District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAPP2209446613
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # *(assigned by OCD)*
Contact mailing address	

Location of Release Source

Latitude _____ Longitude _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# *(if applicable)*

Unit Letter	Section	Township	Range	County

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Release		

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2209446613
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

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.
☐ The impacted area has been secured to protect human health and the environment.
☐ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☐ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

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

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.

Printed Name: _____ Title: _____

Signature: Adrian Bates Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Jocelyn Harimon Date: 04/04/2020

Location:	**Pierce Canyon 3 SWD**	
Spill Date:	**3/21/2022**	
Area 1		
Approximate Area =	56.15	cu.ft.
VOLUME OF LEAK		
Total Crude Oil =	0.00	bbls
Total Produced Water =	10.00	bbls
TOTAL VOLUME OF LEAK		
Total Crude Oil =	**0.00**	**bbls**
Total Produced Water =	**10.00**	**bbls**
TOTAL VOLUME RECOVERED		
Total Crude Oil =	**0.00**	**bbls**
Total Produced Water =	**10.00**	**bbls**

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 95695
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	4/4/2022

Incident ID	NAPP2209446613
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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?	>100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☒ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2209446613
District RP	
Facility ID	
Application ID	

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.

Printed Name: ___Garrett Green_____ Title: _____Environmental Coordinator_____

Signature:_____ _____ Date: __07/19/2022_____

email: __garrett.green@exxonmobil.com_____ Telephone: __575-200-0729_____

OCD Only

Received by: _____ Date: _____

Incident ID	NAPP2209446613
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Garrett Green Title: Environmental Coordinator

Signature: Garrett Green Date: 07/19/2022

email: garrett.green@exxonmobil.com Telephone: 575-200-0729

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Jennifer Nobui Date: 08/23/2022

Printed Name: Jennifer Nobui Title: Environmental Specialist A

ENSOLUM

July 19, 2022

District II
New Mexico Oil Conservation Division
811 South First Street
Artesia, New Mexico 88210

Re: Closure Request
Pierce Canyon 3 SWD
Incident Number NAPP2209446613
Eddy County, New Mexico

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared this Closure Request to document site assessment and soil sampling activities performed at the Pierce Canyon 3 SWD (Site). The purpose of the site assessment and soil sampling activities was to assess for the presence or absence of impacts to soil resulting from a release of produced water within lined containment at the Site. Based on field observations, field screening activities, and laboratory analytical results, XTO is requesting closure for Incident Number NAPP2209446613.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in in Unit P, Section 3, Township 25 South, Range 30 East, in Eddy County, New Mexico (32.15473°N, 103.86435°W) and is associated with oil and gas exploration and production operations on Bureau of Land Management (BLM) managed federal land.

On March 21, 2022, a failed check valve on a pump resulted in the release of approximately 10 barrels (bbls) of produced water into the lined tank battery containment. A vacuum truck was immediately dispatched to the Site to recover the free-standing fluids; all 10 bbls of produced water were recovered from within the lined containment. A 48-hour advance notice of liner inspection was provided via email to the New Mexico Oil Conservation Division (NMOCD) District II office. A liner integrity inspection was conducted by XTO personnel following the fluid recovery and upon inspection, the liner was determined to be insufficient. XTO reported the release to the NMOCD on a Release Notification Form C-141 (Form C-141) on April 4, 2022. The release was assigned Incident Number NAPP2209446613.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site was characterized according to Table 1, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Results from the characterization desktop review are presented on page 3 of the Form C-141, Site Assessment/Characterization. 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

groundwater data is New Mexico Office of the State Engineer (NMOSE) well C-04520, located approximately 1.25 miles northeast of the Site. The groundwater well has a reported depth to groundwater of 455 feet bgs and a total depth of 630 feet bgs.

Additional wells with depth to groundwater greater than 100 feet bgs are located to the north, south, east, and west of site. The wells are greater than NMOCD's preferred 0.5 mile radius from the Site, however; the consistent presence of non-water bearing lithology in all directions of the Site is sufficient to estimate depth to groundwater at the Site as greater than 100 feet bgs. There are no regional or Site-specific hydrological conditions, such as shallow surface water, karst features, wetlands, or vegetation that suggest the Site is conducive to shallow groundwater. All wells used for depth to groundwater determination are presented on Figure 1. The referenced well records are included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a freshwater emergent wetland, located approximately 3,640 feet west 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). Site receptors are identified on Figure 1.

Based on the results of the Site Characterization, the following NMOCD Table 1 Closure Criteria (Closure Criteria) apply:

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

SITE ASSESSMENT ACTIVITIES

During June 2022, site assessment activities were conducted to evaluate the release extent based on information provided on the Form C-141 and visual observations. Ensolum personnel advanced one borehole (BH01) via hand-auger at the location of the tear in the liner identified during the liner integrity inspection. Two discrete delineation soil samples were collected from the borehole at depths of approximately 1-foot and 2 feet bgs. Soil from the borehole was field screened for volatile aromatic hydrocarbons utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips, respectively. Field screening results and observations from the borehole were documented on a lithologic/soil sampling log, which is included as Appendix B. The borehole was backfilled with the soil removed and the tear in the liner was repaired. Four additional assessment samples (SS01 through SS04) were collected around the lined containment from a depth of 0.5 feet bgs to confirm the lateral extent of the release. The borehole and delineation soil sample locations are depicted on Figure 2. Photographic documentation was conducted during the Site visit. A photographic log is included in Appendix C.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of BTEX following United States

Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for the delineation soil samples from borehole BH01 indicated benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Site Closure Criteria. Laboratory analytical results for soil samples SS01 through SS04, collected around the containment, were compliant with the Site Closure Criteria and compliant with the most stringent Table 1 Closure Criteria. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical report is included as Appendix D.

CLOSURE REQUEST

Following the failed liner integrity inspection at the Site, Ensolum personnel advanced borehole BH01 at the location of the tear in the liner to assess for the presence or absence of impacted soil resulting from the March 21, 2022, produced water release within lined containment. Two delineation soil samples were collected from borehole BH01, at depths of approximately 1-foot and 2 feet bgs. Laboratory analytical results for the delineation soil samples indicated benzene, BTEX, TPH-DRO/TPH-GRO, TPH and chloride concentrations were compliant with the Site Closure Criteria. Additionally, laboratory analytical results for soil samples SS01 through SS04, collected around the containment, were compliant with the most stringent Table 1 Closure Criteria. The release was contained laterally by the lined containment and all released fluids were recovered during initial response activities. The tear in the liner was subsequently repaired. With the integrity of the liner restored, the potential for contaminants (new or residual) to vertically migrate towards the groundwater table has been removed, protecting human health, the environment, and groundwater.

Based on initial response efforts, depth to groundwater greater than 100 feet bgs, and soil sample laboratory analytical results compliant with the Closure Criteria directly beneath the tear in the liner, XTO respectfully requests closure for Incident Number NAPP2209446613.

If you have any questions or comments, please contact Ms. Ashley Ager at (970) 946-1093 or aager@ensolum.com.

Sincerely,
Ensolum, LLC

Ben Bellil
Project Geologist

Ashley Ager, P.G.
Program Director

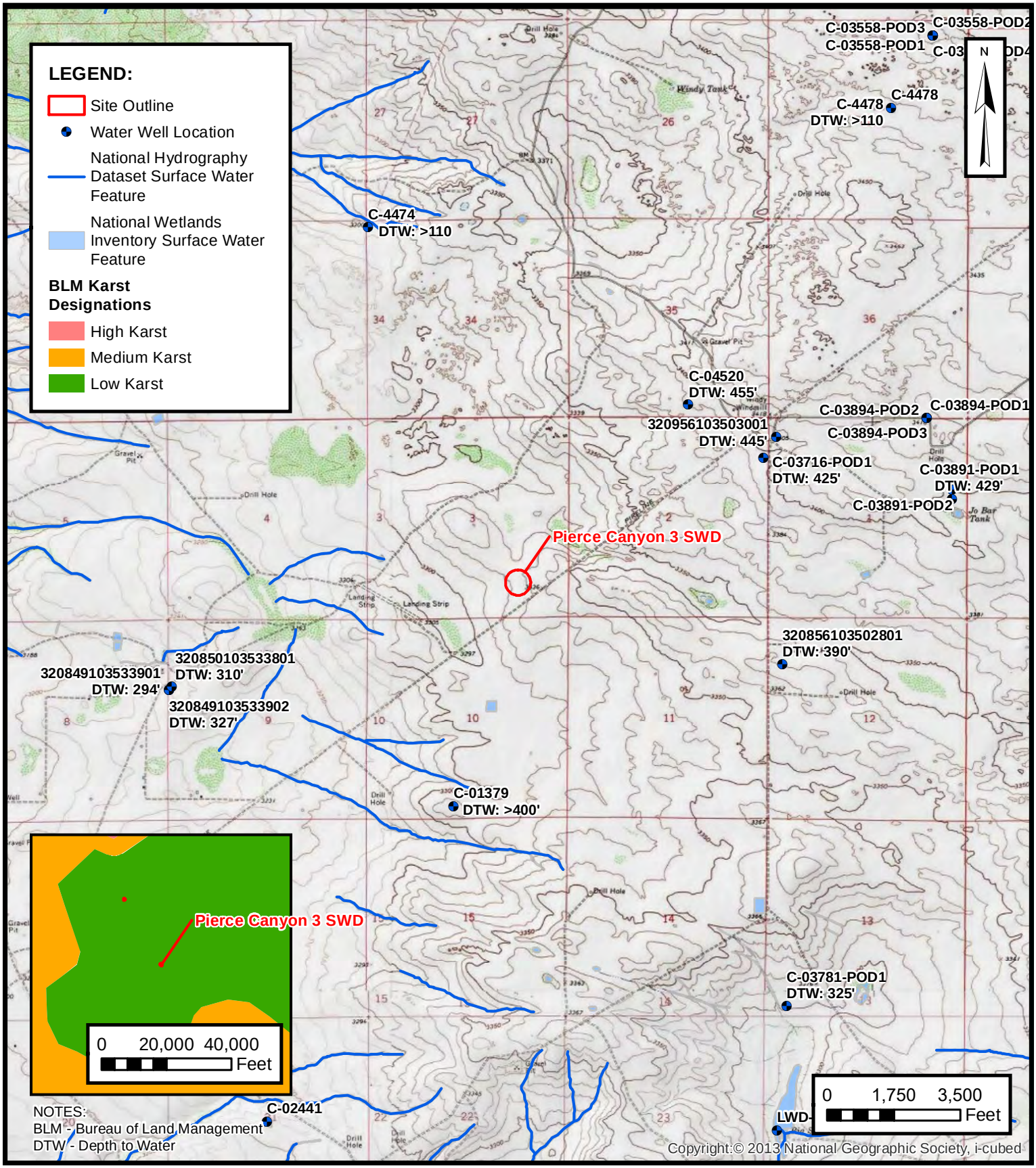
cc: Garrett Green, XTO
Bureau of Land Management

Appendices:

Figure 1 Site Receptor Map
Figure 2 Delineation Soil Sample Locations

ENSOLUM

FIGURES

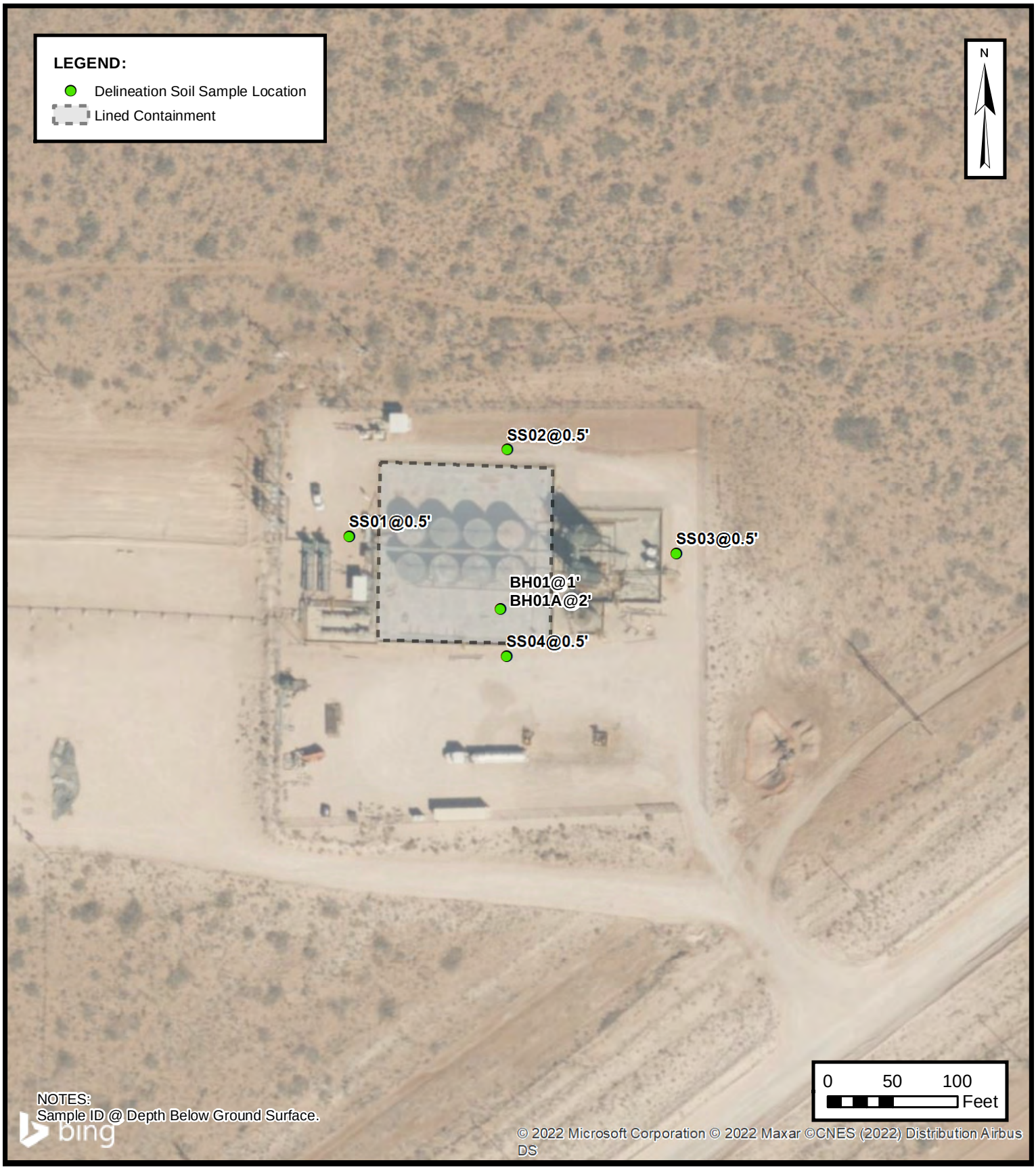


ENSOLUM
Environmental & Hydrogeologic Consultants

SITE RECEPTOR MAP

XTO ENERGY, INC
PIERCE CANYON 3 SWD
NAPP2209446613
Unit P, Sec 03, T25S, R30E
Eddy County, New Mexico

FIGURE
1



ENSOLUM
Environmental & Hydrogeologic Consultants

DELINEATION SOIL SAMPLE LOCATIONS

XTO ENERGY, INC
PIERCE CANYON 3 SWD
NAPP2209446613
Unit P, Sec 03, T25S, R30E
Eddy County, New Mexico

FIGURE

2

ENSOLUM

TABLES

ENSOLUM

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
XTO Energy, Inc. - Pierce Canyon 3 SWD
Eddy County, New Mexico

Ensolum Project No. 03E1558057

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 1 Closure Criteria (NMAC 19.15.29)			**10**	**50**	NE	NE	NE	**1,000**	**2,500**	**20,000**
Delineation Soil Sample Analytical Results										
SS01	06/27/2022	0.5	<0.00198	<0.00396	<49.9	<49.9	<49.9	<49.9	<49.9	22.1
SS02	06/27/2022	0.5	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	7.68
SS03	06/27/2022	0.5	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	157
SS04	06/27/2022	0.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	42.7
BH01	06/02/2022	1	<0.00202	<0.00403	<49.8	<49.8	<49.8	<49.8	<49.8	741
BH01A	06/02/2022	2	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	163

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

Concentrations in **bold** exceed the NMOCD Table 1 Closure Criteria for Soils Impacted by a Release

ENSOLUM

APPENDIX A

Well Records

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
C-04520 POD-1	20E1C	C-04520

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Nathan Brady : Double E Pipeline, LLC	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
910 Louisiana St Ste 4200	Houston	TX	77002

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	10	6.4	N
	LONGITUDE	103	50	59	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

SW,SW,SE Sec 35 T 24 R 30E

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1626	Roy Taylor	Roy Taylor Drilling

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
6/1/21	6/9/21	630'	650'	455'

COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☑ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 455'

DRILLING FLUID: ☐ AIR ☑ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	590'	8 3/4	PVC SDR-17	Quik-loc	4.50	0.25	NA
590'	630'	8 3/4	PVC SDR-17	Quik-loc	4.50	0.25	.035

OSE DII JUL 6 2021 AM8:31

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	20'	8 3/4	cement	6.2	Pourded
20'	520'	8 3/4	3/8 gravel	154	Pourded
520'	630'	8 3/4	8/16 silica sand	34	Tremie

FOR OSE INTERNAL USE

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

FILE NO. C-4520-POD1	POD NO. 1	TRN NO. 691027	
LOCATION Drink+Smart 24.30.35.334		WELL TAG ID NO. 20E1C	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	8'	8'	Top Soil	Y ✔ N	
8'	20'	12'	Caliche	Y ✔ N	
20'	220'	200'	Sand	Y ✔ N	
220'	270'	50'	Red Clay	Y ✔ N	
270'	420'	150'	Sand	Y ✔ N	
420'	450'	30'	Red Clay	Y ✔ N	
450'	470'	20'	Limestone	✔ Y N	
470'	600'	130'	Sand	✔ Y N	
600'	640'	40'	Sand and gravel	✔ Y N	
640'	650'	10'	Red Clay	Y ✔ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☑ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Well will make about 8 to 10 gpm

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

6. SIGNATURE

BY SIGNING BELOW, I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED WELL. I ALSO CERTIFY THAT THE WELL TAG, IF REQUIRED, HAS BEEN INSTALLED AND THAT THIS WELL RECORD WILL ALSO BE FILED WITH THE PERMIT HOLDER WITHIN 30 DAYS AFTER THE COMPLETION OF WELL DRILLING.

Roy Taylor — Roy Taylor — 6/28/21

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 04/30/2019)

FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	PAGE 2 OF 2

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click to hideNews Bulletins

- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

site_no list =

- 320856103502801

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

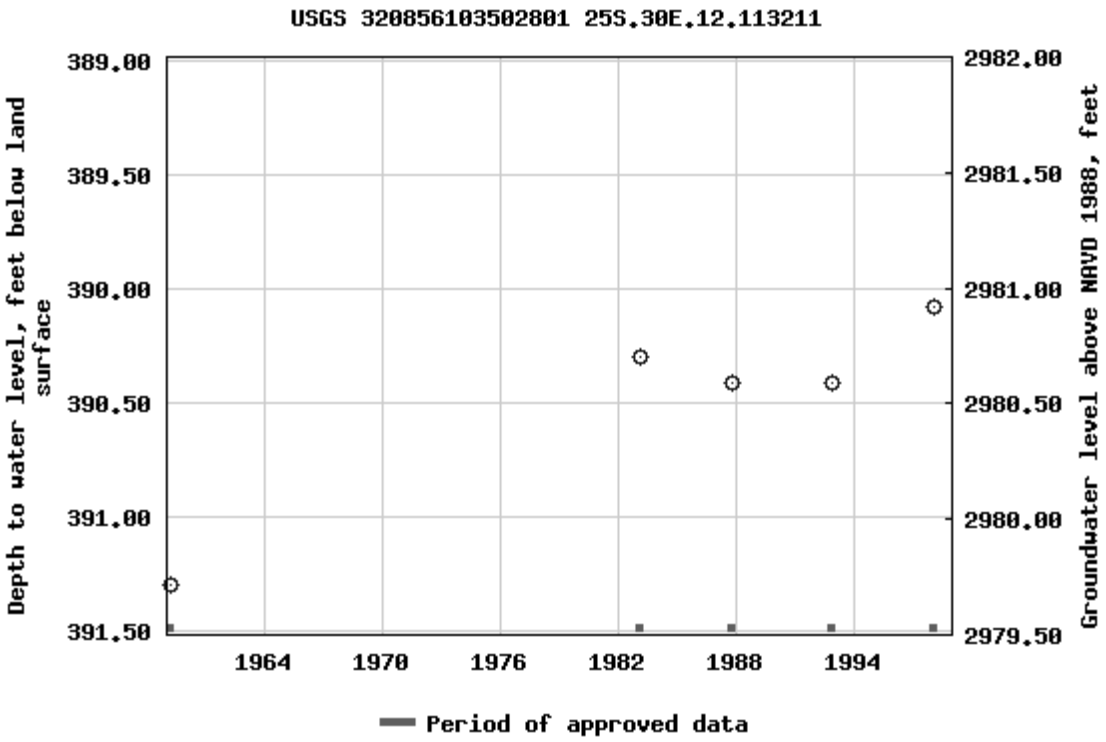
USGS 320856103502801 25S.30E.12.113211

Available data for this site | Groundwater: Field measurements | GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°08'56", Longitude 103°50'28" NAD27
Land-surface elevation 3,371 feet above NAVD88
The depth of the well is 482 feet below land surface.
This well is completed in the Pecos River Basin alluvial aquifer (N100PCSRVR) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2022-06-02 12:50:22 EDT
0.61 0.53 nadww01

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

RECEIVED
2010 DEC 16 P 5:16
OFFICE OF THE STATE ENGINEER

1. GENERAL AND WELL LOCATION

POD NUMBER (WELL NUMBER): C03716	OSE FILE NUMBER(S): C03716
WELL OWNER NAME(S): BoPco LP	PHONE (OPTIONAL):
WELL OWNER MAILING ADDRESS: 3104 East Green	CITY: Carlsbad STATE: NM ZIP: 88220

WELL LOCATION (FROM GPS): LATITUDE DEGREES 32 MINUTES 09 SECONDS ~~846~~ N; LONGITUDE 103 50 35.~~7~~ ~~595~~ W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS: West of Buck Jackson Rd, in Center of Sub Station

2. OPTIONAL

(2.5 ACRE)	(10 ACRE)	(40 ACRE)	(160 ACRE)	SECTION	TOWNSHIP	RANGE
¼	¼	¼	¼	2	25 ☐ NORTH ☒ SOUTH	30 ☒ EAST ☐ WEST

SUBDIVISION NAME	LOT NUMBER	BLOCK NUMBER	UNIT/TRACT

HYDROGRAPHIC SURVEY	MAP NUMBER	TRACT NUMBER

3. DRILLING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1229	Richard Carter	Carter Well Drilling

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
2/5/2014	3/3/2014	Plugged	600	442

COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT): 425

DRILLING FLUID: ☐ AIR ☒ MUD ☐ ADDITIVES – SPECIFY:

DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
—	—						

4. WATER BEARING STRATA

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)
442	600	158	Red sandstone	50

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

TOTAL ESTIMATED WELL YIELD (GPM): 50

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER C-3716	POD NUMBER	TRN NUMBER 539192
LOCATION 25S.30E.02	2-2-4	PAGE 1 OF 2

15055246160 STATE ENGINEER OF FI 10:56:50 a.m. 12-16-2010 3/3

STATE ENGINEER OFFICE ROSWELL, NM

5. SEAL AND PUMP

TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☒ NO PUMP – WELL NOT EQUIPPED
☐ TURBINE ☐ CYLINDER ☐ OTHER – SPECIFY:

ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT) FROM	DEPTH (FT) TO	BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
	0	425	8 3/4	Cement + Water	252	TREMIE
	425	600	8 3/4	Silica SAND	73.5	TREMIE

6. GEOLOGIC LOG OF WELL

DEPTH (FT) FROM	DEPTH (FT) TO	THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?
0	2	2	White Caliche	☐ YES ☒ NO
2	4	2	Red Sand	☐ YES ☒ NO
4	18	14	White Caliche	☐ YES ☒ NO
18	120	102	Red Sand	☐ YES ☒ NO
120	168	48	Red Clay	☐ YES ☒ NO
168	263	95	Red Sand stone	☐ YES ☒ NO
263	266	3	Red Clay	☐ YES ☒ NO
266	406	146	Red sandstone	☐ YES ☐ NO
406	416	10	Red Clay	☐ YES ☒ NO
416	442	26	gray Clay	☒ YES ☐ NO
442	600		Red sandstone	☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO
				☐ YES ☐ NO

ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL

7. TEST & ADDITIONAL INFO

WELL TEST — METHOD: ☐ BAILER ☐ PUMP ☒ AIR LIFT ☐ OTHER – SPECIFY:

TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

ADDITIONAL STATEMENTS OR EXPLANATIONS:

8. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Richard Carter — SIGNATURE OF DRILLER

3/10/2014 — DATE

FOR OSE INTERNAL USE — WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	C-3716	POD NUMBER		TRN NUMBER	539192
LOCATION	25S.30E.02	2-2-4			PAGE 2 OF 2

Received Time Dec. 16. 2010 9:45AM No. 2999

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click to hideNews Bulletins

- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs

site_no list =

- 320849103533902

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

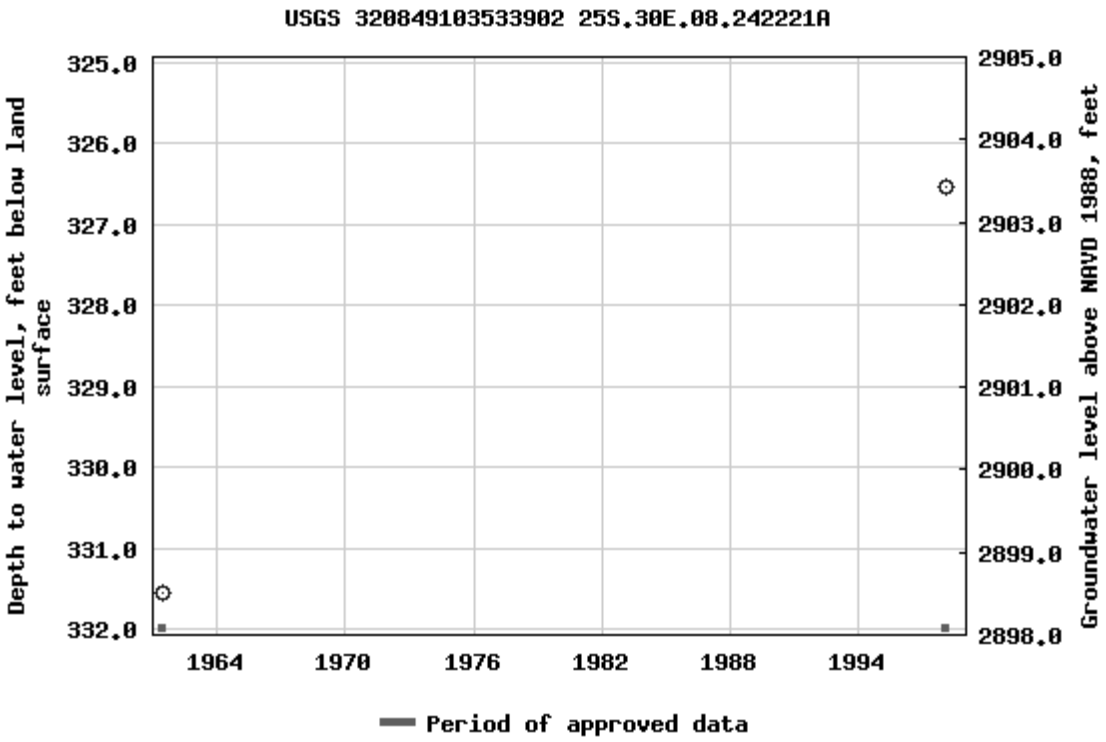
USGS 320849103533902 25S.30E.08.242221A

Available data for this site | Groundwater: Field measurements | GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°08'49", Longitude 103°53'39" NAD27
Land-surface elevation 3,230 feet above NAVD88
The depth of the well is 500 feet below land surface.
This well is completed in the Pecos River Basin alluvial aquifer (N100PCSRVR) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2022-07-13 13:55:48 EDT
0.61 0.53 nadww01

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD1 (BH-01)	n/a	C-4474

WELL OWNER NAME(S)	PHONE (OPTIONAL)
XTO Energy (Kyle Littrell)	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
6401 Holiday Hill Dr.	Midland	TX	79707

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32°	10'	51.44"	N
	LONGITUDE	-103°	52'	38.65"	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1249	Jackie D. Atkins	Atkins Engineering Associates, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
09/10/20	09/10/20	temporary well material	110	n/a

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT): n/a

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY: Hollow Stem Auger

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	48	±8.5	Boring- HSA	--	--	--	--
48	110	±4.5	Boring- Air Rotary	--	--	--	--

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/17)

FILE NO. C-4474	POD NO. 1	TRN NO. 677410	
LOCATION 24S.30E.34.111		WELL TAG ID NO. —	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	30	30	Sand, Medium , poorly-graded with silt, no plasticity, Red-Brown	Y ✓ N	
30	45	15	Clayey Sand, Medium, low plasticity, Dark Red-Brown	Y ✓ N	
45	50	5	Sand, Medium , poorly-graded, compacted, no plasticity, Brown	Y ✓ N	
50	58	8	Caliche, well cemented with medium sand matrix. Brown	Y ✓ N	
58	73	15	Clayey Sand, Medium, Moderate plasticity, increasing clay, Brown	Y ✓ N	
73	78	5	Caliche, with Sandy clay layering, mod plasticity, poorly-grated sand, White	Y ✓ N	
78	83	5	Sand, Medium , poorly-graded, no plasticity, Light Brown	Y ✓ N	
83	88	5	Clayey Sand, Medium, Moderate plasticity, decreasing clay, Red Brown	Y ✓ N	
88	110	22	Sand, Fine , poorly-graded, no plasticity , Brown	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Temporary well materials removed and the soil boring backfilled using drill cuttings from total depth to ten feet below ground surface, then hydrated bentonite chips from ten feet below ground surface to surface. Logs adapted from LTE on-site geologist.

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Shane Eldridge

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Jack Atkins — Jackie D. Atkins — 10/07/2020

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/2017)

FILE NO. C-4474	POD NO. 1	TRN NO. 677410	
LOCATION 24S.30E.34.111		WELL TAG ID NO. —	PAGE 2 OF 2

ENSOLUM

APPENDIX B

Lithologic Soil Sampling Logs

ENSOLUM

	Sample Name: BH01	Date: 6/2/2022
	Site Name: Pierce Canyon 3 SWD	
	Incident Number: NAPP2209446613	
	Job Number: 03E1558057	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: PE	Method: Hand Auger
Coordinates: 32.15473,-103.86435	Hole Diameter: 3.5"	Total Depth: 2'

Comments: Field screening conducted with HACH Low Range Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0	CCHE (fill)	0 - 1', CALICHE, moist, tan-light brown, unconsolidated, some small sub round gravel, no stain, no odor, fill.
M	532	0.3	N	BH01	1	1	SP	1' - 2', SAND, moist, brown, poorly graded, fine grain, no stain, no odor.
M	<112	0.2	N	BH01A	2	2	TD	Total Depth at 2 feet bgs.

ENSOLUM

APPENDIX C

Photographic Log

ENSOLUM

Photographic Log
XTO Energy, Inc
Pierce Canyon 3 SWD
Incident Number Napp2209446613
Ensolum Job Number: 03E1558057

Photograph 1
Date: March 28, 2022
Description: Liner Inspection

Photograph 2
Date: March 28, 2022
Description: Liner Inspection

Photograph 3
Date: June 2, 2022
Description: Delineation activities.

Photograph 4
Date: June 7, 2022
Description: Patched liner following delineation activities

ENSOLUM

APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-2372-1
Laboratory Sample Delivery Group: 03E1558057
Client Project/Site: Pierce Canyon 3 SWD

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Ben Belill

JKramer

Authorized for release by:
6/8/2022 11:32:37 AM

Jessica Kramer, Project Manager
(432)704-5440
Jessica.Kramer@et.eurofinsus.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Laboratory Job ID: 890-2372-1
SDG: 03E1558057

Table of Contents

Definitions/Glossary

Client: Ensolum Job ID: 890-2372-1
Project/Site: Pierce Canyon 3 SWD SDG: 03E1558057

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

Job ID: 890-2372-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2372-1

Receipt
The samples were received on 6/3/2022 2:20 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.0°C

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-27007 and analytical batch 880-26972 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

GC Semi VOA
Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-26968 and analytical batch 880-26955 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

Client Sample ID: BH01

Date Collected: 06/02/22 12:45
Date Received: 06/03/22 14:20
Sample Depth: 1

Lab Sample ID: 890-2372-1
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		06/07/22 11:40	06/08/22 04:46	1
Toluene	<0.00202	U	0.00202		mg/Kg		06/07/22 11:40	06/08/22 04:46	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		06/07/22 11:40	06/08/22 04:46	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		06/07/22 11:40	06/08/22 04:46	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		06/07/22 11:40	06/08/22 04:46	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		06/07/22 11:40	06/08/22 04:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*	*06/07/22 11:40*	*06/08/22 04:46*	*1*
1,4-Difluorobenzene (Surr)	*80*		*70 - 130*	*06/07/22 11:40*	*06/08/22 04:46*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403		mg/Kg			06/08/22 12:08	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			06/08/22 10:33	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		06/07/22 08:15	06/07/22 14:50	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		06/07/22 08:15	06/07/22 14:50	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		06/07/22 08:15	06/07/22 14:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*94*		*70 - 130*	*06/07/22 08:15*	*06/07/22 14:50*	*1*
o-Terphenyl	*106*		*70 - 130*	*06/07/22 08:15*	*06/07/22 14:50*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**776**		4.96		mg/Kg			06/08/22 03:44	1

Client Sample ID: BH01A

Date Collected: 06/02/22 12:50
Date Received: 06/03/22 14:20
Sample Depth: 2

Lab Sample ID: 890-2372-2
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		06/07/22 11:40	06/08/22 05:07	1
Toluene	<0.00200	U	0.00200		mg/Kg		06/07/22 11:40	06/08/22 05:07	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		06/07/22 11:40	06/08/22 05:07	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		06/07/22 11:40	06/08/22 05:07	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		06/07/22 11:40	06/08/22 05:07	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		06/07/22 11:40	06/08/22 05:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*06/07/22 11:40*	*06/08/22 05:07*	*1*

