, fine to medium grained, w/ silt, non-cohesive		
Total Depth @ 4 feet bgs										
										

							Sample Name: PH05		Date: 1/31/2025			
							Site Name: Big Eddy Unit 248H & 249H				Incident Numbers: nAPP2418043567, nAPP2432147637, nAPP2432531235, & nAPP2502042071	
							LITHOLOGIC / SOIL SAMPLING LOG				Logged By: ER	
Coordinates: 32.620811, -103.831131							Hole Diameter: 3'		Total Depth: 8'			
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 40% correction factors included.												
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions				
						0	CCHE	(0-8') CALICHE, tan-grey, fine to medium grained, w/ silt, non-cohesive				
D		554.6	Y	PH05	1	1						
D		70.2	Y	PH05	2	2						
D		32.3	Y	PH05	3	3						
D		35.9	Y	PH05	4	4						
D		27.7	Y	PH05	5	5						
D	<162	5.8	Y	PH05	6	6						
D		10.7	Y	PH05	7	7						
D	<162	4.6	Y	PH05	8	8						
Total Depth @ 8 feet bgs												



APPENDIX B

Photographic Log



Photographic Log

XTO Energy, Inc
Big Eddy Unit 248H and 249H
nAPP2418043567, nAPP2432147637,
nAPP2432531235, & nAPP2502042071



Photograph: 1 Date: 11/20/2024
Description: Soil staining - nAPP2432147637, nAPP2432531235
View: North

Photograph: 2 Date: 1/17/2025
Description: Soil staining - nAPP2502042071
View: North



Photograph: 3 Date: 1/31/2025
Description: Delineation activities
View: West

Photograph: 4 Date: 1/31/2025
Description: Delineation activities
View: Northwest



APPENDIX C
Remediation Work Plan;
dated September 20, 2024



September 19, 2024

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

**Re: Remediation Work Plan
Big Eddy Unit 248H
Incident Number NAPP2418043567
Eddy County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared the following *Remediation Work Plan (Work Plan)* to document the site assessment activities completed to date and propose a plan to address impacted soil identified at the Big Eddy Unit 248H (Site). The purpose of the site assessment activities was to assess the lateral and vertical extent of impacted soil resulting from a release of produced water and crude oil at the Site. The following *Work Plan* proposes to excavate impacted soil within the release extent.

SITE DESCRIPTION AND RELEASE SUMMARY

The release was initially reported at the incorrect location but following a review of initial release records, internal documents, and personnel communications, it was confirmed the release is located on the Big Eddy Unit 248H well pad. The majority of the release is located in Unit A, Section 35, Township 19 South, Range 31 East, in Eddy County, New Mexico (32.62087°, -103.83145°) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM). However, a portion of the release occurred on State Land managed by New Mexico State Land Office (SLO) in Unit D, Section 36, Township 19 South, and Range 31 East.

On June 21, 2024, the packing on the stuffing box of the well failed, resulting in the release of approximately 5 barrels (bbls) of crude oil and 9 bbls of produced water onto the surface of the pad and lightly over-spraying the northwest area of the pad and surrounding pasture due the dominant wind direction that day. A vacuum truck was immediately dispatched to the Site to recover free-standing fluids; approximately 5 bbls of fluids were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) and submitted a Notification of Release (NOR) and Initial C-141 Application (C-141) on June 28, 2024. The release was assigned Incident Number NAPP2418043567.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site was characterized to assess the applicability of Table I, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC). Results from the characterization desktop review are presented below. Potential site receptors are identified on Figure 1.

Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater well with depth to

XTO Energy, Inc.
Remediation Work Plan
Big Eddy Unit 248H

groundwater data is New Mexico Office of the State Engineer (NMOSE) well CP-641, located approximately 0.4 miles southeast of the Site. The depth to groundwater in the well, 130 feet bgs, was most recently measured on February 23, 1982. All wells used for depth to water determination are depicted on Figure 1 and the referenced well records are included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a lakebed approximately 12,400 feet southeast of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area).

Based on the nearest groundwater data exceeding 25 years in age, and no other data available within 0.5 miles as preferred by the NMOCD, the following Table I Closure Criteria (Closure Criteria) apply:

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

CULTURAL PROPERTIES

Since the release remained on pad in the area governed by SLO, the Site is exempt from the Cultural Properties Protection (CPP) Rule. As such no additional cultural resource surveys were completed in connection with this release.

SITE ASSESSMENT ACTIVITIES

On July 29, 2024, Ensolum personnel conducted a Site assessment to evaluate the release based on information provided on the C-141 and visual observations. Ensolum personnel identified the release extent, approximately 10,700 square feet, based on visual observations of stained soil. Ensolum personnel also identified an approximately 88,300 square-foot area in the northwest corner of the pad and pasture where high winds had carried a *de minimus* volume of fluid spray from the release. This area is considered an area of investigation. Ensolum personnel collected thirteen delineation soil samples (SS01 through SS13) within and around the release extent and area of investigation. The delineation soil samples were collected at a depth of 0.5 feet bgs to determine the presence or absence of impacted soil. The delineation soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. The release extent, area of investigation, and delineation soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2.

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 constituents of concern (COCs): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following Standards Method SM4500. Based on field screenings and laboratory analytical results, additional delineation of the release extent and further assessment of the area of investigation in the northwest corner of the pad and pasture was warranted.

XTO Energy, Inc.
Remediation Work Plan
Big Eddy Unit 248H

DELINEATION SOIL SAMPLING ACTIVITIES

On September 9, 2024, Ensolum returned to the Site to remove gross impacts and conduct additional delineation. Saturated soil was removed around the wellhead, but field screening results for VOCs and chloride in excavation soil samples indicated additional excavation was warranted. As such, two potholes (PH01 and PH02) were advanced within the release extent via a backhoe. Pothole PH01 was advanced within the excavation area near SS08 to a depth of 8 feet bgs. Pothole PH02 was advanced to 1-foot bgs and was located in the vicinity of SS05. Discrete delineation soil samples were collected from PH01 at 6 feet and 8 feet bgs and from PH02 at 1-foot bgs. Soil from the potholes was field screened, handled, and analyzed for the same COCs as described above. Field screening results and observations were logged on lithologic/soil sampling logs, which are included in Appendix B. Both delineation pothole locations are depicted on Figure 2. Photographic documentation was completed during all Site visits and is presented on a Photographic Log included in Appendix C.

On September 17, 2024, in order to further assess the area of investigation, Ensolum personnel collected ten additional delineation soil samples (SS14 through SS23) at a depth of 0.5 feet bgs within and around the area of investigation. The delineation soil samples were handled and analyzed following the same procedures described above.

Laboratory analytical results for delineation soil samples collected at 0.5 feet bgs within the release extent indicated TPH and chloride concentrations exceeded the Closure Criteria. Laboratory analytical results for the terminal depths of PH01 and PH02 indicated that all COCs were compliant with Closure Criteria and successfully defined the vertical extent of impacted soil. Laboratory analytical results for delineation soil samples collected at 0.5 feet bgs within and around the area of investigation in the northwest corner of the pad and surrounding pasture indicated all COCs were compliant with the Closure Criteria and confirmed the absence of impacted soil in that area. All laboratory analytical results are summarized on Table 1 and laboratory analytical reports are included in Appendix D.

VEGETATION SURVEY ACTIVITIES

On September 13, 2024, Ensolum personnel conducted a vegetation survey utilizing the line-point intercept (LPI) method to assess for the presence or absence of any biological indications of stress to the vegetation in the area of investigation. A staff biologist completed 1 LPI transect within the area of investigation and 1 LPI transect to the north in an undisturbed area. Each transect was 100 feet in length and mapped utilizing a handheld GPS unit as depicted on Figure 3. The staff biologist noted each time vegetation intersected the transect and recorded the length of the vegetation along the transect. The transects were completed along the same slope and direction. The staff biologist also recorded the observed health of the plant. Some stressed vegetation, that was indicative of heat stress and natural conditions, was noted throughout the area of investigation and surrounding pasture area. No indications of stress from the potential overspray were observed.

The LPI transect completed in an undisturbed area to the north, LPI-1, indicated a vegetation coverage of 27 percent (%). The LPI transect LPI-2 was completed in the area of investigation and indicated vegetation coverage of 26%. These observations suggest there have been no significant impacts to the vegetation in the area of investigation. The vegetation survey was conducted over 2 months after the release date, during which time any impacts would have become clearly visible. In addition, all laboratory analytical results for delineation soil samples collected in the area of investigation confirmed the absence of impacted soil in the area. Photographic documentation of the vegetation survey is presented in a Photographic Log provided in Appendix C.

XTO Energy, Inc.
Remediation Work Plan
Big Eddy Unit 248H

PROPOSED REMEDIATION WORK PLAN

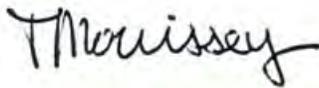
The delineation soil sampling results indicate soil containing elevated TPH and chloride concentrations exists across an approximate 10,700 square foot area in the release extent on pad and extends to depths ranging from 0.5 feet to 8 feet bgs. As such, XTO proposes to complete the following remediation activities:

- Excavation of TPH and chloride impacted soil has begun and will proceed vertically and laterally until sidewall samples confirm all COC concentrations are compliant with the Closure Criteria. The proposed excavation extent is depicted in Figure 4.
- An estimated 1,500 cubic yards of impacted soil will be excavated. The excavated soil will be transferred a New Mexico approved landfill facility for disposal.
- The excavation will be backfilled and recontoured to match pre-existing conditions. Reclamation and reseeding of the on-pad area will occur during pad abandonment.
- The area of investigation will continue to be monitored, and photo documentation of the vegetation will be included in the final *Closure Report*.

XTO will complete the excavation and soil sampling activities within 90 days of the date of approval of this *Work Plan* by the NMOCD.

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

Sincerely,
Ensolum, LLC



Tacoma Morrissey, MS
Associate Principal



Ashley Ager, PG, MS
Principal

cc: Colton Brown, XTO
Kaylan Dirkx, XTO
New Mexico State Land Office
Bureau of Land Management

Appendices:

- Figure 1 Site Location Map
- Figure 2 Delineation Soil Sample Locations
- Figure 3 Vegetation Survey Transects
- Figure 4 Proposed Excavation Extent
- Table 1 Soil Sample Analytical Results
- Appendix A Referenced Well Records
- Appendix B Lithologic / Soil Sampling Logs
- Appendix C Photographic Log