Client Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

Client Sample ID: BH01A
Date Collected: 06/02/22 12:50
Date Received: 06/03/22 14:20
Sample Depth: 2

Lab Sample ID: 890-2372-2
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*86*		*70 - 130*	*06/07/22 11:40*	*06/08/22 05:07*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399		mg/Kg			06/08/22 12:08	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			06/08/22 10:33	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		06/07/22 08:15	06/07/22 15:13	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		06/07/22 08:15	06/07/22 15:13	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/07/22 08:15	06/07/22 15:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*83*		*70 - 130*	*06/07/22 08:15*	*06/07/22 15:13*	*1*
o-Terphenyl	*92*		*70 - 130*	*06/07/22 08:15*	*06/07/22 15:13*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**163**		5.01		mg/Kg			06/08/22 04:12	1

Surrogate Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-15523-A-1-F MS	Matrix Spike	105	89
880-15523-A-1-G MSD	Matrix Spike Duplicate	107	91
890-2372-1	BH01	107	80
890-2372-2	BH01A	93	86
LCS 880-27007/1-A	Lab Control Sample	101	104
LCSD 880-27007/2-A	Lab Control Sample Dup	101	101
MB 880-26930/5-A	Method Blank	97	91
MB 880-27007/5-A	Method Blank	103	90

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2372-1	BH01	94	106
890-2372-2	BH01A	83	92
890-2376-A-101-B MS	Matrix Spike	86	84
890-2376-A-101-C MSD	Matrix Spike Duplicate	84	80
LCS 880-26968/2-A	Lab Control Sample	85	86
LCSD 880-26968/3-A	Lab Control Sample Dup	75	74
MB 880-26968/1-A	Method Blank	72	86

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-26930/5-A
Matrix: Solid
Analysis Batch: 26972

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 26930

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		06/06/22 15:00	06/07/22 11:19	1
Toluene	<0.00200	U	0.00200		mg/Kg		06/06/22 15:00	06/07/22 11:19	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		06/06/22 15:00	06/07/22 11:19	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		06/06/22 15:00	06/07/22 11:19	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		06/06/22 15:00	06/07/22 11:19	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		06/06/22 15:00	06/07/22 11:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*	*06/06/22 15:00*	*06/07/22 11:19*	*1*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*	*06/06/22 15:00*	*06/07/22 11:19*	*1*

Lab Sample ID: MB 880-27007/5-A
Matrix: Solid
Analysis Batch: 26972

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27007

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		06/07/22 11:40	06/07/22 21:56	1
Toluene	<0.00200	U	0.00200		mg/Kg		06/07/22 11:40	06/07/22 21:56	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		06/07/22 11:40	06/07/22 21:56	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		06/07/22 11:40	06/07/22 21:56	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		06/07/22 11:40	06/07/22 21:56	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		06/07/22 11:40	06/07/22 21:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*	*06/07/22 11:40*	*06/07/22 21:56*	*1*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*	*06/07/22 11:40*	*06/07/22 21:56*	*1*

Lab Sample ID: LCS 880-27007/1-A
Matrix: Solid
Analysis Batch: 26972

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27007

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1001		mg/Kg		100	70 - 130		
Toluene			0.100	0.09532		mg/Kg		95	70 - 130		
Ethylbenzene			0.100	0.09610		mg/Kg		96	70 - 130		
m-Xylene & p-Xylene			0.200	0.1925		mg/Kg		96	70 - 130		
o-Xylene			0.100	0.09868		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

Lab Sample ID: LCSD 880-27007/2-A
Matrix: Solid
Analysis Batch: 26972

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 27007

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.08068		mg/Kg		81	70 - 130	21	35

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

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

Lab Sample ID: LCSD 880-27007/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 26972 — **Prep Batch: 27007**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.07724		mg/Kg		77	70 - 130	21	35
Ethylbenzene			0.100	0.07992		mg/Kg		80	70 - 130	18	35
m-Xylene & p-Xylene			0.200	0.1613		mg/Kg		81	70 - 130	18	35
o-Xylene			0.100	0.08325		mg/Kg		83	70 - 130	17	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: 880-15523-A-1-F MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 26972 — **Prep Batch: 27007**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U F1	0.100	0.03500	F1	mg/Kg		35	70 - 130
Toluene	<0.00199	U F1	0.100	0.03846	F1	mg/Kg		38	70 - 130
Ethylbenzene	<0.00199	U F1	0.100	0.04263	F1	mg/Kg		43	70 - 130
m-Xylene & p-Xylene	<0.00398	U F1	0.200	0.08879	F1	mg/Kg		44	70 - 130
o-Xylene	<0.00199	U F1	0.100	0.04822	F1	mg/Kg		48	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: 880-15523-A-1-G MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 26972 — **Prep Batch: 27007**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U F1	0.0998	0.04180	F1	mg/Kg		42	70 - 130	18	35
Toluene	<0.00199	U F1	0.0998	0.04471	F1	mg/Kg		45	70 - 130	15	35
Ethylbenzene	<0.00199	U F1	0.0998	0.04699	F1	mg/Kg		47	70 - 130	10	35
m-Xylene & p-Xylene	<0.00398	U F1	0.200	0.09732	F1	mg/Kg		49	70 - 130	9	35
o-Xylene	<0.00199	U F1	0.0998	0.05097	F1	mg/Kg		51	70 - 130	6	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*

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

Lab Sample ID: MB 880-26968/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 26955 — **Prep Batch: 26968**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		06/07/22 08:15	06/07/22 10:51	1

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

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

Lab Sample ID: MB 880-26968/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 26955 — **Prep Batch: 26968**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		06/07/22 08:15	06/07/22 10:51	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/07/22 08:15	06/07/22 10:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*72*		*70 - 130*	*06/07/22 08:15*	*06/07/22 10:51*	*1*
o-Terphenyl	*86*		*70 - 130*	*06/07/22 08:15*	*06/07/22 10:51*	*1*

Lab Sample ID: LCS 880-26968/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 26955 — **Prep Batch: 26968**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	810.3		mg/Kg		81	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1021		mg/Kg		102	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*85*		*70 - 130*
o-Terphenyl	*86*		*70 - 130*

Lab Sample ID: LCSD 880-26968/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 26955 — **Prep Batch: 26968**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	727.7		mg/Kg		73	70 - 130	11	20
Diesel Range Organics (Over C10-C28)			1000	863.1		mg/Kg		86	70 - 130	17	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*75*		*70 - 130*
o-Terphenyl	*74*		*70 - 130*

Lab Sample ID: 890-2376-A-101-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 26955 — **Prep Batch: 26968**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U F1	997	677.2	F1	mg/Kg		68	70 - 130		
Diesel Range Organics (Over C10-C28)	60.3		997	814.5		mg/Kg		76	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*86*		*70 - 130*
o-Terphenyl	*84*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

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

Lab Sample ID: 890-2376-A-101-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 26955 — **Prep Batch: 26968**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U F1	1000	672.4	F1	mg/Kg		67	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	60.3		1000	791.9		mg/Kg		73	70 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*84*		*70 - 130*
o-Terphenyl	*80*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-26916/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 27058

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			06/08/22 00:30	1

Lab Sample ID: LCS 880-26916/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 27058

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	254.8		mg/Kg		102	90 - 110		

Lab Sample ID: LCSD 880-26916/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 27058

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	254.5		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 890-2368-A-43-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 27058

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	74.6		250	332.5		mg/Kg		103	90 - 110		

Lab Sample ID: 890-2368-A-43-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 27058

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	74.6		250	324.9		mg/Kg		100	90 - 110	2	20

QC Association Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

GC VOA

Prep Batch: 26930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-26930/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 26972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2372-1	BH01	Total/NA	Solid	8021B	27007
890-2372-2	BH01A	Total/NA	Solid	8021B	27007
MB 880-26930/5-A	Method Blank	Total/NA	Solid	8021B	26930
MB 880-27007/5-A	Method Blank	Total/NA	Solid	8021B	27007
LCS 880-27007/1-A	Lab Control Sample	Total/NA	Solid	8021B	27007
LCSD 880-27007/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	27007
880-15523-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	27007
880-15523-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	27007

Prep Batch: 27007

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2372-1	BH01	Total/NA	Solid	5035	
890-2372-2	BH01A	Total/NA	Solid	5035	
MB 880-27007/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-27007/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-27007/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-15523-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	
880-15523-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 27092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2372-1	BH01	Total/NA	Solid	Total BTEX	
890-2372-2	BH01A	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 26955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2372-1	BH01	Total/NA	Solid	8015B NM	26968
890-2372-2	BH01A	Total/NA	Solid	8015B NM	26968
MB 880-26968/1-A	Method Blank	Total/NA	Solid	8015B NM	26968
LCS 880-26968/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	26968
LCSD 880-26968/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	26968
890-2376-A-101-B MS	Matrix Spike	Total/NA	Solid	8015B NM	26968
890-2376-A-101-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	26968

Prep Batch: 26968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2372-1	BH01	Total/NA	Solid	8015NM Prep	
890-2372-2	BH01A	Total/NA	Solid	8015NM Prep	
MB 880-26968/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-26968/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-26968/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2376-A-101-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2376-A-101-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

GC Semi VOA

Analysis Batch: 27081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2372-1	BH01	Total/NA	Solid	8015 NM	
890-2372-2	BH01A	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 26916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2372-1	BH01	Soluble	Solid	DI Leach	
890-2372-2	BH01A	Soluble	Solid	DI Leach	
MB 880-26916/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-26916/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-26916/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2368-A-43-D MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2368-A-43-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 27058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2372-1	BH01	Soluble	Solid	300.0	26916
890-2372-2	BH01A	Soluble	Solid	300.0	26916
MB 880-26916/1-A	Method Blank	Soluble	Solid	300.0	26916
LCS 880-26916/2-A	Lab Control Sample	Soluble	Solid	300.0	26916
LCSD 880-26916/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	26916
890-2368-A-43-D MS	Matrix Spike	Soluble	Solid	300.0	26916
890-2368-A-43-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	26916

Lab Chronicle

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

Client Sample ID: BH01

Date Collected: 06/02/22 12:45
Date Received: 06/03/22 14:20

Lab Sample ID: 890-2372-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	27007	06/07/22 11:40	MR	XEN MID
Total/NA	Analysis	8021B		1			26972	06/08/22 04:46	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			27092	06/08/22 12:08	SM	XEN MID
Total/NA	Analysis	8015 NM		1			27081	06/08/22 10:33	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	26968	06/07/22 08:15	DM	XEN MID
Total/NA	Analysis	8015B NM		1			26955	06/07/22 14:50	SM	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	26916	06/06/22 11:48	SC	XEN MID
Soluble	Analysis	300.0		1			27058	06/08/22 03:44	CH	XEN MID

Client Sample ID: BH01A

Date Collected: 06/02/22 12:50
Date Received: 06/03/22 14:20

Lab Sample ID: 890-2372-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	27007	06/07/22 11:40	MR	XEN MID
Total/NA	Analysis	8021B		1			26972	06/08/22 05:07	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			27092	06/08/22 12:08	SM	XEN MID
Total/NA	Analysis	8015 NM		1			27081	06/08/22 10:33	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	26968	06/07/22 08:15	DM	XEN MID
Total/NA	Analysis	8015B NM		1			26955	06/07/22 15:13	SM	XEN MID
Soluble	Leach	DI Leach			4.99 g	50 mL	26916	06/06/22 11:48	SC	XEN MID
Soluble	Analysis	300.0		1			27058	06/08/22 04:12	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2372-1
SDG: 03E1558057