XTO Energy, Inc.
Remediation Work Plan
Big Eddy Unit 248H

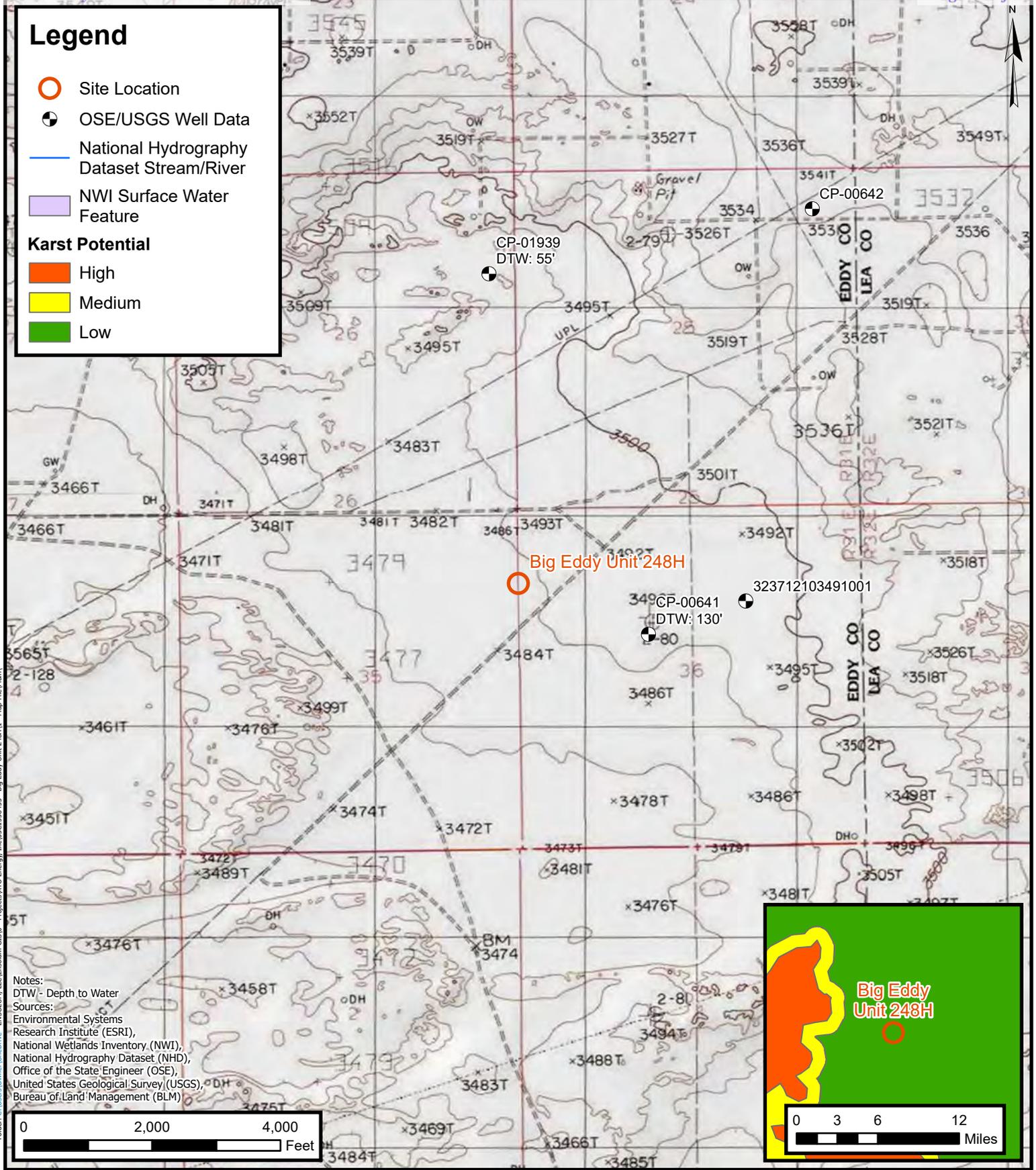
Appendix D Laboratory Analytical Reports & Chain-of-Custody Documentation



FIGURES

Legend

-  Site Location
-  OSE/USGS Well Data
-  National Hydrography Dataset Stream/River
-  NWI Surface Water Feature
- Karst Potential**
 -  High
 -  Medium
 -  Low



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

Folder: C:\Users\Owner\OneDrive - ENSOLUM, LLC\OneDrive - ENSOLUM, LLC\Projects\XTO Energy, Inc\03C159453 - Big Eddy Unit 248H\1 - Map File\Main



ENSOLUM
 Environmental, Engineering and
 Hydrogeologic Consultants

Site Receptor Map

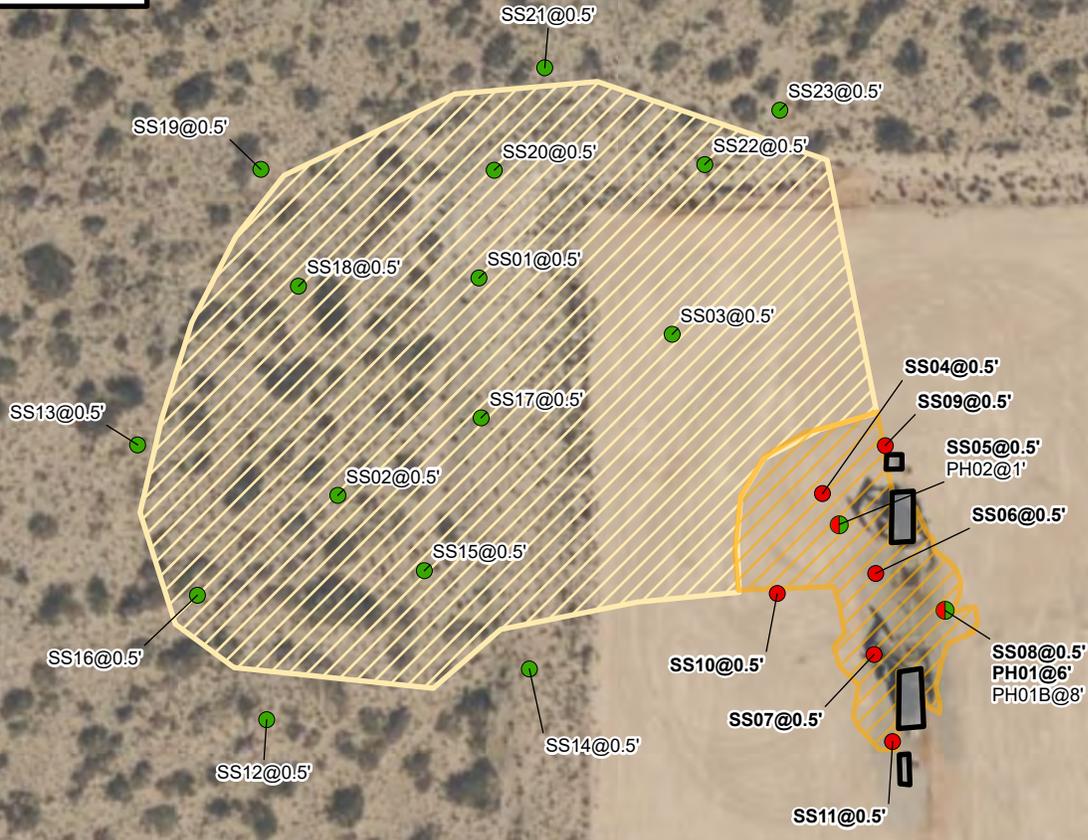
XTO Energy, Inc
 Big Eddy Unit 248H
 Incident Number: NAPP2418043567
 Unit A, Sec 35, T19S, R31E
 Eddy County, New Mexico

FIGURE

1

Legend

- Delineation Soil Sample in Compliance with Closure Criteria
- Delineation Soil Sample with Concentrations Previously Exceeding Closure Criteria
- Delineation Soil Sample with Concentrations Exceeding Closure Criteria
- Production Equipment
- Release Extent
- Area of Investigation



Notes:
Sample ID @ Depth Below Ground Surface.



Sources: Environmental Systems Research Institute (ESRI)



Delineation Soil Sample Locations
 XTO Energy, Inc
 Big Eddy Unit 248H
 Incident Number: NAPP2418043567
 Unit A, Sec 35, T19S, R31E
 Eddy County, New Mexico

FIGURE
2

Legend

-  LPI-1
-  LPI-2
-  Area of Investigation
-  Production Equipment



Notes:
Sample ID @ Depth Below Ground Surface.



Sources: Environmental Systems Research Institute (ESRI)



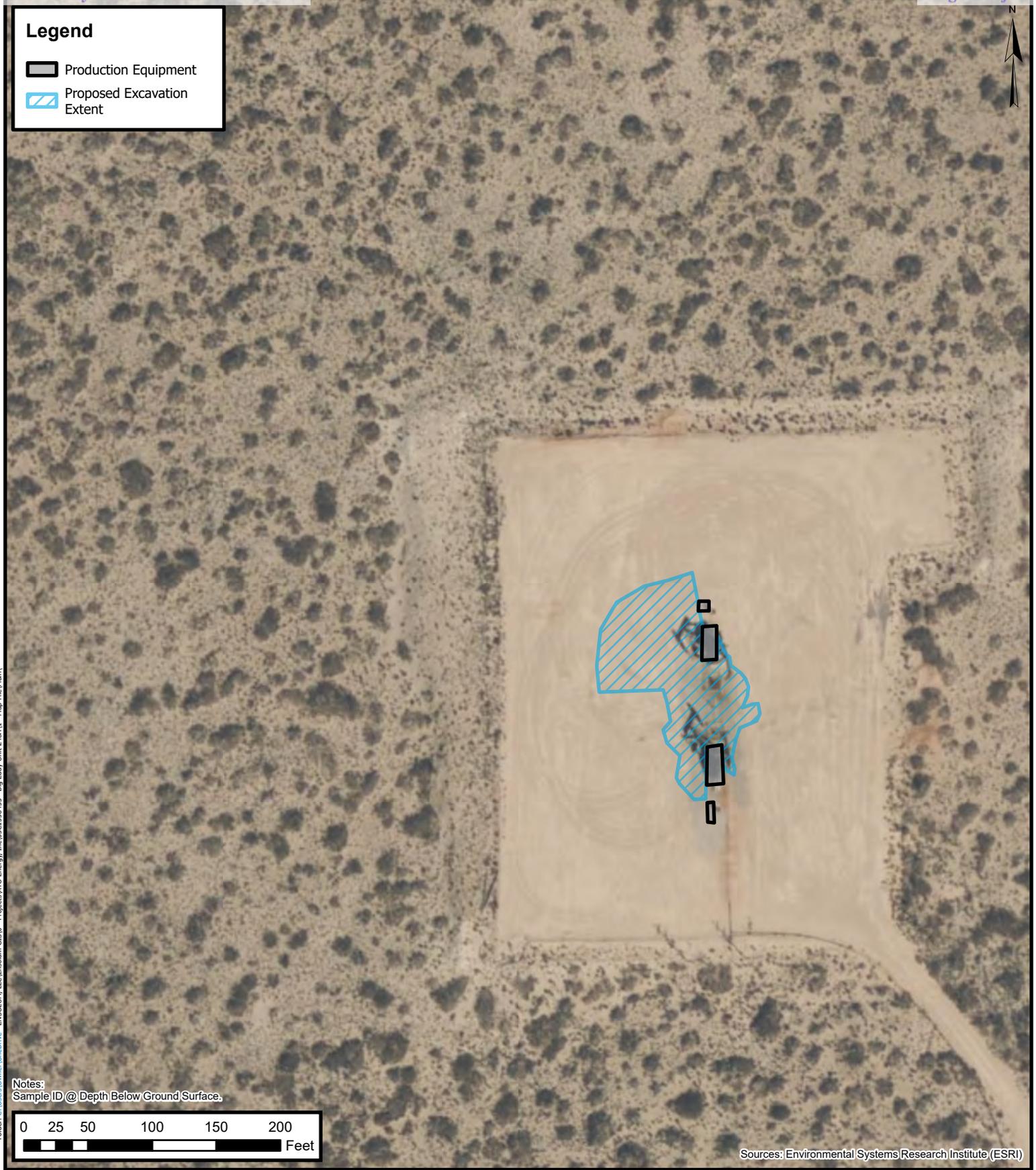
Vegetation Survey Transects

XTO Energy, Inc
 Big Eddy Unit 248H
 Incident Number: NAPP2418043567
 Unit A, Sec 35, T19S, R31E
 Eddy County, New Mexico

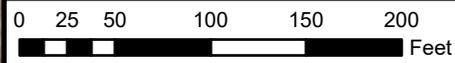
FIGURE
3

Legend

-  Production Equipment
-  Proposed Excavation Extent



Notes:
Sample ID @ Depth Below Ground Surface.



Sources: Environmental Systems Research Institute (ESRI)



Proposed Excavation Extent

XTO Energy, Inc
 Big Eddy Unit 248H
 Incident Number: NAPP2418043567
 Unit A, Sec 35, T19S, R31E
 Eddy County, New Mexico

FIGURE
4



TABLES



**TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Big Eddy Unit 248H
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	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SS02	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS03	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	240
SS04	07/29/2024	0.5	<0.050	<0.300	<10.0	182	55.3	182	237	560
SS05	07/29/2024	0.5	<0.050	<0.300	<10.0	1,870	465	1,870	2,335	1,650
PH02	09/09/2024	1	<0.050	<0.300	<10.0	87.4	13.3	87.4	101	192
SS06	07/29/2024	0.5	<0.050	5.16	75.7	2,710	613	2,786	3,399	1,250
SS07	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	640
SS08	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	13,600
PH01	09/09/2024	6	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	752
PH01B	09/09/2024	8	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
SS09	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	1,060
SS10	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	1,570
SS11	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	1,060
SS12	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS13	07/29/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SS14	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SS15	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS16	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS17	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS18	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS19	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0



**TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Big Eddy Unit 248H
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)
NMOCDC Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
SS20	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS21	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS22	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SS23	09/17/2024	0.5	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCDC: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

Concentrations in **bold** exceed the NMOCDC 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

STATE ENGINEER OFFICE
WELL RECORD

SANTA FE

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Owner's Well No. CP-641-Expl.
Street or Post Office Address P.O. Box 2130
City and State Hobbs, NM 88240

Well was drilled under Permit No. TEST HOLE FOR EPA and is located in the: ^{#4} 1600' FNL 1600' FWL

a. SE NW 36 Township 19S Range 31E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in Eddy County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882
Address 2601 W. Bender Hobbs, NM 88240

Drilling Began 2-11-82 Completed 2-12-82 Type tools trl-cone 0-220'-7 7/8
220 Size hole 4 3/4

Elevation of land surface or _____ at well is _____ ft. Total depth of well 300 ft.

Completed well is shallow artesian test hole Depth to water upon completion of well 130 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To
<u>5 1/2</u>	<u>160PVC</u>		<u>0</u>	<u>220</u>				

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

State Engineer Representative

FOR USE OF STATE ENGINEER ONLY

Date Received February 23, 1982

Quad _____ FWL _____ FSL _____

File No. CP-641-Exploratory

Use EXP.

Location No. 19.31.36.14114



APPENDIX B

Lithologic Soil Sampling Logs

		Sample Name: PH01	Date: 9/9/2024					
		Site Name: Big Eddy Unit 248H						
		Incident Number: NAPP2418043567						
		Job Number: 03C1558453						
LITHOLOGIC / SOIL SAMPLING LOG								
Coordinates: 32.620931, -103.831294		Logged By: JD	Method: Backhoe					
		Hole Diameter: 24"	Total Depth: 8'					
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 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
D	12,611	0.0	N	SS08	0.5	0	CCHE	(0-8') CALICHE, tan, fine grained, some sand, well sorted, no odor
						1		
						2		
						3		
						4		Soil excavated to 4' bgs between 9/4/24 and 9/9/2024
						5		
D	929.6	0.0		PH01	6	6		
D	1,495	0.0				7		
D	<162	0.0		PH01A	8	8		
						Total Depth @ 8 feet bgs		

					Sample Name: PH02		Date: 9/9/2024	
					Site Name: Big Eddy Unit 248H			
					Incident Number: NAPP2418043567			
					Job Number: 03C1558453			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: JD		Method: Backhoe	
Coordinates: 32.621056, -103.831474					Hole Diameter: 24"		Total Depth: 1'	
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
D	1,609	24.8	Y	SS05	0.5	0	CCHE	(0-1') CALICHE, tan, fine grained, some sand, well sorted, odor
D	201.6	0.0	N	PH02	1	1		(@1') no odor
						Total Depth @ 1-foot bgs		



APPENDIX C

Photographic Log



Photographic Log
XTO Energy, Inc
Big Eddy Unit 248H
NAPP2418043567



Photograph: 1 Date: 6/21/2024
Description: Recovery of free standing fluids
View: Northwest

Photograph: 2 Date: 7/12/2024
Description: Soil staining in release footprint
View: Northwest



Photograph: 3 Date: 7/12/2024
Description: Area of investigation
View: Southeast

Photograph: 4 Date: 9/9/2024
Description: Delineation and excavation activities
View: South



Photographic Log
XTO Energy, Inc
Big Eddy Unit 248H
NAPP2418043567



Photograph: 5 Date: 9/13/2024
Description: LPI -1 in undisturbed area
View: North



Photograph: 6 Date: 9/13/2024
Description: LPI -2 in area of investigation
View: Northeast



Photograph: 7 Date: 9/13/2024
Description: LPI -2 in area of investigation
View: Southwest



Photograph: 8 Date: 9/17/2024
Description: View of area of investigation from pad edge
View: North



APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation



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

August 02, 2024

DAVID MCINNIS

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 248H

Enclosed are the results of analyses for samples received by the laboratory on 07/30/24 14:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 01 .5' (H244536-01)

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	07/31/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/01/2024	ND	209	104	200	2.32	
DRO >C10-C28*	<10.0	10.0	08/01/2024	ND	179	89.4	200	0.570	
EXT DRO >C28-C36	<10.0	10.0	08/01/2024	ND					

Surrogate: 1-Chlorooctane 106 % 48.2-134

Surrogate: 1-Chlorooctadecane 103 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 02 .5' (H244536-02)

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	07/31/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	16.0	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 123 % 48.2-134

Surrogate: 1-Chlorooctadecane 126 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 03 .5' (H244536-03)

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	07/31/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 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	240	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 106 % 48.2-134

Surrogate: 1-Chlorooctadecane 105 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 04 .5' (H244536-04)

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	07/31/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	560	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	182	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	55.3	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 114 % 48.2-134

Surrogate: 1-Chlorooctadecane 129 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 05 .5' (H244536-05)

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	08/01/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	08/01/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	08/01/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	08/01/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	08/01/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	1650	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	1870	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	465	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 127 % 48.2-134

Surrogate: 1-Chlorooctadecane 147 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 06 .5' (H244536-06)

BTEX 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/01/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	0.384	0.050	08/01/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	1.52	0.050	08/01/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	3.26	0.150	08/01/2024	ND	6.59	110	6.00	5.45	
Total BTEX	5.16	0.300	08/01/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 153 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1250	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	75.7	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	2710	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	613	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 131 % 48.2-134

Surrogate: 1-Chlorooctadecane 153 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 07 .5' (H244536-07)

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	07/31/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 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	640	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 100 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 08 .5' (H244536-08)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 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	13600	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 93.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 98.4 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 09 .5' (H244536-09)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.0 % 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	1060	16.0	08/01/2024	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 75.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 78.2 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 10 .5' (H244536-10)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.0 % 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	1570	16.0	08/01/2024	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 83.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 85.8 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 11 .5' (H244536-11)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.3 % 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	1060	16.0	08/01/2024	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 86.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 89.6 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 12 .5' (H244536-12)

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	07/31/2024	ND	2.00	100	2.00	8.77		
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42		
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88		
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73		
Total BTEX	<0.300	0.300	07/31/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.4 % 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	16.0	16.0	08/01/2024	ND	448	112	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47		
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69		
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND						

Surrogate: 1-Chlorooctane 120 % 48.2-134

Surrogate: 1-Chlorooctadecane 126 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 13 .5' (H244536-13)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.4 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	08/01/2024	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 114 % 48.2-134

Surrogate: 1-Chlorooctadecane 122 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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

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
Project Manager: David Mcinnis
Address: 3122 National Parks Hwy
City: Carlsbad
Phone #: 409-454-3009
Project #: 03C1558453
Project Name: Big Eddy Unit 248H
Project Location:
Sampler Name: Jesse Dorman

P.O. #:
Company: XTO Energy Inc.
Attn: Amy Ruth
Address: 3104 E. Greene St.
City: Carlsbad
State: NM Zip: 88220
Phone #:
Fax #:

BILL TO ANALYSIS REQUEST

Lab I.D.	Sample I.D.	Sample Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	DATE	TIME	BTEX	TPH	CHLORIDE
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :						
H044534	5511	5'	↓	6								12/25	12:30			
	5512	5'	↓	6								12/25	12:30			
	5513	5'	↓	6								12/25	12:35			

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Relinquished By: *[Signature]* Received By: *[Signature]*
Date: 12/25
Time: 7:30-24

Relinquished By: *[Signature]* Received By: *[Signature]*
Date: 12/25
Time: 7:30-24

Delivered By: (Circle One) UPS - Bus - Other:
Observed Temp. °C: 1.4
Corrected Temp. °C:
Sample Condition Cool Intact Yes No Yes No
CHECKED BY: (Initials) *[Signature]*

Turnaround Time: Standard Rush
Thermometer ID: #119 #145
Correction Factor: 0.5°C
Bacteria (only) Sample Condition Cool Intact Yes No Yes No
Corrected Temp. °C

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

REMARKS: Verbal Result: Yes No Add'l Phone #:
All Results are emailed. Please provide Email address:
bheill@ensolum.com, T.Morrissey@ensolum.com, dmclmris@ensolum.com
Cost Center: 1140201001 Incident ID: nAPP2418043567



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

September 17, 2024

DAVID MCINNIS

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 248H

Enclosed are the results of analyses for samples received by the laboratory on 09/10/24 13:00.

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/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: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PH 01 6'	H245458-01	Soil	09-Sep-24 11:30	10-Sep-24 13:00
PH 01A 8'	H245458-02	Soil	09-Sep-24 12:05	10-Sep-24 13:00
FS 10 2'	H245458-03	Soil	09-Sep-24 13:50	10-Sep-24 13:00
FS 11 2'	H245458-04	Soil	09-Sep-24 13:55	10-Sep-24 13:00
FS 15 2'	H245458-05	Soil	09-Sep-24 14:10	10-Sep-24 13:00
PH 02 1'	H245458-06	Soil	09-Sep-24 15:10	10-Sep-24 13:00

09/17/24 - Client changed the sample IDs for -01, -02 and -06 (see COC). This is the revised report and will replace the one sent on 09/11/24.

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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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PH 01 6'
H245458-01 (Soil)

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

Inorganic Compounds

Chloride	752		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			105 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

Surrogate: 1-Chlorooctane			97.1 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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Surrogate: 1-Chlorooctadecane			115 %	49.1-148		4091016	MS	10-Sep-24	8015B	
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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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**PH 01A 8'
H245458-02 (Soil)**

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

Inorganic Compounds

Chloride	48.0		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			106 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			97.7 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			115 %	49.1-148		4091016	MS	10-Sep-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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FS 10 2'
H245458-03 (Soil)

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

Inorganic Compounds

Chloride	80.0		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			103 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			100 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			120 %	49.1-148		4091016	MS	10-Sep-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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FS 11 2'
H245458-04 (Soil)

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

Inorganic Compounds

Chloride	144		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			105 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			96.4 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			111 %	49.1-148		4091016	MS	10-Sep-24	8015B	
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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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FS 15 2'
H245458-05 (Soil)

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

Inorganic Compounds

Chloride	144		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-CI-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			107 %		71.5-134	4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			97.8 %		48.2-134	4091016	MS	10-Sep-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			113 %		49.1-148	4091016	MS	10-Sep-24	8015B	
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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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PH 02 1'
H245458-06 (Soil)

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

Inorganic Compounds

Chloride	192		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			107 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	87.4		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	13.3		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

Surrogate: 1-Chlorooctane			94.3 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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Surrogate: 1-Chlorooctadecane			111 %	49.1-148		4091016	MS	10-Sep-24	8015B	
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ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4091126 - 1:4 DI Water										
Blank (4091126-BLK1)										
Prepared & Analyzed: 11-Sep-24										
Chloride	ND	16.0	mg/kg							
LCS (4091126-BS1)										
Prepared & Analyzed: 11-Sep-24										
Chloride	400	16.0	mg/kg	400		100	80-120			
LCS Dup (4091126-BSD1)										
Prepared & Analyzed: 11-Sep-24										
Chloride	416	16.0	mg/kg	400		104	80-120	3.92	20	

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ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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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 4091019 - Volatiles

Blank (4091019-BLK1)

Prepared & Analyzed: 10-Sep-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)	0.0517		mg/kg	0.0500		103	71.5-134			