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2372-1	BH01	Solid	06/02/22 12:45	06/03/22 14:20	1
890-2372-2	BH01A	Solid	06/02/22 12:50	06/03/22 14:20	2

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page ___1 of 1

Project Manager:	Ben Belill	Bill to: (if different)	Adrian Baker
Company Name:	Ensolum	Company Name:	XTO Energy, Inc.
Address:	3122 National Parks Highway, Carlsbad, NM,	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM, 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	844-500-7775	Email:	bbelill@ensolum.com

Work Order Comments

Program: UST/PST ☐ **PRP** ☐ **Brownfields** ☐ **RRC** ☐ **Superfund** ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Pierce Canyon 3 SWD	**Turn Around**	
Project Number:	03E1558057	☑ Routine ☐ Rush	
Project Location:	32.1547, -103.86435 Rual Eddy	Due Date:	5 Days
Sampler's Name:	Pride Evans	TAT starts the day received by the lab, if received by 4:30pm	
PO #:	CC: 1667681001		

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Samples Received Intact:	Yes NO	Thermometer ID:	TWM007
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	2.2
Total Containers:		Corrected Temperature:	2.0

ANALYSIS REQUEST

Preservative Codes

None: NO; DI Water: H_2O; Cool: Cool; MeOH: Me; HCL: HC; HNO_3: HN; H_2S0_4: H_2; NaOH: Na; H_3PO_4: HP; $NaHSO_4$: NABIS; $Na_2S_2O_3$: $NaSO_3$; Zn Acetate+NaOH: Zn; NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)	Sample Comments
BH01	S	6/2/2022	12:45	1'	Grab	1		x	x	x	Inc ID: NAPP2209446613
BH01A	S	6/2/2022	12:50	2'	Grab	1		X	X	X	

890-2372 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		6/3/2022 1420	2		6/3/2022
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2372-1
SDG Number: 03E1558057

Login Number: 2372
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2372-1
SDG Number: 03E1558057

Login Number: 2372
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 06/07/22 12:08 PM

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

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ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-2474-1
Laboratory Sample Delivery Group: 03E1558057
Client Project/Site: Pierce Canyon 3 SWD

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Ben Belill

JKramer

Authorized for release by:
7/8/2022 11:13:40 AM

Jessica Kramer, Project Manager
(432)704-5440
Jessica.Kramer@et.eurofinsus.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Laboratory Job ID: 890-2474-1
SDG: 03E1558057

Table of Contents

Definitions/Glossary

Client: Ensolum Job ID: 890-2474-1
Project/Site: Pierce Canyon 3 SWD SDG: 03E1558057

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

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

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

Job ID: 890-2474-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2474-1

Receipt
The sample was received on 6/28/2022 10:00 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.4°C

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

GC Semi VOA
Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-28738 and analytical batch 880-28713 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

Method 8015MOD_NM: The matrix spike (MS) recoveries for preparation batch 880-28738 and analytical batch 880-28713 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

Client Sample ID: SS04

Date Collected: 06/27/22 13:30
Date Received: 06/28/22 10:00
Sample Depth: 0.5'

Lab Sample ID: 890-2474-1

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		07/01/22 15:28	07/07/22 18:11	1
Toluene	<0.00199	U	0.00199		mg/Kg		07/01/22 15:28	07/07/22 18:11	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		07/01/22 15:28	07/07/22 18:11	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		07/01/22 15:28	07/07/22 18:11	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		07/01/22 15:28	07/07/22 18:11	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		07/01/22 15:28	07/07/22 18:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*	*07/01/22 15:28*	*07/07/22 18:11*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*	*07/01/22 15:28*	*07/07/22 18:11*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			07/08/22 10:17	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			07/01/22 13:31	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		06/30/22 10:13	07/01/22 01:45	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9		mg/Kg		06/30/22 10:13	07/01/22 01:45	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		06/30/22 10:13	07/01/22 01:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*91*		*70 - 130*	*06/30/22 10:13*	*07/01/22 01:45*	*1*
o-Terphenyl	*101*		*70 - 130*	*06/30/22 10:13*	*07/01/22 01:45*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**42.7**		4.99		mg/Kg			07/04/22 17:21	1

Surrogate Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2474-1	SS04	117	101
890-2475-A-1-G MS	Matrix Spike	110	102
890-2475-A-1-H MSD	Matrix Spike Duplicate	109	99
LCS 880-28904/1-A	Lab Control Sample	107	101
LCSD 880-28904/2-A	Lab Control Sample Dup	107	100
MB 880-28904/5-A	Method Blank	96	87

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2471-A-21-B MS	Matrix Spike	89	96
890-2471-A-21-C MSD	Matrix Spike Duplicate	102	109
890-2474-1	SS04	91	101
LCS 880-28738/2-A	Lab Control Sample	89	94
LCSD 880-28738/3-A	Lab Control Sample Dup	81	76
MB 880-28738/1-A	Method Blank	104	122

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-28904/5-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28904

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		07/01/22 15:28	07/07/22 12:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*07/01/22 15:28*	*07/07/22 12:00*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*	*07/01/22 15:28*	*07/07/22 12:00*	*1*

Lab Sample ID: LCS 880-28904/1-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28904

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1014		mg/Kg		101	70 - 130		
Toluene			0.100	0.09844		mg/Kg		98	70 - 130		
Ethylbenzene			0.100	0.1029		mg/Kg		103	70 - 130		
m-Xylene & p-Xylene			0.200	0.2124		mg/Kg		106	70 - 130		
o-Xylene			0.100	0.1048		mg/Kg		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-28904/2-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1049		mg/Kg		105	70 - 130	3	35
Toluene			0.100	0.1030		mg/Kg		103	70 - 130	5	35
Ethylbenzene			0.100	0.1077		mg/Kg		108	70 - 130	5	35
m-Xylene & p-Xylene			0.200	0.2212		mg/Kg		111	70 - 130	4	35
o-Xylene			0.100	0.1094		mg/Kg		109	70 - 130	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 890-2475-A-1-G MS
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U	0.101	0.09951		mg/Kg		99	70 - 130		
Toluene	<0.00201	U	0.101	0.09548		mg/Kg		95	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

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

Lab Sample ID: 890-2475-A-1-G MS
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.101	0.09892		mg/Kg		98	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.202	0.2043		mg/Kg		101	70 - 130
o-Xylene	<0.00201	U	0.101	0.1009		mg/Kg		100	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: 890-2475-A-1-H MSD
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.100	0.09182		mg/Kg		92	70 - 130	8	35
Toluene	<0.00201	U	0.100	0.08800		mg/Kg		88	70 - 130	8	35
Ethylbenzene	<0.00201	U	0.100	0.08801		mg/Kg		88	70 - 130	12	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1817		mg/Kg		91	70 - 130	12	35
o-Xylene	<0.00201	U	0.100	0.09018		mg/Kg		90	70 - 130	11	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

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

Lab Sample ID: MB 880-28738/1-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28738

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*104*		*70 - 130*	*06/30/22 10:13*	*06/30/22 22:11*	*1*
o-Terphenyl	*122*		*70 - 130*	*06/30/22 10:13*	*06/30/22 22:11*	*1*

Lab Sample ID: LCS 880-28738/2-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28738

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1108		mg/Kg		111	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1029		mg/Kg		103	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

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

Lab Sample ID: LCS 880-28738/2-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28738

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	94		70 - 130

Lab Sample ID: LCSD 880-28738/3-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28738

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1198		mg/Kg		120	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	834.5	*1	mg/Kg		83	70 - 130	21	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	81		70 - 130
o-Terphenyl	76		70 - 130

Lab Sample ID: 890-2471-A-21-B MS
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28738

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	787.7		mg/Kg		79	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U *1 F1	996	670.8	F1	mg/Kg		67	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	96		70 - 130

Lab Sample ID: 890-2471-A-21-C MSD
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 28738

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	876.4		mg/Kg		88	70 - 130	11	20
Diesel Range Organics (Over C10-C28)	<49.9	U *1 F1	996	767.3		mg/Kg		77	70 - 130	13	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	109		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-28633/1-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			07/04/22 13:12	1

Lab Sample ID: LCS 880-28633/2-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	229.1		mg/Kg		92	90 - 110		

Lab Sample ID: LCSD 880-28633/3-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	230.3		mg/Kg		92	90 - 110	0	20

Lab Sample ID: 890-2471-A-11-D MS
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	34.7		250	284.5		mg/Kg		100	90 - 110		

Lab Sample ID: 890-2471-A-11-E MSD
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	34.7		250	290.4		mg/Kg		102	90 - 110	2	20

QC Association Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

GC VOA

Prep Batch: 28904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2474-1	SS04	Total/NA	Solid	5035	
MB 880-28904/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-28904/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-28904/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2475-A-1-G MS	Matrix Spike	Total/NA	Solid	5035	
890-2475-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 29172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2474-1	SS04	Total/NA	Solid	8021B	28904
MB 880-28904/5-A	Method Blank	Total/NA	Solid	8021B	28904
LCS 880-28904/1-A	Lab Control Sample	Total/NA	Solid	8021B	28904
LCSD 880-28904/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	28904
890-2475-A-1-G MS	Matrix Spike	Total/NA	Solid	8021B	28904
890-2475-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	28904

Analysis Batch: 29274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2474-1	SS04	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 28713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2474-1	SS04	Total/NA	Solid	8015B NM	28738
MB 880-28738/1-A	Method Blank	Total/NA	Solid	8015B NM	28738
LCS 880-28738/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	28738
LCSD 880-28738/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	28738
890-2471-A-21-B MS	Matrix Spike	Total/NA	Solid	8015B NM	28738
890-2471-A-21-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	28738

Prep Batch: 28738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2474-1	SS04	Total/NA	Solid	8015NM Prep	
MB 880-28738/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-28738/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-28738/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2471-A-21-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2471-A-21-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 28876

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2474-1	SS04	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 28633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2474-1	SS04	Soluble	Solid	DI Leach	
MB 880-28633/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-28633/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-28633/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

HPLC/IC (Continued)

Leach Batch: 28633 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2471-A-11-D MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2471-A-11-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 28885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2474-1	SS04	Soluble	Solid	300.0	28633
MB 880-28633/1-A	Method Blank	Soluble	Solid	300.0	28633
LCS 880-28633/2-A	Lab Control Sample	Soluble	Solid	300.0	28633
LCSD 880-28633/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	28633
890-2471-A-11-D MS	Matrix Spike	Soluble	Solid	300.0	28633
890-2471-A-11-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	28633

Lab Chronicle

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

Client Sample ID: SS04

Date Collected: 06/27/22 13:30
Date Received: 06/28/22 10:00

Lab Sample ID: 890-2474-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	28904	07/01/22 15:28	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	29172	07/07/22 18:11	AJ	XEN MID
Total/NA	Analysis	Total BTEX		1			29274	07/08/22 10:17	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			28876	07/01/22 13:31	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	28738	06/30/22 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			28713	07/01/22 01:45	SM	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	28633	06/29/22 11:09	CH	XEN MID
Soluble	Analysis	300.0		1			28885	07/04/22 17:21	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-23	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2474-1
SDG: 03E1558057

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2474-1	SS04	Solid	06/27/22 13:30	06/28/22 10:00	0.5'

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy, Inc.
Address:	3122 National parks Hwy	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	bbelill@ensolum.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Pierce Canyon 3 SWD	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558057	Due Date:	
Project Location:	EDDY COUNTY, NM	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Kase Parker		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM-007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	5.6
Total Containers:		Corrected Temperature:	5.4