LCS (4091019-BS1)

Prepared & Analyzed: 10-Sep-24

Benzene	2.05	0.050	mg/kg	2.00		102	82.8-130			
Toluene	2.08	0.050	mg/kg	2.00		104	86-128			
Ethylbenzene	2.07	0.050	mg/kg	2.00		103	85.9-128			
m,p-Xylene	4.42	0.100	mg/kg	4.00		110	89-129			
o-Xylene	2.11	0.050	mg/kg	2.00		105	86.1-125			
Total Xylenes	6.52	0.150	mg/kg	6.00		109	88.2-128			
Surrogate: 4-Bromofluorobenzene (PID)	0.0501		mg/kg	0.0500		100	71.5-134			

LCS Dup (4091019-BSD1)

Prepared & Analyzed: 10-Sep-24

Benzene	1.81	0.050	mg/kg	2.00		90.3	82.8-130	12.5	15.8	
Toluene	1.84	0.050	mg/kg	2.00		92.0	86-128	12.4	15.9	
Ethylbenzene	1.82	0.050	mg/kg	2.00		90.9	85.9-128	12.9	16	
m,p-Xylene	3.91	0.100	mg/kg	4.00		97.7	89-129	12.2	16.2	
o-Xylene	1.85	0.050	mg/kg	2.00		92.5	86.1-125	12.9	16.7	
Total Xylenes	5.76	0.150	mg/kg	6.00		96.0	88.2-128	12.4	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0504		mg/kg	0.0500		101	71.5-134			

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
--	--	------------------------------

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 4091016 - General Prep - Organics

Blank (4091016-BLK1)		Prepared & Analyzed: 10-Sep-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	46.2		mg/kg	50.0		92.5	48.2-134			
Surrogate: 1-Chlorooctadecane	53.1		mg/kg	50.0		106	49.1-148			

LCS (4091016-BS1)		Prepared & Analyzed: 10-Sep-24								
GRO C6-C10	204	10.0	mg/kg	200		102	66.4-123			
DRO >C10-C28	199	10.0	mg/kg	200		99.4	66.5-118			
Total TPH C6-C28	403	10.0	mg/kg	400		101	77.6-123			
Surrogate: 1-Chlorooctane	51.1		mg/kg	50.0		102	48.2-134			
Surrogate: 1-Chlorooctadecane	55.0		mg/kg	50.0		110	49.1-148			

LCS Dup (4091016-BSD1)		Prepared & Analyzed: 10-Sep-24								
GRO C6-C10	210	10.0	mg/kg	200		105	66.4-123	3.00	17.7	
DRO >C10-C28	209	10.0	mg/kg	200		104	66.5-118	4.92	21	
Total TPH C6-C28	419	10.0	mg/kg	400		105	77.6-123	3.95	18.5	
Surrogate: 1-Chlorooctane	54.7		mg/kg	50.0		109	48.2-134			
Surrogate: 1-Chlorooctadecane	58.9		mg/kg	50.0		118	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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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ensolum, LLC
 Project Manager: David McInnis
 Address: 3122 National Parks Hwy
 City: Carlsbad
 Phone #: 409-454-3009
 Project #: 03C1558453
 Project Name: Big Eddy Unit 248H
 Project Location: 32.62087, -103.83145
 Sampler Name: Jesse Dorman

Company: XTO Energy Inc.
 Attn: Amy Ruth
 Address: 3104 E. Green St.
 City: Carlsbad
 State: NM Zip: 88220
 Phone #: _____
 Fax #: _____

Lab I.D.	Sample I.D.	Sample Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	BTEX	TPH	CHLORIDE
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					
H45458	PHYS 1 * PHYS 1A	6'	G	1							9/9/24	11:30			
	FS10	6'	G	1								12:05			
	FS1	2'	G	1								13:50			
	FS15	2'	G	1								13:55			
	PROX 2	11'	G	1								14:10			
												15:10			

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Relinquished By: _____
 Date: 9/10/24
 Time: 13:00
 Received By: Spedding
 Date: _____
 Time: _____

Delivered By: (Circle One) Observed Temp. °C: 13.3
 Sampler - UPS - Bus - Other: Corrected Temp. °C: 0.12
 Sample Condition: Cool Intact Yes [X] No []
 Checked By: (Initials) SR
 Turnaround Time: Standard [X] Rush []
 Bacteria (only) Sample Condition: Cool Intact Yes [] No []
 Incident ID: NAPP2418043567

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



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

September 18, 2024

DAVID MCINNIS

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 248H

Enclosed are the results of analyses for samples received by the laboratory on 09/17/24 14:11.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	09/17/2024	Sampling Date:	09/17/2024
Reported:	09/18/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Shalyn Rodriguez
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 14 .5' (H245642-01)

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	09/17/2024	ND	2.11	105	2.00	6.21	
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10	
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29	
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13	
Total BTEX	<0.300	0.300	09/17/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	09/18/2024	ND	400	100	400	3.92	

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	09/17/2024	ND	201	101	200	2.40	
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95	
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND					

Surrogate: 1-Chlorooctane 117 % 48.2-134

Surrogate: 1-Chlorooctadecane 126 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 15 .5' (H245642-02)

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	09/17/2024	ND	2.11	105	2.00	6.21	
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10	
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29	
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13	
Total BTEX	<0.300	0.300	09/17/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41	

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	09/17/2024	ND	201	101	200	2.40	
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95	
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND					

Surrogate: 1-Chlorooctane 110 % 48.2-134

Surrogate: 1-Chlorooctadecane 116 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 16 .5' (H245642-03)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 102 % 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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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 17 .5' (H245642-04)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 109 % 48.2-134

Surrogate: 1-Chlorooctadecane 116 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 18 .5' (H245642-05)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 108 % 48.2-134

Surrogate: 1-Chlorooctadecane 115 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 19 .5' (H245642-06)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 105 % 48.2-134

Surrogate: 1-Chlorooctadecane 110 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 20 .5' (H245642-07)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 99.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 105 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 21 .5' (H245642-08)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 111 % 48.2-134

Surrogate: 1-Chlorooctadecane 120 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 22 .5' (H245642-09)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/18/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/18/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/18/2024	ND						

Surrogate: 1-Chlorooctane 109 % 48.2-134

Surrogate: 1-Chlorooctadecane 118 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 23 .5' (H245642-10)

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	09/17/2024	ND	2.11	105	2.00	6.21	
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10	
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29	
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13	
Total BTEX	<0.300	0.300	09/17/2024	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	09/18/2024	ND	416	104	400	7.41	

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	09/18/2024	ND	201	101	200	2.40	
DRO >C10-C28*	<10.0	10.0	09/18/2024	ND	203	102	200	1.95	
EXT DRO >C28-C36	<10.0	10.0	09/18/2024	ND					

Surrogate: 1-Chlorooctane 116 % 48.2-134

Surrogate: 1-Chlorooctadecane 124 % 49.1-148

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

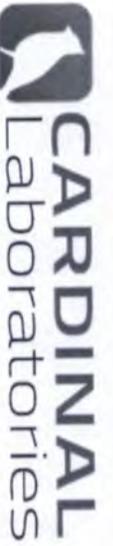
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- ** Samples not received at proper temperature of 6°C or below.
- *** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on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

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Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

BILL TO

ANALYSIS REQUEST

Company Name: Ensolium, LLC
 Project Manager: David McInnis
 Address: 3122 National Parks Hwy
 City: Carlsbad State: NM Zip: 88220
 Phone #: 409-454-3009 Fax #: _____
 Project #: 03C1558453 Project Owner: XTO
 Project Name: Big Eddy Unit 248H
 Project Location: 32.62087, -103.83145
 Sampler Name: Jesse Dorman
 P.O. #: _____
 Company: XTO Energy Inc.
 Attn: Amy Ruth
 Address: 3104 E. Green St.
 City: Carlsbad
 State: NM Zip: 88220
 Phone #: _____
 Fax #: _____

Lab I.D.	Sample I.D.	Sample Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	BTEX	TPH	CHLORIDE
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:					
HAUSCWB	5514	3	G	1								9/17/24	1230			
	5515	3	G	1								9/17/24	1233			
	5516	3	G	1								9/17/24	1235			
	5517	3	G	1								9/17/24	1236			
	5518	3	G	1								9/17/24	1241			
	5519	3	G	1								9/17/24	1244			
	5520	3	G	1								9/17/24	1248			
	5521	3	G	1								9/17/24	1252			
	5522	3	G	1								9/17/24	1255			
	5523	3	G	1								9/17/24	1258			

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Relinquished By: _____
 Date: _____
 Received By: *Stoddington*
 Date: 9/17/24
 Received By: _____
 Date: _____

Delivered By: (Circle One)
 Observed Temp. °C: 1.52
 Corrected Temp. °C: 0.92
 Sample Condition: Intact Cool Yes No
 CHECKED BY: *SD*
 Turnaround Time: *Standard*
 Thermometer ID #113
 Correction Factor: 0.5°C
 Bacteria (only) Rush Standard
 Cool Intact Yes No
 Sample Condition Yes No
 Observed Temp. °C
 Corrected Temp. °C

FORM 0001-R-3-Z-T0107121
 + Cardinal cannot accept verbal changes. Please email changes to cely.keene@cardinallabsnm.com



APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation



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

August 02, 2024

DAVID MCINNIS

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 248H

Enclosed are the results of analyses for samples received by the laboratory on 07/30/24 14:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 01 .5' (H244536-01)

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	07/31/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/01/2024	ND	209	104	200	2.32	
DRO >C10-C28*	<10.0	10.0	08/01/2024	ND	179	89.4	200	0.570	
EXT DRO >C28-C36	<10.0	10.0	08/01/2024	ND					

Surrogate: 1-Chlorooctane 106 % 48.2-134

Surrogate: 1-Chlorooctadecane 103 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 02 .5' (H244536-02)

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	07/31/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	16.0	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 123 % 48.2-134

Surrogate: 1-Chlorooctadecane 126 % 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
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 03 .5' (H244536-03)

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	07/31/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 106 % 48.2-134

Surrogate: 1-Chlorooctadecane 105 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 04 .5' (H244536-04)

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	07/31/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	560	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	182	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	55.3	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 114 % 48.2-134

Surrogate: 1-Chlorooctadecane 129 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 05 .5' (H244536-05)

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	08/01/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	<0.050	0.050	08/01/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	<0.050	0.050	08/01/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	<0.150	0.150	08/01/2024	ND	6.59	110	6.00	5.45	
Total BTEX	<0.300	0.300	08/01/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	1650	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	1870	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	465	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 127 % 48.2-134

Surrogate: 1-Chlorooctadecane 147 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 06 .5' (H244536-06)

BTEX 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/01/2024	ND	1.96	98.2	2.00	5.95	
Toluene*	0.384	0.050	08/01/2024	ND	2.08	104	2.00	5.60	
Ethylbenzene*	1.52	0.050	08/01/2024	ND	2.15	107	2.00	5.41	
Total Xylenes*	3.26	0.150	08/01/2024	ND	6.59	110	6.00	5.45	
Total BTEX	5.16	0.300	08/01/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 153 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1250	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	75.7	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	2710	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	613	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 131 % 48.2-134

Surrogate: 1-Chlorooctadecane 153 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 07 .5' (H244536-07)

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	07/31/2024	ND	1.96	98.2	2.00	5.95		
Toluene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	5.60		
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.15	107	2.00	5.41		
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.59	110	6.00	5.45		
Total BTEX	<0.300	0.300	07/31/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 115 % 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	640	16.0	07/31/2024	ND	464	116	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47		
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69		
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND						

Surrogate: 1-Chlorooctane 100 % 48.2-134

Surrogate: 1-Chlorooctadecane 109 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 08 .5' (H244536-08)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 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	13600	16.0	07/31/2024	ND	464	116	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 93.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 98.4 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 09 .5' (H244536-09)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.0 % 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	1060	16.0	08/01/2024	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 75.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 78.2 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 10 .5' (H244536-10)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.0 % 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	1570	16.0	08/01/2024	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 83.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 85.8 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 11 .5' (H244536-11)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.3 % 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	1060	16.0	08/01/2024	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 86.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 89.6 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 12 .5' (H244536-12)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.4 % 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	16.0	16.0	08/01/2024	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 120 % 48.2-134

Surrogate: 1-Chlorooctadecane 126 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	07/30/2024	Sampling Date:	07/29/2024
Reported:	08/02/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 13 .5' (H244536-13)

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	07/31/2024	ND	2.00	100	2.00	8.77	
Toluene*	<0.050	0.050	07/31/2024	ND	1.97	98.4	2.00	9.42	
Ethylbenzene*	<0.050	0.050	07/31/2024	ND	2.08	104	2.00	9.88	
Total Xylenes*	<0.150	0.150	07/31/2024	ND	6.11	102	6.00	9.73	
Total BTEX	<0.300	0.300	07/31/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.4 % 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	08/01/2024	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2024	ND	187	93.7	200	4.47	
DRO >C10-C28*	<10.0	10.0	07/31/2024	ND	184	91.9	200	4.69	
EXT DRO >C28-C36	<10.0	10.0	07/31/2024	ND					

Surrogate: 1-Chlorooctane 114 % 48.2-134

Surrogate: 1-Chlorooctadecane 122 % 49.1-148

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Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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

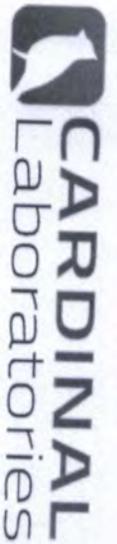
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Celey D. Keene

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
 Project Manager: David McInnis
 Address: 3122 National Parks Hwy
 City: Carlsbad State: NM Zip: 88220
 Phone #: 409-454-3009 Fax #: 409-454-3009
 Project #: 03C1558453 Project Owner: XTO
 Project Name: Big Eddy Unit 248H
 Project Location: 32.62087 103.831415
 Sampler Name: Jesse Dorman

BILL TO
 P.O. #: Company: XTO Energy Inc.
 Attn: Amy Ruth
 Address: 3104 E. Greene St.
 City: Carlsbad State: NM Zip: 88220
 Phone #: Fax #:

Lab I.D.	Sample I.D.	Sample Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	BTEX	TPH	CHLORIDE
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:					
H244536	5501	5'	G	1								7/29/09	09:35			
	5502											10:50				
	5503											10:55				
	5504											11:00				
	5505											11:05				
	5506											11:30				
	5507											11:35				
	5508											11:40				
	5509											11:45				
	5510															

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Relinquished By: [Signature]
 Date: 7/25/09
 Time: 11:45
 Received By: [Signature]
 Date: 7/25/09
 Time: 11:45

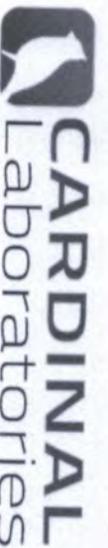
Delivered By: (Circle One) UPS Bus Other: _____
 Observed Temp. °C: 14.4
 Corrected Temp. °C: _____

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

Checked By: [Signature]
 Turnaround Time: Standard Rush
 Thermometer ID: #113-#140
 Correction Factor: _____

Remarks: _____
 Cost Center: 1140201001
 Incident ID: nAPP2418043567

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



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(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ensolum, LLC
Project Manager: David Mcinnis
Address: 3122 National Parks Hwy
City: Carlsbad
Phone #: 409-454-3009
Project #: 03C1558453
Project Name: Big Eddy Unit 248H
Project Location:
Sampler Name: Jesse Dorman

P.O. #:
Company: XTO Energy Inc.
Attn: Amy Ruth
Address: 3104 E. Greene St.
City: Carlsbad
State: NM Zip: 88220
Phone #:
Fax #:

BILL TO
ANALYSIS REQUEST

Lab I.D.	Sample I.D.	Sample Depth (feet)	FOR LAB USE ONLY		DATE	TIME	BTEX	TPH	CHLORIDE
			(G)RAB OR (C)OMP.	# CONTAINERS					
H044534	5511	5'	(G)	1	12/29/08	12:25	/	/	/
	5512	5'	(G)	1	12/30	12:30	/	/	/
	5513	5'	(G)	1	12/31	12:35	/	/	/

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Relinquished By: [Signature]
Date: 7:30:24
Time: 1/25
Received By: [Signature]
Date: [Signature]
Time: [Signature]

Delivered By: (Circle One) UPS - Bus - Other:
Observed Temp. °C: 1.4
Corrected Temp. °C: [Signature]
Sample Condition Cool Intact Yes No Yes No
CHECKED BY: (Initials) [Signature]

Turnaround Time: Standard Rush
Thermometer ID: #119
Correction Factor: 0.5°C
Bacteria (only) Sample Condition Cool Intact Yes No Yes No
Corrected Temp. °C
REMARKS: Cost Center: 1140201001 Incident ID: nAPP2418043567
Verbal Result: Yes No Add'l Phone #:
All Results are emailed. Please provide Email address:
bhelli@ensolum.com, TMorrissey@ensolum.com, dmclmris@ensolum.com

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



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

September 17, 2024

DAVID MCINNIS

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 248H

Enclosed are the results of analyses for samples received by the laboratory on 09/10/24 13:00.

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/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: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PH 01 6'	H245458-01	Soil	09-Sep-24 11:30	10-Sep-24 13:00
PH 01A 8'	H245458-02	Soil	09-Sep-24 12:05	10-Sep-24 13:00
FS 10 2'	H245458-03	Soil	09-Sep-24 13:50	10-Sep-24 13:00
FS 11 2'	H245458-04	Soil	09-Sep-24 13:55	10-Sep-24 13:00
FS 15 2'	H245458-05	Soil	09-Sep-24 14:10	10-Sep-24 13:00
PH 02 1'	H245458-06	Soil	09-Sep-24 15:10	10-Sep-24 13:00

09/17/24 - Client changed the sample IDs for -01, -02 and -06 (see COC). This is the revised report and will replace the one sent on 09/11/24.

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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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PH 01 6'
H245458-01 (Soil)

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

Inorganic Compounds

Chloride	752		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			105 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

Surrogate: 1-Chlorooctane			97.1 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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Surrogate: 1-Chlorooctadecane			115 %	49.1-148		4091016	MS	10-Sep-24	8015B	
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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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**PH 01A 8'
H245458-02 (Soil)**

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

Inorganic Compounds

Chloride	48.0		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			106 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

Surrogate: 1-Chlorooctane			97.7 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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Surrogate: 1-Chlorooctadecane			115 %	49.1-148		4091016	MS	10-Sep-24	8015B	
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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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FS 10 2'
H245458-03 (Soil)

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

Inorganic Compounds

Chloride	80.0		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			103 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			100 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			120 %	49.1-148		4091016	MS	10-Sep-24	8015B	
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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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**FS 11 2'
H245458-04 (Soil)**

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

Inorganic Compounds

Chloride	144		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			105 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			96.4 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			111 %	49.1-148		4091016	MS	10-Sep-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: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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FS 15 2'
H245458-05 (Soil)

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

Inorganic Compounds

Chloride	144		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			107 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

<i>Surrogate: 1-Chlorooctane</i>			97.8 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			113 %	49.1-148		4091016	MS	10-Sep-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
--	--	------------------------------

PH 02 1'
H245458-06 (Soil)

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

Inorganic Compounds

Chloride	192		16.0	mg/kg	4	4091126	CT	11-Sep-24	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Toluene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	4091019	JH	10-Sep-24	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	4091019	JH	10-Sep-24	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			107 %	71.5-134		4091019	JH	10-Sep-24	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
DRO >C10-C28*	87.4		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	
EXT DRO >C28-C36	13.3		10.0	mg/kg	1	4091016	MS	10-Sep-24	8015B	

Surrogate: 1-Chlorooctane			94.3 %	48.2-134		4091016	MS	10-Sep-24	8015B	
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Surrogate: 1-Chlorooctadecane			111 %	49.1-148		4091016	MS	10-Sep-24	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
--	--	------------------------------

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4091126 - 1:4 DI Water										
Blank (4091126-BLK1)										
Prepared & Analyzed: 11-Sep-24										
Chloride	ND	16.0	mg/kg							
LCS (4091126-BS1)										
Prepared & Analyzed: 11-Sep-24										
Chloride	400	16.0	mg/kg	400		100	80-120			
LCS Dup (4091126-BSD1)										
Prepared & Analyzed: 11-Sep-24										
Chloride	416	16.0	mg/kg	400		104	80-120	3.92	20	

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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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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 4091019 - Volatiles

Blank (4091019-BLK1)

Prepared & Analyzed: 10-Sep-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)	0.0517		mg/kg	0.0500		103	71.5-134			

LCS (4091019-BS1)

Prepared & Analyzed: 10-Sep-24

Benzene	2.05	0.050	mg/kg	2.00		102	82.8-130			
Toluene	2.08	0.050	mg/kg	2.00		104	86-128			
Ethylbenzene	2.07	0.050	mg/kg	2.00		103	85.9-128			
m,p-Xylene	4.42	0.100	mg/kg	4.00		110	89-129			
o-Xylene	2.11	0.050	mg/kg	2.00		105	86.1-125			
Total Xylenes	6.52	0.150	mg/kg	6.00		109	88.2-128			
Surrogate: 4-Bromofluorobenzene (PID)	0.0501		mg/kg	0.0500		100	71.5-134			

LCS Dup (4091019-BS1)

Prepared & Analyzed: 10-Sep-24

Benzene	1.81	0.050	mg/kg	2.00		90.3	82.8-130	12.5	15.8	
Toluene	1.84	0.050	mg/kg	2.00		92.0	86-128	12.4	15.9	
Ethylbenzene	1.82	0.050	mg/kg	2.00		90.9	85.9-128	12.9	16	
m,p-Xylene	3.91	0.100	mg/kg	4.00		97.7	89-129	12.2	16.2	
o-Xylene	1.85	0.050	mg/kg	2.00		92.5	86.1-125	12.9	16.7	
Total Xylenes	5.76	0.150	mg/kg	6.00		96.0	88.2-128	12.4	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0504		mg/kg	0.0500		101	71.5-134			

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Analytical Results For:

ENSOLUM 3122 NATIONAL PARKS HWY CARLSBAD NM, 88220	Project: BIG EDDY UNIT 248H Project Number: 03C1558453 Project Manager: DAVID MCINNIS Fax To:	Reported: 17-Sep-24 15:23
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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 4091016 - General Prep - Organics

Blank (4091016-BLK1)		Prepared & Analyzed: 10-Sep-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	46.2		mg/kg	50.0		92.5	48.2-134			
Surrogate: 1-Chlorooctadecane	53.1		mg/kg	50.0		106	49.1-148			

LCS (4091016-BS1)		Prepared & Analyzed: 10-Sep-24								
GRO C6-C10	204	10.0	mg/kg	200		102	66.4-123			
DRO >C10-C28	199	10.0	mg/kg	200		99.4	66.5-118			
Total TPH C6-C28	403	10.0	mg/kg	400		101	77.6-123			
Surrogate: 1-Chlorooctane	51.1		mg/kg	50.0		102	48.2-134			
Surrogate: 1-Chlorooctadecane	55.0		mg/kg	50.0		110	49.1-148			

LCS Dup (4091016-BSD1)		Prepared & Analyzed: 10-Sep-24								
GRO C6-C10	210	10.0	mg/kg	200		105	66.4-123	3.00	17.7	
DRO >C10-C28	209	10.0	mg/kg	200		104	66.5-118	4.92	21	
Total TPH C6-C28	419	10.0	mg/kg	400		105	77.6-123	3.95	18.5	
Surrogate: 1-Chlorooctane	54.7		mg/kg	50.0		109	48.2-134			
Surrogate: 1-Chlorooctadecane	58.9		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

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
 Project Manager: David McInnis
 Address: 3122 National Parks Hwy
 City: Carlsbad
 Phone #: 409-454-3009
 Project #: 03C1558453
 Project Name: Big Eddy Unit 248H
 Project Location: 32.62087, -103.83145
 Sampler Name: Jesse Dorman

P.O. #: _____
 Company: XTO Energy Inc.
 Attn: Amy Ruth
 Address: 3104 E. Green St.
 City: Carlsbad
 State: NM Zip: 88220
 Phone #: _____
 Fax #: _____

Lab I.D.	Sample I.D.	Sample Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	BTEX	TPH	CHLORIDE
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					
H4545B	PHYS 1 * PHYS 1A	6'	G	1							9/9/24	1130			
	FS10	6'	G	1								1205			
	FS1	2'	G	1								1350			
	FS15	2'	G	1								1355			
	PROX 2	11'	G	1								1410			
												1510			

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Relinquished By: _____
 Date: 9/10/24
 Time: 1300
 Received By: Spedding
 Date: _____
 Time: _____

Delivered By: (Circle One)
 Sampler - UPS - Bus - Other: _____
 Observed Temp. °C: 13.3
 Corrected Temp. °C: 0.12

Sample Condition: Cool Intact Yes No
 Checked By: (Initials) SR

Turnaround Time: Standard Rush
 Thermometer ID: #40-010-1
 Correction Factor: 0.00

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

Remarks: *Customer Requested ID changes to 9/11/24.