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021
SS04	S	6/27/2022	1330	0.5'	Grab/	1		X	X	X

890-2474 Chain of Custody

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2SO_4: H_2 NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Comments

Cost Center: 1667681001

Incident Numbers: NAPP2209446613

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010:** 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Stat	6/28/22 9:29	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2474-1
SDG Number: 03E1558057

Login Number: 2474
List Number: 1
Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2474-1
SDG Number: 03E1558057

Login Number: 2474
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 06/29/22 10:55 AM

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

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ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-2475-1
Laboratory Sample Delivery Group: 03E1558057
Client Project/Site: Pierce Canyon 3 SWD

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Ben Belill

JKramer

Authorized for release by:
7/8/2022 11:13:40 AM

Jessica Kramer, Project Manager
(432)704-5440
Jessica.Kramer@et.eurofinsus.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Laboratory Job ID: 890-2475-1
SDG: 03E1558057

Table of Contents

Definitions/Glossary

Client: Ensolum Job ID: 890-2475-1
Project/Site: Pierce Canyon 3 SWD SDG: 03E1558057

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

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

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

Job ID: 890-2475-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2475-1

Receipt
The sample was received on 6/28/2022 9:49 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.4°C

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

GC Semi VOA
Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-28738 and analytical batch 880-28713 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

Method 8015MOD_NM: The matrix spike (MS) recoveries for preparation batch 880-28738 and analytical batch 880-28713 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

Client Sample ID: SS03

Date Collected: 06/27/22 13:25
Date Received: 06/28/22 09:49
Sample Depth: 0.5'

Lab Sample ID: 890-2475-1

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		07/01/22 15:28	07/07/22 12:21	1
Toluene	<0.00201	U	0.00201		mg/Kg		07/01/22 15:28	07/07/22 12:21	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		07/01/22 15:28	07/07/22 12:21	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		07/01/22 15:28	07/07/22 12:21	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		07/01/22 15:28	07/07/22 12:21	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		07/01/22 15:28	07/07/22 12:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*	*07/01/22 15:28*	*07/07/22 12:21*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*	*07/01/22 15:28*	*07/07/22 12:21*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			07/08/22 10:17	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			07/01/22 13:31	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		06/30/22 10:13	07/01/22 02:07	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9		mg/Kg		06/30/22 10:13	07/01/22 02:07	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		06/30/22 10:13	07/01/22 02:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*06/30/22 10:13*	*07/01/22 02:07*	*1*
o-Terphenyl	*110*		*70 - 130*	*06/30/22 10:13*	*07/01/22 02:07*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**157**		4.96		mg/Kg			07/04/22 17:31	1

Surrogate Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2475-1	SS03	110	97
890-2475-1 MS	SS03	110	102
890-2475-1 MSD	SS03	109	99
LCS 880-28904/1-A	Lab Control Sample	107	101
LCSD 880-28904/2-A	Lab Control Sample Dup	107	100
MB 880-28904/5-A	Method Blank	96	87

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2471-A-21-B MS	Matrix Spike	89	96
890-2471-A-21-C MSD	Matrix Spike Duplicate	102	109
890-2475-1	SS03	99	110
LCS 880-28738/2-A	Lab Control Sample	89	94
LCSD 880-28738/3-A	Lab Control Sample Dup	81	76
MB 880-28738/1-A	Method Blank	104	122

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-28904/5-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28904

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		07/01/22 15:28	07/07/22 12:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*07/01/22 15:28*	*07/07/22 12:00*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*	*07/01/22 15:28*	*07/07/22 12:00*	*1*

Lab Sample ID: LCS 880-28904/1-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28904

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1014		mg/Kg		101	70 - 130		
Toluene			0.100	0.09844		mg/Kg		98	70 - 130		
Ethylbenzene			0.100	0.1029		mg/Kg		103	70 - 130		
m-Xylene & p-Xylene			0.200	0.2124		mg/Kg		106	70 - 130		
o-Xylene			0.100	0.1048		mg/Kg		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-28904/2-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1049		mg/Kg		105	70 - 130	3	35
Toluene			0.100	0.1030		mg/Kg		103	70 - 130	5	35
Ethylbenzene			0.100	0.1077		mg/Kg		108	70 - 130	5	35
m-Xylene & p-Xylene			0.200	0.2212		mg/Kg		111	70 - 130	4	35
o-Xylene			0.100	0.1094		mg/Kg		109	70 - 130	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 890-2475-1 MS
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: SS03
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U	0.101	0.09951		mg/Kg		99	70 - 130		
Toluene	<0.00201	U	0.101	0.09548		mg/Kg		95	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

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

Lab Sample ID: 890-2475-1 MS
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: SS03
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.101	0.09892		mg/Kg		98	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.202	0.2043		mg/Kg		101	70 - 130
o-Xylene	<0.00201	U	0.101	0.1009		mg/Kg		100	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: 890-2475-1 MSD
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: SS03
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.100	0.09182		mg/Kg		92	70 - 130	8	35
Toluene	<0.00201	U	0.100	0.08800		mg/Kg		88	70 - 130	8	35
Ethylbenzene	<0.00201	U	0.100	0.08801		mg/Kg		88	70 - 130	12	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1817		mg/Kg		91	70 - 130	12	35
o-Xylene	<0.00201	U	0.100	0.09018		mg/Kg		90	70 - 130	11	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

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

Lab Sample ID: MB 880-28738/1-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28738

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*104*		*70 - 130*	*06/30/22 10:13*	*06/30/22 22:11*	*1*
o-Terphenyl	*122*		*70 - 130*	*06/30/22 10:13*	*06/30/22 22:11*	*1*

Lab Sample ID: LCS 880-28738/2-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28738

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1108		mg/Kg		111	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1029		mg/Kg		103	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

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

Lab Sample ID: LCS 880-28738/2-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28738

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	94		70 - 130

Lab Sample ID: LCSD 880-28738/3-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28738

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1198		mg/Kg		120	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	834.5	*1	mg/Kg		83	70 - 130	21	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	81		70 - 130
o-Terphenyl	76		70 - 130

Lab Sample ID: 890-2471-A-21-B MS
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28738

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	787.7		mg/Kg		79	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U *1 F1	996	670.8	F1	mg/Kg		67	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	96		70 - 130

Lab Sample ID: 890-2471-A-21-C MSD
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 28738

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	876.4		mg/Kg		88	70 - 130	11	20
Diesel Range Organics (Over C10-C28)	<49.9	U *1 F1	996	767.3		mg/Kg		77	70 - 130	13	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	109		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-28633/1-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			07/04/22 13:12	1

Lab Sample ID: LCS 880-28633/2-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	229.1		mg/Kg		92	90 - 110		

Lab Sample ID: LCSD 880-28633/3-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	230.3		mg/Kg		92	90 - 110	0	20

Lab Sample ID: 890-2471-A-11-D MS
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	34.7		250	284.5		mg/Kg		100	90 - 110		

Lab Sample ID: 890-2471-A-11-E MSD
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	34.7		250	290.4		mg/Kg		102	90 - 110	2	20

QC Association Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

GC VOA

Prep Batch: 28904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2475-1	SS03	Total/NA	Solid	5035	
MB 880-28904/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-28904/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-28904/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2475-1 MS	SS03	Total/NA	Solid	5035	
890-2475-1 MSD	SS03	Total/NA	Solid	5035	

Analysis Batch: 29172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2475-1	SS03	Total/NA	Solid	8021B	28904
MB 880-28904/5-A	Method Blank	Total/NA	Solid	8021B	28904
LCS 880-28904/1-A	Lab Control Sample	Total/NA	Solid	8021B	28904
LCSD 880-28904/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	28904
890-2475-1 MS	SS03	Total/NA	Solid	8021B	28904
890-2475-1 MSD	SS03	Total/NA	Solid	8021B	28904

Analysis Batch: 29269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2475-1	SS03	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 28713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2475-1	SS03	Total/NA	Solid	8015B NM	28738
MB 880-28738/1-A	Method Blank	Total/NA	Solid	8015B NM	28738
LCS 880-28738/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	28738
LCSD 880-28738/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	28738
890-2471-A-21-B MS	Matrix Spike	Total/NA	Solid	8015B NM	28738
890-2471-A-21-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	28738

Prep Batch: 28738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2475-1	SS03	Total/NA	Solid	8015NM Prep	
MB 880-28738/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-28738/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-28738/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2471-A-21-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2471-A-21-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 28877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2475-1	SS03	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 28633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2475-1	SS03	Soluble	Solid	DI Leach	
MB 880-28633/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-28633/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-28633/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

HPLC/IC (Continued)

Leach Batch: 28633 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2471-A-11-D MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2471-A-11-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 28885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2475-1	SS03	Soluble	Solid	300.0	28633
MB 880-28633/1-A	Method Blank	Soluble	Solid	300.0	28633
LCS 880-28633/2-A	Lab Control Sample	Soluble	Solid	300.0	28633
LCSD 880-28633/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	28633
890-2471-A-11-D MS	Matrix Spike	Soluble	Solid	300.0	28633
890-2471-A-11-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	28633

Lab Chronicle

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

Client Sample ID: SS03

Date Collected: 06/27/22 13:25
Date Received: 06/28/22 09:49

Lab Sample ID: 890-2475-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	28904	07/01/22 15:28	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	29172	07/07/22 12:21	AJ	XEN MID
Total/NA	Analysis	Total BTEX		1			29269	07/08/22 10:17	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			28877	07/01/22 13:31	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	28738	06/30/22 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			28713	07/01/22 02:07	SM	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	28633	06/29/22 11:09	CH	XEN MID
Soluble	Analysis	300.0		1			28885	07/04/22 17:31	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-23	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2475-1
SDG: 03E1558057

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2475-1	SS03	Solid	06/27/22 13:25	06/28/22 09:49	0.5'

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy, Inc.
Address:	3122 National parks Hwy	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	bbelill@ensolum.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Pierce Canyon 3 SWD	Turn Around	
Project Number:	03E1558057	☑ Routine ☐ Rush	
Project Location:	EDDY COUNTY, NM	Due Date:	
Sampler's Name:	Kase Parker	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	5.6
Total Containers:		Corrected Temperature:	5.4

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
SS03	S	6/27/2022	1325	0.5'	Grab/	1		X	X	X

Parameters

890-2475 Chain of Custody

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2S0_4: H_2 NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Comments

Cost Center: 1667681001

Incident Numbers:
NAPP2209446613

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010:** 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of $85.00 will be applied to each project and a charge of $5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Estrada	6/28/22 949			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2475-1
SDG Number: 03E1558057

Login Number: 2475
List Number: 1
Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2475-1
SDG Number: 03E1558057

Login Number: 2475
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 06/29/22 10:55 AM

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

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ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-2476-1
Laboratory Sample Delivery Group: 03E1558057
Client Project/Site: Pierce Canyon 3 SWD

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Ben Belill

JKramer

Authorized for release by:
7/8/2022 11:14:47 AM

Jessica Kramer, Project Manager
(432)704-5440
Jessica.Kramer@et.eurofinsus.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Laboratory Job ID: 890-2476-1
SDG: 03E1558057

Table of Contents

Definitions/Glossary

Client: Ensolum Job ID: 890-2476-1
Project/Site: Pierce Canyon 3 SWD SDG: 03E1558057

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

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

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

Job ID: 890-2476-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2476-1

Receipt
The sample was received on 6/28/2022 9:49 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.4°C

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

GC Semi VOA
Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-28738 and analytical batch 880-28713 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