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



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

September 18, 2024

DAVID MCINNIS

ENSOLUM

3122 NATIONAL PARKS HWY

CARLSBAD, NM 88220

RE: BIG EDDY UNIT 248H

Enclosed are the results of analyses for samples received by the laboratory on 09/17/24 14:11.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	09/17/2024	Sampling Date:	09/17/2024
Reported:	09/18/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Shalyn Rodriguez
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 14 .5' (H245642-01)

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	09/17/2024	ND	2.11	105	2.00	6.21	
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10	
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29	
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13	
Total BTEX	<0.300	0.300	09/17/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	09/18/2024	ND	400	100	400	3.92	

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	09/17/2024	ND	201	101	200	2.40	
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95	
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND					

Surrogate: 1-Chlorooctane 117 % 48.2-134

Surrogate: 1-Chlorooctadecane 126 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 15 .5' (H245642-02)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 110 % 48.2-134

Surrogate: 1-Chlorooctadecane 116 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 16 .5' (H245642-03)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 102 % 48.2-134

Surrogate: 1-Chlorooctadecane 108 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	09/17/2024	Sampling Date:	09/17/2024
Reported:	09/18/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Shalyn Rodriguez
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 17 .5' (H245642-04)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 109 % 48.2-134

Surrogate: 1-Chlorooctadecane 116 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 18 .5' (H245642-05)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 108 % 48.2-134

Surrogate: 1-Chlorooctadecane 115 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 19 .5' (H245642-06)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 105 % 48.2-134

Surrogate: 1-Chlorooctadecane 110 % 49.1-148

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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 20 .5' (H245642-07)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/17/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND						

Surrogate: 1-Chlorooctane 99.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 105 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 21 .5' (H245642-08)

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	09/17/2024	ND	2.11	105	2.00	6.21	
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10	
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29	
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13	
Total BTEX	<0.300	0.300	09/17/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41	

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	09/17/2024	ND	201	101	200	2.40	
DRO >C10-C28*	<10.0	10.0	09/17/2024	ND	203	102	200	1.95	
EXT DRO >C28-C36	<10.0	10.0	09/17/2024	ND					

Surrogate: 1-Chlorooctane 111 % 48.2-134

Surrogate: 1-Chlorooctadecane 120 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received:	09/17/2024	Sampling Date:	09/17/2024
Reported:	09/18/2024	Sampling Type:	Soil
Project Name:	BIG EDDY UNIT 248H	Sampling Condition:	Cool & Intact
Project Number:	03C1558453	Sample Received By:	Shalyn Rodriguez
Project Location:	XTO 32.62087 -103.83145		

Sample ID: SS 22 .5' (H245642-09)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/18/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/18/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/18/2024	ND						

Surrogate: 1-Chlorooctane 109 % 48.2-134

Surrogate: 1-Chlorooctadecane 118 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM
 DAVID MCINNIS
 3122 NATIONAL PARKS HWY
 CARLSBAD NM, 88220
 Fax To:

Received: 09/17/2024
 Reported: 09/18/2024
 Project Name: BIG EDDY UNIT 248H
 Project Number: 03C1558453
 Project Location: XTO 32.62087 -103.83145

Sampling Date: 09/17/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SS 23 .5' (H245642-10)

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	09/17/2024	ND	2.11	105	2.00	6.21		
Toluene*	<0.050	0.050	09/17/2024	ND	2.13	107	2.00	6.10		
Ethylbenzene*	<0.050	0.050	09/17/2024	ND	2.12	106	2.00	6.29		
Total Xylenes*	<0.150	0.150	09/17/2024	ND	6.53	109	6.00	6.13		
Total BTEX	<0.300	0.300	09/17/2024	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/18/2024	ND	416	104	400	7.41		

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	09/18/2024	ND	201	101	200	2.40		
DRO >C10-C28*	<10.0	10.0	09/18/2024	ND	203	102	200	1.95		
EXT DRO >C28-C36	<10.0	10.0	09/18/2024	ND						

Surrogate: 1-Chlorooctane 116 % 48.2-134

Surrogate: 1-Chlorooctadecane 124 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

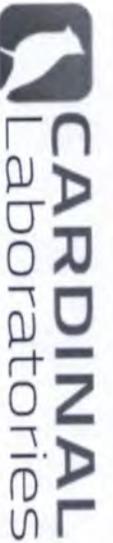
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- ** Samples not received at proper temperature of 6°C or below.
- *** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on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

BILL TO

ANALYSIS REQUEST

Company Name: Ensolium, LLC
 Project Manager: David Mcinnis
 Address: 3122 National Parks Hwy
 City: Carlsbad State: NM Zip: 88220
 Phone #: 409-454-3009 Fax #: _____
 Project #: 03C1558453 Project Owner: XTO
 Project Name: Big Eddy Unit 248H
 Project Location: 32.62087, -103.83145
 Sampler Name: Jesse Dorman
 P.O. #: _____
 Company: XTO Energy Inc.
 Attn: Amy Ruth
 Address: 3104 E. Green St.
 City: Carlsbad
 State: NM Zip: 88220
 Phone #: _____
 Fax #: _____

Lab I.D.	Sample I.D.	Sample Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	BTEX	TPH	CHLORIDE
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:					
HAUSCWB	5514	3	G	1							9/17/24	1230				
	5515	3	G	1								1233				
	5516	3	G	1								1235				
	5517	3	G	1								1236				
	5518	3	G	1								1241				
	5519	3	G	1								1244				
	5520	3	G	1								1248				
	5521	3	G	1								1252				
	5522	3	G	1								1255				
	5523	3	G	1								1258				

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Relinquished By: _____
 Date: _____
 Received By: *Stoddington*
 Date: 9/17/24
 Received By: _____
 Date: _____

Delivered By: (Circle One)
 Observed Temp. °C: 1.52
 Corrected Temp. °C: 0.92
 Sample Condition: Intact Cool Yes No
 CHECKED BY: *SD*
 Turnaround Time: *Standard*
 Thermometer ID #: *113*
 Correction Factor: *0.5C*
 Bacteria (only) Standard Rush
 Cool Intact Yes No
 Sample Condition Yes No
 Observed Temp. °C _____
 Corrected Temp. °C _____

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



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

February 03, 2025

TRACY HILLARD
ENSOLUM, LLC
705 W WADLEY AVE.
MIDLAND, TX 79705

RE: BEU 2481249H

Enclosed are the results of analyses for samples received by the laboratory on 01/31/25 17:00.

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.

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, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 03 1 (H250597-01)

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	01/31/2025	ND	2.33	117	2.00	0.910	
Toluene*	<0.050	0.050	01/31/2025	ND	2.37	119	2.00	2.56	
Ethylbenzene*	<0.050	0.050	01/31/2025	ND	2.53	127	2.00	1.63	
Total Xylenes*	<0.150	0.150	01/31/2025	ND	7.63	127	6.00	0.157	
Total BTEX	<0.300	0.300	01/31/2025	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4040	16.0	02/03/2025	ND	416	104	400	7.41	

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	01/31/2025	ND	202	101	200	0.762	
DRO >C10-C28*	<10.0	10.0	01/31/2025	ND	181	90.4	200	2.52	
EXT DRO >C28-C36	<10.0	10.0	01/31/2025	ND					

Surrogate: 1-Chlorooctane 102 % 48.2-134

Surrogate: 1-Chlorooctadecane 98.4 % 49.1-148

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 03 4 (H250597-02)

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	01/31/2025	ND	2.33	117	2.00	0.910	
Toluene*	<0.050	0.050	01/31/2025	ND	2.37	119	2.00	2.56	
Ethylbenzene*	<0.050	0.050	01/31/2025	ND	2.53	127	2.00	1.63	
Total Xylenes*	<0.150	0.150	01/31/2025	ND	7.63	127	6.00	0.157	
Total BTEX	<0.300	0.300	01/31/2025	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	80.0	16.0	02/03/2025	ND	416	104	400	7.41	

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	01/31/2025	ND	202	101	200	0.762	
DRO >C10-C28*	<10.0	10.0	01/31/2025	ND	181	90.4	200	2.52	
EXT DRO >C28-C36	<10.0	10.0	01/31/2025	ND					

Surrogate: 1-Chlorooctane 95.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 91.3 % 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, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 01 5 (H250597-03)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/31/2025	ND	2.33	117	2.00	0.910	
Toluene*	<0.050	0.050	01/31/2025	ND	2.37	119	2.00	2.56	
Ethylbenzene*	<0.050	0.050	01/31/2025	ND	2.53	127	2.00	1.63	
Total Xylenes*	<0.150	0.150	01/31/2025	ND	7.63	127	6.00	0.157	
Total BTEX	<0.300	0.300	01/31/2025	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 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	224	16.0	02/03/2025	ND	416	104	400	7.41	

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	01/31/2025	ND	202	101	200	0.762	
DRO >C10-C28*	<10.0	10.0	01/31/2025	ND	181	90.4	200	2.52	
EXT DRO >C28-C36	<10.0	10.0	01/31/2025	ND					

Surrogate: 1-Chlorooctane 103 % 48.2-134

Surrogate: 1-Chlorooctadecane 99.5 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 01 6 (H250597-04)

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	01/31/2025	ND	2.33	117	2.00	0.910		
Toluene*	<0.050	0.050	01/31/2025	ND	2.37	119	2.00	2.56		
Ethylbenzene*	<0.050	0.050	01/31/2025	ND	2.53	127	2.00	1.63		
Total Xylenes*	<0.150	0.150	01/31/2025	ND	7.63	127	6.00	0.157		
Total BTEX	<0.300	0.300	01/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	256	16.0	02/03/2025	ND	416	104	400	7.41		

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	01/31/2025	ND	202	101	200	0.762		
DRO >C10-C28*	<10.0	10.0	01/31/2025	ND	181	90.4	200	2.52		
EXT DRO >C28-C36	<10.0	10.0	01/31/2025	ND						

Surrogate: 1-Chlorooctane 104 % 48.2-134

Surrogate: 1-Chlorooctadecane 100 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 01 9 (H250597-05)

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	01/31/2025	ND	2.33	117	2.00	0.910	
Toluene*	<0.050	0.050	01/31/2025	ND	2.37	119	2.00	2.56	
Ethylbenzene*	<0.050	0.050	01/31/2025	ND	2.53	127	2.00	1.63	
Total Xylenes*	<0.150	0.150	01/31/2025	ND	7.63	127	6.00	0.157	
Total BTEX	<0.300	0.300	01/31/2025	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	144	16.0	02/03/2025	ND	416	104	400	7.41	

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	01/31/2025	ND	202	101	200	0.762	
DRO >C10-C28*	<10.0	10.0	01/31/2025	ND	181	90.4	200	2.52	
EXT DRO >C28-C36	<10.0	10.0	01/31/2025	ND					

Surrogate: 1-Chlorooctane 101 % 48.2-134

Surrogate: 1-Chlorooctadecane 97.2 % 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, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 04 4 (H250597-06)

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	01/31/2025	ND	2.33	117	2.00	0.910	
Toluene*	<0.050	0.050	01/31/2025	ND	2.37	119	2.00	2.56	
Ethylbenzene*	<0.050	0.050	01/31/2025	ND	2.53	127	2.00	1.63	
Total Xylenes*	<0.150	0.150	01/31/2025	ND	7.63	127	6.00	0.157	
Total BTEX	<0.300	0.300	01/31/2025	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	1010	16.0	02/03/2025	ND	416	104	400	7.41	

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	01/31/2025	ND	202	101	200	0.762	
DRO >C10-C28*	179	10.0	01/31/2025	ND	181	90.4	200	2.52	
EXT DRO >C28-C36	41.8	10.0	01/31/2025	ND					

Surrogate: 1-Chlorooctane 101 % 48.2-134

Surrogate: 1-Chlorooctadecane 99.7 % 49.1-148

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 02 1 (H250597-07)

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	01/31/2025	ND	2.33	117	2.00	0.910	
Toluene*	<0.050	0.050	01/31/2025	ND	2.37	119	2.00	2.56	
Ethylbenzene*	<0.050	0.050	01/31/2025	ND	2.53	127	2.00	1.63	
Total Xylenes*	<0.150	0.150	01/31/2025	ND	7.63	127	6.00	0.157	
Total BTEX	<0.300	0.300	01/31/2025	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	176	16.0	02/03/2025	ND	416	104	400	7.41	

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	01/31/2025	ND	202	101	200	0.762	
DRO >C10-C28*	135	10.0	01/31/2025	ND	181	90.4	200	2.52	
EXT DRO >C28-C36	54.7	10.0	01/31/2025	ND					

Surrogate: 1-Chlorooctane 99.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 97.2 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- BS-3 Blank spike recovery outside of lab established statistical 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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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Ensolum, LLC

BILL TO

ANALYSIS REQUEST

Project Manager: Tracy Hillard
 Address: 601 N Marientfeld Street, Suite 400
 City: Midland State: TX Zip: 79701
 Phone #: 575-937-3906 Fax #: 575-393-2326
 Project # 03055477 03055477
 Project Name: BEA 24812494
 Project Location: 32.62085, -103.83132
 Sampler Name: Deon Bee
 P.O. #:
 Company: XTO Energy, Inc
 Attn: Colton Brown
 Address: 3104 E Greene St
 City: Carlsbad
 State: NM Zip: 88220
 Phone #:
 Fax #:
 Project Owner: XTO Energy

Lab I.D.	Sample I.D.	Depth (feet)	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	TPH 8015	BTEX 8021	Chloride 4500
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:					
1350544	PH03	1	G									1/31/25	1035	✓	✓	✓
	PH03	4	G									1/31/25	1208	✓	✓	✓
	PH01	5	G									1/30/25	1230	✓	✓	✓
	PH01	6	G									1/31/25	1235	✓	✓	✓
	PH01	9	G									1/31/25	1243	✓	✓	✓
	PH04	1	G									1/31/25	1408	✓	✓	✓
	PH02	1	G									1/31/25	1424	✓	✓	✓

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Relinquished By: [Signature] Date: 1/31/25 Time: 1:00
 Received By: [Signature] Date: 1/31/25 Time: 1:00
 Delivered By: (Circle One) Observed Temp. °C: 3.8 Sample Condition: Cool Intact
 Corrected Temp. °C: 2.7 Yes No No No
 Checked By: [Signature]
 Remarks: APP 2418043567 APP 2432142037 APP 2432142037 APP 2432531235 APP 2502042071
 Turnaround Time: Standard Bacteria (only) Sample Condition: Cool Intact
 Thermometer ID #113 #100 RUSH Yes No No
 Correction Factor: 0.0024 Yes No No

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



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

February 03, 2025

TRACY HILLARD
ENSOLUM, LLC
705 W WADLEY AVE.
MIDLAND, TX 79705

RE: BEU 2481249H

Enclosed are the results of analyses for samples received by the laboratory on 01/31/25 17:00.

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.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene
Lab Director/Quality Manager



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

Analytical Results For:

ENSOLUM, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 05 1' (H250598-01)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	1.15	0.500	02/03/2025	ND	2.37	118	2.00	6.88	
Toluene*	16.3	0.500	02/03/2025	ND	2.51	125	2.00	11.1	
Ethylbenzene*	11.9	0.500	02/03/2025	ND	2.54	127	2.00	12.7	
Total Xylenes*	23.7	1.50	02/03/2025	ND	7.52	125	6.00	12.8	
Total BTEX	53.1	3.00	02/03/2025	ND					

Surrogate: 4-Bromofluorobenzene (PID) 117 % 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	2480	16.0	02/03/2025	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	419	10.0	01/31/2025	ND	202	101	200	0.762	
DRO >C10-C28*	1550	10.0	01/31/2025	ND	181	90.4	200	2.52	
EXT DRO >C28-C36	277	10.0	01/31/2025	ND					

Surrogate: 1-Chlorooctane 114 % 48.2-134

Surrogate: 1-Chlorooctadecane 89.3 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 05 2' (H250598-02)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/03/2025	ND	2.37	118	2.00	6.88	
Toluene*	0.215	0.050	02/03/2025	ND	2.51	125	2.00	11.1	
Ethylbenzene*	0.080	0.050	02/03/2025	ND	2.54	127	2.00	12.7	
Total Xylenes*	<0.150	0.150	02/03/2025	ND	7.52	125	6.00	12.8	
Total BTEX	0.474	0.300	02/03/2025	ND					

Surrogate: 4-Bromofluorobenzene (PID) 120 % 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	640	16.0	02/03/2025	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/03/2025	ND	202	101	200	0.762	
DRO >C10-C28*	20.7	10.0	02/03/2025	ND	181	90.4	200	2.52	
EXT DRO >C28-C36	<10.0	10.0	02/03/2025	ND					

Surrogate: 1-Chlorooctane 102 % 48.2-134

Surrogate: 1-Chlorooctadecane 104 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 05 3' (H250598-03)

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	02/01/2025	ND	2.33	117	2.00	0.910		
Toluene*	<0.050	0.050	02/01/2025	ND	2.37	119	2.00	2.56		
Ethylbenzene*	<0.050	0.050	02/01/2025	ND	2.53	127	2.00	1.63		
Total Xylenes*	<0.150	0.150	02/01/2025	ND	7.63	127	6.00	0.157		
Total BTEX	<0.300	0.300	02/01/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 115 % 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	144	16.0	02/03/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	02/03/2025	ND	202	101	200	0.762		
DRO >C10-C28*	<10.0	10.0	02/03/2025	ND	181	90.4	200	2.52		
EXT DRO >C28-C36	<10.0	10.0	02/03/2025	ND						

Surrogate: 1-Chlorooctane 83.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 83.0 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 05 4' (H250598-04)

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	02/01/2025	ND	2.33	117	2.00	0.910		
Toluene*	<0.050	0.050	02/01/2025	ND	2.37	119	2.00	2.56		
Ethylbenzene*	<0.050	0.050	02/01/2025	ND	2.53	127	2.00	1.63		
Total Xylenes*	<0.150	0.150	02/01/2025	ND	7.63	127	6.00	0.157		
Total BTEX	<0.300	0.300	02/01/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	02/03/2025	ND	416	104	400	7.41		

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	01/31/2025	ND	202	101	200	0.762		
DRO >C10-C28*	<10.0	10.0	01/31/2025	ND	181	90.4	200	2.52		
EXT DRO >C28-C36	<10.0	10.0	01/31/2025	ND						

Surrogate: 1-Chlorooctane 96.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 92.6 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 05 5' (H250598-05)

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	02/01/2025	ND	2.33	117	2.00	0.910		
Toluene*	<0.050	0.050	02/01/2025	ND	2.37	119	2.00	2.56		
Ethylbenzene*	<0.050	0.050	02/01/2025	ND	2.53	127	2.00	1.63		
Total Xylenes*	<0.150	0.150	02/01/2025	ND	7.63	127	6.00	0.157		
Total BTEX	<0.300	0.300	02/01/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 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	02/03/2025	ND	416	104	400	7.41		

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	01/31/2025	ND	202	101	200	0.762		
DRO >C10-C28*	<10.0	10.0	01/31/2025	ND	181	90.4	200	2.52		
EXT DRO >C28-C36	<10.0	10.0	01/31/2025	ND						

Surrogate: 1-Chlorooctane 103 % 48.2-134

Surrogate: 1-Chlorooctadecane 97.9 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

ENSOLUM, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 05 6' (H250598-06)

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	02/01/2025	ND	2.33	117	2.00	0.910		
Toluene*	<0.050	0.050	02/01/2025	ND	2.37	119	2.00	2.56		
Ethylbenzene*	<0.050	0.050	02/01/2025	ND	2.53	127	2.00	1.63		
Total Xylenes*	<0.150	0.150	02/01/2025	ND	7.63	127	6.00	0.157		
Total BTEX	<0.300	0.300	02/01/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 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	02/03/2025	ND	416	104	400	7.41		

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	01/31/2025	ND	202	101	200	0.762		
DRO >C10-C28*	<10.0	10.0	01/31/2025	ND	181	90.4	200	2.52		
EXT DRO >C28-C36	<10.0	10.0	01/31/2025	ND						

Surrogate: 1-Chlorooctane 105 % 48.2-134

Surrogate: 1-Chlorooctadecane 101 % 49.1-148

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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, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 05 7' (H250598-07)

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	02/01/2025	ND	2.33	117	2.00	0.910		
Toluene*	<0.050	0.050	02/01/2025	ND	2.37	119	2.00	2.56		
Ethylbenzene*	<0.050	0.050	02/01/2025	ND	2.53	127	2.00	1.63		
Total Xylenes*	<0.150	0.150	02/01/2025	ND	7.63	127	6.00	0.157		
Total BTEX	<0.300	0.300	02/01/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 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	48.0	16.0	02/03/2025	ND	416	104	400	7.41		

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	01/31/2025	ND	202	101	200	0.762		
DRO >C10-C28*	<10.0	10.0	01/31/2025	ND	181	90.4	200	2.52		
EXT DRO >C28-C36	<10.0	10.0	01/31/2025	ND						

Surrogate: 1-Chlorooctane 98.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 93.8 % 49.1-148

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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, LLC
 TRACY HILLARD
 705 W WADLEY AVE.
 MIDLAND TX, 79705
 Fax To:

Received:	01/31/2025	Sampling Date:	01/31/2025
Reported:	02/03/2025	Sampling Type:	Soil
Project Name:	BEU 2481249H	Sampling Condition:	Cool & Intact
Project Number:	03C155877 03C1558453	Sample Received By:	Alyssa Parras
Project Location:	XTO 32.62085, -103.83132		

Sample ID: PH 05 8' (H250598-08)

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	02/01/2025	ND	2.33	117	2.00	0.910		
Toluene*	<0.050	0.050	02/01/2025	ND	2.37	119	2.00	2.56		
Ethylbenzene*	<0.050	0.050	02/01/2025	ND	2.53	127	2.00	1.63		
Total Xylenes*	<0.150	0.150	02/01/2025	ND	7.63	127	6.00	0.157		
Total BTEX	<0.300	0.300	02/01/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 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	16.0	16.0	02/03/2025	ND	416	104	400	7.41		