Method 8015MOD_NM: The matrix spike (MS) recoveries for preparation batch 880-28738 and analytical batch 880-28713 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

Client Sample ID: SS02

Date Collected: 06/27/22 13:20
Date Received: 06/28/22 09:49
Sample Depth: 0.5'

Lab Sample ID: 890-2476-1

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 18:31	1
Toluene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 18:31	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 18:31	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		07/01/22 15:28	07/07/22 18:31	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 18:31	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		07/01/22 15:28	07/07/22 18:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*	*07/01/22 15:28*	*07/07/22 18:31*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*07/01/22 15:28*	*07/07/22 18:31*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399		mg/Kg			07/08/22 10:17	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			07/01/22 13:31	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		06/30/22 10:13	07/01/22 02:28	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0		mg/Kg		06/30/22 10:13	07/01/22 02:28	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/30/22 10:13	07/01/22 02:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*94*		*70 - 130*	*06/30/22 10:13*	*07/01/22 02:28*	*1*
o-Terphenyl	*101*		*70 - 130*	*06/30/22 10:13*	*07/01/22 02:28*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.68**		5.00		mg/Kg			07/04/22 17:40	1

Surrogate Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2475-A-1-G MS	Matrix Spike	110	102
890-2475-A-1-H MSD	Matrix Spike Duplicate	109	99
890-2476-1	SS02	113	100
LCS 880-28904/1-A	Lab Control Sample	107	101
LCSD 880-28904/2-A	Lab Control Sample Dup	107	100
MB 880-28904/5-A	Method Blank	96	87

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2471-A-21-B MS	Matrix Spike	89	96
890-2471-A-21-C MSD	Matrix Spike Duplicate	102	109
890-2476-1	SS02	94	101
LCS 880-28738/2-A	Lab Control Sample	89	94
LCSD 880-28738/3-A	Lab Control Sample Dup	81	76
MB 880-28738/1-A	Method Blank	104	122

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-28904/5-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28904

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		07/01/22 15:28	07/07/22 12:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*07/01/22 15:28*	*07/07/22 12:00*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*	*07/01/22 15:28*	*07/07/22 12:00*	*1*

Lab Sample ID: LCS 880-28904/1-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28904

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1014		mg/Kg		101	70 - 130		
Toluene			0.100	0.09844		mg/Kg		98	70 - 130		
Ethylbenzene			0.100	0.1029		mg/Kg		103	70 - 130		
m-Xylene & p-Xylene			0.200	0.2124		mg/Kg		106	70 - 130		
o-Xylene			0.100	0.1048		mg/Kg		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-28904/2-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1049		mg/Kg		105	70 - 130	3	35
Toluene			0.100	0.1030		mg/Kg		103	70 - 130	5	35
Ethylbenzene			0.100	0.1077		mg/Kg		108	70 - 130	5	35
m-Xylene & p-Xylene			0.200	0.2212		mg/Kg		111	70 - 130	4	35
o-Xylene			0.100	0.1094		mg/Kg		109	70 - 130	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 890-2475-A-1-G MS
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U	0.101	0.09951		mg/Kg		99	70 - 130		
Toluene	<0.00201	U	0.101	0.09548		mg/Kg		95	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

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

Lab Sample ID: 890-2475-A-1-G MS
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.101	0.09892		mg/Kg		98	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.202	0.2043		mg/Kg		101	70 - 130
o-Xylene	<0.00201	U	0.101	0.1009		mg/Kg		100	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: 890-2475-A-1-H MSD
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.100	0.09182		mg/Kg		92	70 - 130	8	35
Toluene	<0.00201	U	0.100	0.08800		mg/Kg		88	70 - 130	8	35
Ethylbenzene	<0.00201	U	0.100	0.08801		mg/Kg		88	70 - 130	12	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1817		mg/Kg		91	70 - 130	12	35
o-Xylene	<0.00201	U	0.100	0.09018		mg/Kg		90	70 - 130	11	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

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

Lab Sample ID: MB 880-28738/1-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28738

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*104*		*70 - 130*	*06/30/22 10:13*	*06/30/22 22:11*	*1*
o-Terphenyl	*122*		*70 - 130*	*06/30/22 10:13*	*06/30/22 22:11*	*1*

Lab Sample ID: LCS 880-28738/2-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28738

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1108		mg/Kg		111	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1029		mg/Kg		103	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

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

Lab Sample ID: LCS 880-28738/2-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28738

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	94		70 - 130

Lab Sample ID: LCSD 880-28738/3-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28738

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1198		mg/Kg		120	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	834.5	*1	mg/Kg		83	70 - 130	21	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	81		70 - 130
o-Terphenyl	76		70 - 130

Lab Sample ID: 890-2471-A-21-B MS
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28738

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	787.7		mg/Kg		79	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U *1 F1	996	670.8	F1	mg/Kg		67	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	96		70 - 130

Lab Sample ID: 890-2471-A-21-C MSD
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 28738

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	876.4		mg/Kg		88	70 - 130	11	20
Diesel Range Organics (Over C10-C28)	<49.9	U *1 F1	996	767.3		mg/Kg		77	70 - 130	13	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	109		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-28633/1-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			07/04/22 13:12	1

Lab Sample ID: LCS 880-28633/2-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	229.1		mg/Kg		92	90 - 110		

Lab Sample ID: LCSD 880-28633/3-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	230.3		mg/Kg		92	90 - 110	0	20

Lab Sample ID: 890-2471-A-11-D MS
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	34.7		250	284.5		mg/Kg		100	90 - 110		

Lab Sample ID: 890-2471-A-11-E MSD
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	34.7		250	290.4		mg/Kg		102	90 - 110	2	20

QC Association Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

GC VOA

Prep Batch: 28904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2476-1	SS02	Total/NA	Solid	5035	
MB 880-28904/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-28904/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-28904/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2475-A-1-G MS	Matrix Spike	Total/NA	Solid	5035	
890-2475-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 29172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2476-1	SS02	Total/NA	Solid	8021B	28904
MB 880-28904/5-A	Method Blank	Total/NA	Solid	8021B	28904
LCS 880-28904/1-A	Lab Control Sample	Total/NA	Solid	8021B	28904
LCSD 880-28904/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	28904
890-2475-A-1-G MS	Matrix Spike	Total/NA	Solid	8021B	28904
890-2475-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	28904

Analysis Batch: 29275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2476-1	SS02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 28713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2476-1	SS02	Total/NA	Solid	8015B NM	28738
MB 880-28738/1-A	Method Blank	Total/NA	Solid	8015B NM	28738
LCS 880-28738/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	28738
LCSD 880-28738/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	28738
890-2471-A-21-B MS	Matrix Spike	Total/NA	Solid	8015B NM	28738
890-2471-A-21-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	28738

Prep Batch: 28738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2476-1	SS02	Total/NA	Solid	8015NM Prep	
MB 880-28738/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-28738/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-28738/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2471-A-21-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2471-A-21-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 28878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2476-1	SS02	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 28633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2476-1	SS02	Soluble	Solid	DI Leach	
MB 880-28633/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-28633/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-28633/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

HPLC/IC (Continued)

Leach Batch: 28633 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2471-A-11-D MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2471-A-11-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 28885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2476-1	SS02	Soluble	Solid	300.0	28633
MB 880-28633/1-A	Method Blank	Soluble	Solid	300.0	28633
LCS 880-28633/2-A	Lab Control Sample	Soluble	Solid	300.0	28633
LCSD 880-28633/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	28633
890-2471-A-11-D MS	Matrix Spike	Soluble	Solid	300.0	28633
890-2471-A-11-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	28633

Lab Chronicle

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

Client Sample ID: SS02
Date Collected: 06/27/22 13:20
Date Received: 06/28/22 09:49

Lab Sample ID: 890-2476-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	28904	07/01/22 15:28	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	29172	07/07/22 18:31	AJ	XEN MID
Total/NA	Analysis	Total BTEX		1			29275	07/08/22 10:17	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			28878	07/01/22 13:31	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	28738	06/30/22 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			28713	07/01/22 02:28	SM	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	28633	06/29/22 11:09	CH	XEN MID
Soluble	Analysis	300.0		1			28885	07/04/22 17:40	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-23	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2476-1
SDG: 03E1558057

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2476-1	SS02	Solid	06/27/22 13:20	06/28/22 09:49	0.5'

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: ____________

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy, Inc.
Address:	3122 National parks Hwy	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	bbelill@ensolum.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Pierce Canyon 3 SWD	Turn Around	
Project Number:	03E1558057	☑ Routine	☐ Rush
Project Location:	EDDY COUNTY, NM	Due Date:	
Sampler's Name:	Kase Parker	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT	Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No		Thermometer ID:	TAM 007
Cooler Custody Seals:	Yes No (N/A)		Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)		Temperature Reading:	5.6
Total Containers:			Corrected Temperature:	5.4

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021	Sample Comments
SS02	S	6/27/2022	1320	0.5'	Grab/	1	X	X	X	Cost Center: 1667681001
										Incident Numbers: NAPP2209446613

Pres. Code / Parameters

890-2476 Chain of Custody

Preservative Codes

None: NO	DI Water: H_2O
Cool: Cool	MeOH: Me
HCL: HC	HNO_3: HN
H_2SO_4: H_2	NaOH: Na
H_3PO_4: HP	
$NaHSO_4$: NABIS	
$Na_2S_2O_3$: $NaSO_3$	
Zn Acetate+NaOH: Zn	
NaOH+Ascorbic Acid: SAPC	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 [signature]	Amanda Steif [signature]	6/28/22 949			
3			4		
5			6		

Revised Date 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2476-1
SDG Number: 03E1558057

Login Number: 2476
List Number: 1
Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2476-1
SDG Number: 03E1558057

Login Number: 2476
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 06/29/22 10:55 AM

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

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ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-2477-1
Laboratory Sample Delivery Group: 03E1558057
Client Project/Site: Pierce Canyon 3 SWD

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Ben Belill

JKramer

Authorized for release by:
7/8/2022 11:14:47 AM

Jessica Kramer, Project Manager
(432)704-5440
Jessica.Kramer@et.eurofinsus.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Laboratory Job ID: 890-2477-1
SDG: 03E1558057

Table of Contents

Definitions/Glossary

Client: Ensolum Job ID: 890-2477-1
Project/Site: Pierce Canyon 3 SWD SDG: 03E1558057

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

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

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

Job ID: 890-2477-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-2477-1

Receipt
The sample was received on 6/28/2022 9:49 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.4°C

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

GC Semi VOA
Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-28738 and analytical batch 880-28713 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

Method 8015MOD_NM: The matrix spike (MS) recoveries for preparation batch 880-28738 and analytical batch 880-28713 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

Client Sample ID: SS01

Date Collected: 06/27/22 13:50
Date Received: 06/28/22 09:49
Sample Depth: 0.5'

Lab Sample ID: 890-2477-1

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		07/01/22 15:28	07/07/22 18:52	1
Toluene	<0.00198	U	0.00198		mg/Kg		07/01/22 15:28	07/07/22 18:52	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		07/01/22 15:28	07/07/22 18:52	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		07/01/22 15:28	07/07/22 18:52	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		07/01/22 15:28	07/07/22 18:52	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		07/01/22 15:28	07/07/22 18:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*07/01/22 15:28*	*07/07/22 18:52*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*	*07/01/22 15:28*	*07/07/22 18:52*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396		mg/Kg			07/08/22 10:17	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			07/01/22 13:31	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		06/30/22 10:13	07/01/22 02:50	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9		mg/Kg		06/30/22 10:13	07/01/22 02:50	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		06/30/22 10:13	07/01/22 02:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*06/30/22 10:13*	*07/01/22 02:50*	*1*
o-Terphenyl	*109*		*70 - 130*	*06/30/22 10:13*	*07/01/22 02:50*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**22.1**		4.95		mg/Kg			07/04/22 17:49	1