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	01/31/2025	ND	202	101	200	0.762		
DRO >C10-C28*	<10.0	10.0	01/31/2025	ND	181	90.4	200	2.52		
EXT DRO >C28-C36	<10.0	10.0	01/31/2025	ND						

Surrogate: 1-Chlorooctane 103 % 48.2-134

Surrogate: 1-Chlorooctadecane 98.8 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- BS-3 Blank spike recovery outside of lab established statistical 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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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

BILL TO

ANALYSIS REQUEST

Company Name: Ensolum, LLC
 Project Manager: Trey Hillard
 Address: 601 N Marientfeld Street, Suite 400
 City: Midland State: TX Zip: 79701
 Phone #: 575-437-3506 Fax #: 575-344-1333
 Project #: 03C155477 Project Owner: XTO Energy
 Project Name: BEEN 2481249H
 Project Location: 32, 62085, -103.83132
 Sampler Name: Even Rev
 P.O. #: _____ Company: XTO Energy, Inc
 Attn: Colton Brown
 Address: 3104 E Greene St
 City: Carlsbad State: NM Zip: 88220
 Phone #: _____ Fax #: _____

Lab I.D.	Sample I.D.	Depth (feet)	MATRIX											DATE	TIME	TPH 8015	BTEX 8021	Chloride 4500		
			(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :							
<u>HSC0598</u>	<u>1 P105</u>	<u>1</u>	<input checked="" type="checkbox"/>													<u>1/31/25</u>	<u>1307</u>	<input checked="" type="checkbox"/>		
	<u>2 P105</u>	<u>2</u>	<input checked="" type="checkbox"/>													<u>1/31/25</u>	<u>1313</u>	<input checked="" type="checkbox"/>		
	<u>3 P105</u>	<u>3</u>	<input checked="" type="checkbox"/>													<u>1/31/25</u>	<u>1319</u>	<input checked="" type="checkbox"/>		
	<u>4 P105</u>	<u>4</u>	<input checked="" type="checkbox"/>													<u>1/31/25</u>	<u>1324</u>	<input checked="" type="checkbox"/>		
	<u>5 P105</u>	<u>5</u>	<input checked="" type="checkbox"/>													<u>1/31/25</u>	<u>1327</u>	<input checked="" type="checkbox"/>		
	<u>6 P105</u>	<u>6</u>	<input checked="" type="checkbox"/>													<u>1/31/25</u>	<u>1333</u>	<input checked="" type="checkbox"/>		
	<u>7 P105</u>	<u>7</u>	<input checked="" type="checkbox"/>													<u>1/31/25</u>	<u>1339</u>	<input checked="" type="checkbox"/>		
	<u>8 P105</u>	<u>8</u>	<input checked="" type="checkbox"/>													<u>1/31/25</u>	<u>1348</u>	<input checked="" type="checkbox"/>		

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Relinquished By: _____ Received By: APR
 Date: 1/31/25
 Time: 17:00
 Delivered By: (Circle One) Observed Temp. °C: 33 Sample Condition: Cool Intact
 Corrected Temp. °C: 27 Yes No
 Sampler - I/P/S - Bus - Other: _____
 CHECKED BY: AS
 Verbal Result: Yes No Add'l Phone #: _____
 All Results are emailed. Please provide Email address: _____
 REMARKS: NAPP 241 804 3567 NAPP 243 253 1235
NAPP 243 214 7637 NAPP 250 204 2071
 Turnaround Time: Standard Rush
 Thermometer ID # 4437492 Bacteria (only) Sample Condition: Cool Intact
 Correction Factor: 0.5°C Yes No
 Corrected Temp. °C: _____

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



Appendix E

NMOCD Correspondence

Ben Belill

From: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Sent: Thursday, January 16, 2025 9:51 AM
To: Brown, Colton S
Cc: Dirkx, Kaylan; Garcia, Amanda; Mcafee, Ashley A; Tacoma Morrissey; Ben Belill; Bratcher, Michael, EMNRD; Wells, Shelly, EMNRD
Subject: (Variance Approval) -XTO - Big Eddy Unit 248H- Incident Number NAPP2418043567

[**EXTERNAL EMAIL**]

Colton,

The Variance Request for confirmation floor sample size of 1,000 ft2 in the “Area of Investigation” is approved. The “Release Area” will still need confirmation samples representing no more than 200 ft2. Please include this e-mail correspondence in the Remediation Closure Report. I have changed the location and coordinates to match where the majority of the release occurred, which is Unit A, Section 35, Township 19 South, Range 31 East, in Eddy County, New Mexico (32.62087°, -103.83145°).

Regards,

Robert Hamlet • Environmental Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave. | Artesia, NM 88210
575.909.0302 | robert.hamlet@emnrd.nm.gov
<http://www.emnrd.state.nm.us/OCD/>



From: Brown, Colton S <colton.s.brown@exxonmobil.com>
Sent: Thursday, January 16, 2025 7:19 AM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: Dirkx, Kaylan <kaylan.dirkx@exxonmobil.com>; Garcia, Amanda <amanda.garcia@exxonmobil.com>; Mcafee, Ashley A <ashley.a.mcafee@exxonmobil.com>; Tacoma Morrissey <tmorrissey@ensolum.com>; Ben Belill <bbelill@ensolum.com>
Subject: [EXTERNAL] XTO- Variance Request- Big Eddy Unit 248H- Incident Number

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

Good Morning,

Please see the sampling variance below and supporting documentation attached. Please let me know of any questions or concerns.

Mr. Hamlet,

Based on our discussion today, XTO is submitting a variance request for the confirmation soil sampling requested in the conditions of approval for a Remediation Work Plan. The Work Plan was submitted September 20, 2024 and approved on November 6, 2024 with the following conditions of approval:

- "...Confirmation samples will need to be conducted at surface and at 0.5 feet in the "Area of Investigation" to ensure that contaminants didn't get carried/deposited in this area. All off-pad areas must meet reclamation/revegetation standards set forth in the OCD Spill Rule."

As discussed on our call, January 15, 2024, the "area of investigation" was investigated to assess the area due to high winds at the time of the release in a northwesterly direction. Vegetation was assessed by a staff biologist, and delineation soil samples were collected within an around the area of investigation. The vegetation was determined to be healthy and similar to the surrounding area and no impacts to soil were identified. As such, XTO proposed continued monitoring of the area of investigation. XTO's goal was to be especially protective of the sparse vegetation in the area and to mitigate any additional disturbance of the area as it is in a mapped area for potential Dune Sagebrush Lizard habitat. Following our conversation, XTO understands the need for confirmation soil sampling of the area, however, to ensure minimal disturbance of the area, XTO proposes a variance of the 200 square foot confirmation soil sample frequency and recommends confirmation soil sample be collected on a 1,000 square foot sampling frequency. We believe this will provide additional confirmation that no impacted soil exists in the area and be protective of the vegetative health and potential habitat of the Dune Sagebrush Lizard.

One note, the coordinates on the OCD portal are incorrect, as stated in the Work Plan: The release was initially reported at the incorrect location but following a review of initial release records, internal documents, and personnel communications, it was confirmed the release is located on the Big Eddy Unit 248H well pad. The majority of the release is located in Unit A, Section 35, Township 19 South, Range 31 East, in Eddy County, New Mexico (32.62087°, -103.83145°) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (BLM). However, a portion of the release occurred on State Land managed by New Mexico State Land Office (SLO) in Unit D, Section 36, Township 19 South, and Range 31 East.

The following attachments are included as supporting documentation.

- Figure 1 Site Location Map (showing the correct location)
- Figure 2 Delineation Soil Sample Locations
- Figure 3 Vegetation Survey Transects
- Table 1 Soil Sample Analytical Results
- Photographic Log

If we can provide any additional information, please let us know.

Thank you

Colton Brown
Spill Coordinator

ExxonMobil Upstream Company
3104 E. Greene St.
Carlsbad, NM 88220
Cell Phone: 575-988-2390
colton.s.brown@exxonmobil.com

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

General Information
Phone: (505) 629-6116

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

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

QUESTIONS

Action 428461

QUESTIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 428461
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2502042071
Incident Name	NAPP2502042071 BIG EDDY UNIT 249H @ 30-015-40715
Incident Type	Release Other
Incident Status	Remediation Plan Received
Incident Well	[30-015-40715] BIG EDDY UNIT #249H

Location of Release Source	
<i>Please answer all the questions in this group.</i>	
Site Name	BIG EDDY UNIT 249H
Date Release Discovered	01/17/2025
Surface Owner	Federal

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

Nature and Volume of Release	
<i>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.</i>	
Crude Oil Released (bbls) Details	Cause: Equipment Failure Well Crude Oil Released: 33 BBL Recovered: 19 BBL Lost: 14 BBL.
Produced Water Released (bbls) Details	Cause: Equipment Failure Well Produced Water Released: 29 BBL Recovered: 16 BBL Lost: 13 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	Cause: Equipment Failure Well Natural Gas Vented Released: 73 MCF Recovered: 0 MCF Lost: 73 MCF.
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 428461

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 428461
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	Yes
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.

With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.

Initial Response

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

The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	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: Ashley McAfee Email: ashley.a.mcafee@exxonmobil.com Date: 01/20/2025
--	--

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QUESTIONS, Page 3

Action 428461

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 428461
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Site Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 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	Yes

Remediation Plan

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

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

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

Chloride (EPA 300.0 or SM4500 Cl B)	4040
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	3399
GRO+DRO (EPA SW-846 Method 8015M)	2786
BTEX (EPA SW-846 Method 8021B or 8260B)	53
Benzene (EPA SW-846 Method 8021B or 8260B)	1

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

On what estimated date will the remediation commence	01/17/2025
On what date will (or did) the final sampling or liner inspection occur	04/04/2025
On what date will (or was) the remediation complete(d)	04/04/2025
What is the estimated surface area (in square feet) that will be reclaimed	34375
What is the estimated volume (in cubic yards) that will be reclaimed	3800
What is the estimated surface area (in square feet) that will be remediated	34375
What is the estimated volume (in cubic yards) that will be remediated	3800

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

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

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

QUESTIONS, Page 4

Action 428461

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 428461
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Remediation Plan (continued)

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

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

(Select all answers below that apply.)

(Ex Situ) Excavation and off-site disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for off-site disposal	HALFWAY DISPOSAL AND LANDFILL [FEEM0112334510]
OR which OCD approved well (API) will be used for off-site disposal	Not answered.
OR is the off-site disposal site, to be used, out-of-state	Not answered.
OR is the off-site disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and on-site remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.

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

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

I hereby agree and sign off to the above statement	Name: Kailee Smith Title: Regulatory Analyst Email: kailee.smith@exxonmobil.com Date: 02/05/2025
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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.

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 5

Action 428461

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 428461
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Deferral Requests Only	
<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	No

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QUESTIONS, Page 6

Action 428461

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 428461
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	425108
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	01/31/2025
What was the (estimated) number of samples that were to be gathered	8
What was the sampling surface area in square feet	1600

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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Santa Fe, NM 87505

CONDITIONS

Action 428461

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 428461
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

CONDITIONS

Created By	Condition	Condition Date
scwells	The remediation plan is conditionally approved:	2/6/2025
scwells	Due to the occurrence of multiple releases on top of one another at this site, OCD does not believe it provides equal or better protection of fresh water, public health and the environment to grant a sampling variance request. Five-point composite confirmation samples from the base and sidewalls of all excavations must be collected at a sampling frequency of every 200 square feet per 19.15.29.12(D)1(c) NMAC.	2/6/2025
scwells	Per the conditions of approval for the remediation plan that was approved on 11/6/24, the "Area of Investigation" must have five-point composite confirmation samples collected at both surface and .5 feet at a sampling frequency of every 1000 square feet.	2/6/2025
scwells	Submit a remediation closure report to the OCD by 5/7/25.	2/6/2025