Surrogate Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2475-A-1-G MS	Matrix Spike	110	102
890-2475-A-1-H MSD	Matrix Spike Duplicate	109	99
890-2477-1	SS01	101	88
LCS 880-28904/1-A	Lab Control Sample	107	101
LCSD 880-28904/2-A	Lab Control Sample Dup	107	100
MB 880-28904/5-A	Method Blank	96	87

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2471-A-21-B MS	Matrix Spike	89	96
890-2471-A-21-C MSD	Matrix Spike Duplicate	102	109
890-2477-1	SS01	99	109
LCS 880-28738/2-A	Lab Control Sample	89	94
LCSD 880-28738/3-A	Lab Control Sample Dup	81	76
MB 880-28738/1-A	Method Blank	104	122

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-28904/5-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28904

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		07/01/22 15:28	07/07/22 12:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		07/01/22 15:28	07/07/22 12:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*07/01/22 15:28*	*07/07/22 12:00*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*	*07/01/22 15:28*	*07/07/22 12:00*	*1*

Lab Sample ID: LCS 880-28904/1-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28904

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1014		mg/Kg		101	70 - 130		
Toluene			0.100	0.09844		mg/Kg		98	70 - 130		
Ethylbenzene			0.100	0.1029		mg/Kg		103	70 - 130		
m-Xylene & p-Xylene			0.200	0.2124		mg/Kg		106	70 - 130		
o-Xylene			0.100	0.1048		mg/Kg		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-28904/2-A
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1049		mg/Kg		105	70 - 130	3	35
Toluene			0.100	0.1030		mg/Kg		103	70 - 130	5	35
Ethylbenzene			0.100	0.1077		mg/Kg		108	70 - 130	5	35
m-Xylene & p-Xylene			0.200	0.2212		mg/Kg		111	70 - 130	4	35
o-Xylene			0.100	0.1094		mg/Kg		109	70 - 130	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 890-2475-A-1-G MS
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U	0.101	0.09951		mg/Kg		99	70 - 130		
Toluene	<0.00201	U	0.101	0.09548		mg/Kg		95	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

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

Lab Sample ID: 890-2475-A-1-G MS
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.101	0.09892		mg/Kg		98	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.202	0.2043		mg/Kg		101	70 - 130
o-Xylene	<0.00201	U	0.101	0.1009		mg/Kg		100	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: 890-2475-A-1-H MSD
Matrix: Solid
Analysis Batch: 29172

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 28904

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.100	0.09182		mg/Kg		92	70 - 130	8	35
Toluene	<0.00201	U	0.100	0.08800		mg/Kg		88	70 - 130	8	35
Ethylbenzene	<0.00201	U	0.100	0.08801		mg/Kg		88	70 - 130	12	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1817		mg/Kg		91	70 - 130	12	35
o-Xylene	<0.00201	U	0.100	0.09018		mg/Kg		90	70 - 130	11	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

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

Lab Sample ID: MB 880-28738/1-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28738

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		06/30/22 10:13	06/30/22 22:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*104*		*70 - 130*	*06/30/22 10:13*	*06/30/22 22:11*	*1*
o-Terphenyl	*122*		*70 - 130*	*06/30/22 10:13*	*06/30/22 22:11*	*1*

Lab Sample ID: LCS 880-28738/2-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28738

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1108		mg/Kg		111	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1029		mg/Kg		103	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

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

Lab Sample ID: LCS 880-28738/2-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28738

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	94		70 - 130

Lab Sample ID: LCSD 880-28738/3-A
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28738

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1198		mg/Kg		120	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	834.5	*1	mg/Kg		83	70 - 130	21	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	81		70 - 130
o-Terphenyl	76		70 - 130

Lab Sample ID: 890-2471-A-21-B MS
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28738

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	787.7		mg/Kg		79	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U *1 F1	996	670.8	F1	mg/Kg		67	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	96		70 - 130

Lab Sample ID: 890-2471-A-21-C MSD
Matrix: Solid
Analysis Batch: 28713

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 28738

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	876.4		mg/Kg		88	70 - 130	11	20
Diesel Range Organics (Over C10-C28)	<49.9	U *1 F1	996	767.3		mg/Kg		77	70 - 130	13	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	109		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-28633/1-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			07/04/22 13:12	1

Lab Sample ID: LCS 880-28633/2-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	229.1		mg/Kg		92	90 - 110		

Lab Sample ID: LCSD 880-28633/3-A
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	230.3		mg/Kg		92	90 - 110	0	20

Lab Sample ID: 890-2471-A-11-D MS
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	34.7		250	284.5		mg/Kg		100	90 - 110		

Lab Sample ID: 890-2471-A-11-E MSD
Matrix: Solid
Analysis Batch: 28885

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	34.7		250	290.4		mg/Kg		102	90 - 110	2	20

QC Association Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

GC VOA

Prep Batch: 28904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2477-1	SS01	Total/NA	Solid	5035	
MB 880-28904/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-28904/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-28904/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2475-A-1-G MS	Matrix Spike	Total/NA	Solid	5035	
890-2475-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 29172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2477-1	SS01	Total/NA	Solid	8021B	28904
MB 880-28904/5-A	Method Blank	Total/NA	Solid	8021B	28904
LCS 880-28904/1-A	Lab Control Sample	Total/NA	Solid	8021B	28904
LCSD 880-28904/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	28904
890-2475-A-1-G MS	Matrix Spike	Total/NA	Solid	8021B	28904
890-2475-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	28904

Analysis Batch: 29276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2477-1	SS01	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 28713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2477-1	SS01	Total/NA	Solid	8015B NM	28738
MB 880-28738/1-A	Method Blank	Total/NA	Solid	8015B NM	28738
LCS 880-28738/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	28738
LCSD 880-28738/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	28738
890-2471-A-21-B MS	Matrix Spike	Total/NA	Solid	8015B NM	28738
890-2471-A-21-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	28738

Prep Batch: 28738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2477-1	SS01	Total/NA	Solid	8015NM Prep	
MB 880-28738/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-28738/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-28738/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2471-A-21-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2471-A-21-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 28879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2477-1	SS01	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 28633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2477-1	SS01	Soluble	Solid	DI Leach	
MB 880-28633/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-28633/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-28633/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

HPLC/IC (Continued)

Leach Batch: 28633 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2471-A-11-D MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2471-A-11-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 28885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2477-1	SS01	Soluble	Solid	300.0	28633
MB 880-28633/1-A	Method Blank	Soluble	Solid	300.0	28633
LCS 880-28633/2-A	Lab Control Sample	Soluble	Solid	300.0	28633
LCSD 880-28633/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	28633
890-2471-A-11-D MS	Matrix Spike	Soluble	Solid	300.0	28633
890-2471-A-11-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	28633

Lab Chronicle

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

Client Sample ID: SS01

Date Collected: 06/27/22 13:50
Date Received: 06/28/22 09:49

Lab Sample ID: 890-2477-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	28904	07/01/22 15:28	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	29172	07/07/22 18:52	AJ	XEN MID
Total/NA	Analysis	Total BTEX		1			29276	07/08/22 10:17	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			28879	07/01/22 13:31	SM	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	28738	06/30/22 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			28713	07/01/22 02:50	SM	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	28633	06/29/22 11:09	CH	XEN MID
Soluble	Analysis	300.0		1			28885	07/04/22 17:49	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-23	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: Pierce Canyon 3 SWD

Job ID: 890-2477-1
SDG: 03E1558057

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2477-1	SS01	Solid	06/27/22 13:50	06/28/22 09:49	0.5'

eurofins | Environment Testing | Xenco

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

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Project Manager:	Ben Belill	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy, Inc.
Address:	3122 National parks Hwy	Address:	3104 E. Green Street
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	9898540852	Email:	bbelill@ensolum.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Pierce Canyon 3 SWD	Turn Around	
Project Number:	03E1558057	☑ Routine ☐ Rush	
Project Location:	EDDY COUNTY, NM	Due Date:	
Sampler's Name:	Kase Parker	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TNM007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	5.6
Total Containers:		Corrected Temperature:	5.4

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
SS01	S	6/27/2022	1350	0.5'	Grab/	1		X	X	X

ANALYSIS REQUEST

890-2477 Chain of Custody

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2SO_4: H_2 NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Comments

Cost Center: 1667681001

Incident Numbers:
NAPP2209446613

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Stutz	6/28/22 949			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2477-1
SDG Number: 03E1558057

Login Number: 2477
List Number: 1
Creator: Stutzman, Amanda

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2477-1
SDG Number: 03E1558057

Login Number: 2477
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 06/29/22 10:55 AM

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

ENSOLUM

APPENDIX E

NMOCD Notifications

Green, Garrett J

From: Green, Garrett J
Sent: Friday, March 25, 2022 9:17 AM
To: Mike Bratcher; Victoria Venegas; Rob Hamlet
Cc: DelawareSpills /SM; Fuentes, Frank O; Jarrett, Ryan
Subject: XTO 48 Hour Liner Inspection Notification - Pierce Canyon 3 SWD - Released on 3/21/22

Follow Up Flag: Follow up
Flag Status: Completed

Good morning,

This is sent as a 48-hour notification, XTO is scheduled to inspect the lined containment at Pierce Canyon 3 SWD released on (3/21/22), on Monday, March 28, 2022, at 9am MST. A 24 hour release notification was not sent since the release was less than 25 barrels in volume. Please call us with any questions or concerns.

GPS Coordinates: (32.15480, -103.86437)

Thank you,

Garrett Green
Environmental Coordinator
Delaware Business Unit
(575) 200-0729
Garrett.Green@ExxonMobil.com

XTO Energy, Inc.
3104 E. Greene Street | Carlsbad, NM 88220 | M: (575)200-0729

Aimee Cole

Subject: FW: XTO - Sampling Notification (week of 5/30/22 - 6/3/22)

From: Baker, Adrian <adrian.baker@exxonmobil.com>
Sent: Wednesday, May 25, 2022 2:17 PM
To: ocd.enviro@state.nm.us; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us>
Cc: DelawareSpills /SM <DelawareSpills@exxonmobil.com>; Green, Garrett J <garrett.green@exxonmobil.com>; Aimee Cole <acole@ensolum.com>
Subject: XTO - Sampling Notification (week of 5/30/22 - 6/3/22)

[**EXTERNAL EMAIL**]

All,

XTO plans to complete final sampling activities at the following sites the week of May 30, 2022.

Tuesday, May 31st
- PLU 223 / nAPP2204945328, nAPP2205343597, NAPP2201745910
- BEU 5E Han Solo 114H / nAPP2209041753

Wednesday, June 1st
- PLU 223 / nAPP2204945328, nAPP2205343597, NAPP2201745910
- BEU 5E Han Solo 114H / nAPP2209041753

Thursday, June 2nd
- PLU 223 / nAPP2204945328, nAPP2205343597, NAPP2201745910
- Row 4 Muy Wayno Line / nAPP2209039217
- Pierce Canyon 3 SWD/ nAPP2209446613

Friday, June 3rd
- PLU 223 / nAPP2204945328, nAPP2205343597, NAPP2201745910
- Row 4 Muy Wayno Line / nAPP2209039217

Thank you,

Adrian Baker
Environmental Coordinator
Permian Business Unit

XTO Energy Inc.
6401 N. Holiday Hill Dr.
Midland, Tx 79707
Mobile:(432)-236-3808
adrian.baker@exxonmobil.com

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 126789

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 126789
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Closure Approved.	8/23/2022