

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	NAPP2303444414
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party XTO Energy	OGRID 5380
Contact Name Garrett Green	Contact Telephone 575-200-0729
Contact email garrett.green@exxonmobil.com	Incident # (assigned by OCD)
Contact mailing address 3104 E. Greene Street, Carlsbad, New Mexico, 88220	

Location of Release Source

Latitude 32.61341 Longitude -103.49612
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Perla Verde 31 State Battery	Site Type Central Tank Battery
Date Release Discovered 1/20/2023	API# (if applicable)

Unit Letter	Section	Township	Range	County
J	31	19S	35E	Lea

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)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 15.00	Volume Recovered (bbls) 15.00
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)


Cause of Release Leak was caused by a stuck water dump valve causing fluids to go the gun barrel and pushing 15 bbls of oil out of the thief hatch. All oil was recovered and returned to a spare tank. A 48-hour advance liner notice was sent to NMOCD District 1. Liner was visually inspected and determined not to be functioning as designed. A third-party contractor has been retained for remediation purposes.

Incident ID	NAPP2303444414
District RP	
Facility ID	
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Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? N/A
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? N/A	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: NA	
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: Garrett Green	Title: SSHE Coordinator
Signature: 	Date: 2/3/2023
email: garrett.green@exxonmobil.com	Telephone: 575-200-0729
<u>OCD Only</u>	
Received by: Jocelyn Harimon	Date: 02/03/2023

Incident ID	NAPP2303444414
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?	<u>>100</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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

Page 5

Incident ID	NAPP2303444414
District RP	
Facility ID	
Application ID	

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Printed Name: _Garrett Green_____ Title: _Environmental Coordinator_____

Signature:  Date: ___4/19/2023_____

email: _garrett.green@exxonmobil.com_____ Telephone: ___575-200-0729_____

OCD Only

Received by: _____ Jocelyn Harimon _____ Date: ___04/19/2023_____

Incident ID	NAPP2303444414
District RP	
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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

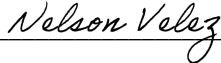
Signature:  Date: 4/19/2023

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

OCD Only

Received by: Jocelyn Harimon 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:  Date: 07/03/2023

Printed Name: Nelson Velez Title: Environmental Specialist – Adv



April 19, 2023

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

**Re: Closure Request
Perla Verde 31 State Battery
Incident Numbers NAPP2303444414
Lea 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 assessment and soil sampling activities performed at the Perla Verde 31 State Battery (Site) (Figure 1). 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 crude oil within lined containment at the Site. Based on field observations, field screening activities, and laboratory analytical results, XTO is submitting this *Closure Request* and requesting no further action for Incident Number NAPP2303444414.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit J, Section 31, Township 19 South, Range 35 East, in Lea County, New Mexico (32.613446°, -103.496142°) and is associated with oil and gas exploration and production operations on New Mexico State Land.

On January 20, 2023, water dump valve became stuck causing fluids to go to the gun barrel resulting in the release of approximately 15 barrels (bbls) of crude oil into the lined tank battery containment. A vacuum truck was immediately dispatched to the Site to recover the free-standing fluids; all 15 bbls of crude oil 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) 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 February 2, 2023. The release was assigned Incident Number NAPP2303444414.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

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

XTO Energy, Inc
Closure Request
Perla Verde 31 State Battery

Engineer (NMOSE; L-14552 POD 12) was drilled February 2019, and is 0.5 miles of the Site. The well was drilled to a total depth of 1,390 feet bgs. Depth to groundwater in the NMOSE well was measured at 553 feet bgs. The well was completed by a New Mexico licensed driller and the Well Record and Log is included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is a dry wash, located approximately 4,993 feet northeast 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 I Closure Criteria (Closure Criteria) apply:

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

SITE ASSESSMENT ACTIVITIES

Between March 15 and March 21, 2023, Site assessment activities were conducted to evaluate the release extent based on information provided on the Form C-141 and visual observations. Four assessment samples (SS01 through SS04) were collected around the lined containment at a depth of 0.5 feet bgs to confirm the release did not exit the lined containment. 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 0.5 feet and 1-foot bgs. Soil from the borehole was field screened for volatile organic compounds (VOCs) 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 soil removed and an XTO representative repaired the tear in the liner. The assessment soil sample and borehole 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 under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of the following contaminants of concern (COCs): 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 SS01 through SS04 and BH01/BH01A indicated all COCs were compliant with the Site Closure Criteria and provide lateral and vertical

XTO Energy, Inc
Closure Request
Perla Verde 31 State Battery

delineation of the release to the strictest Table I Closure Criteria. Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Appendix D.

CLOSURE REQUEST

Following the failed liner integrity inspection at the Site, Ensolum personnel advanced one borehole (BH01) at the location of the tear in the liner to assess for the presence or absence of impacted soil resulting from the January 20, 2023, crude oil release within lined containment. 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.

Based on initial response efforts, and soil sample laboratory analytical results compliant with the Closure Criteria directly beneath the tear in the liner, impacts to soil were absent and therefore XTO respectfully requests closure for Incident Numbers NAPP2303444414.

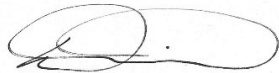
If you have any questions or comments, please contact Ms. Tacoma Morrissey at (337) 257-8307 or tmorrissey@ensolum.com.

Sincerely,

Ensolum, LLC

Mariaha O'Dell

Mariaha O'Dell
Associate Geologist



Daniel R. Moir, P.G.
Senior Managing Geologist

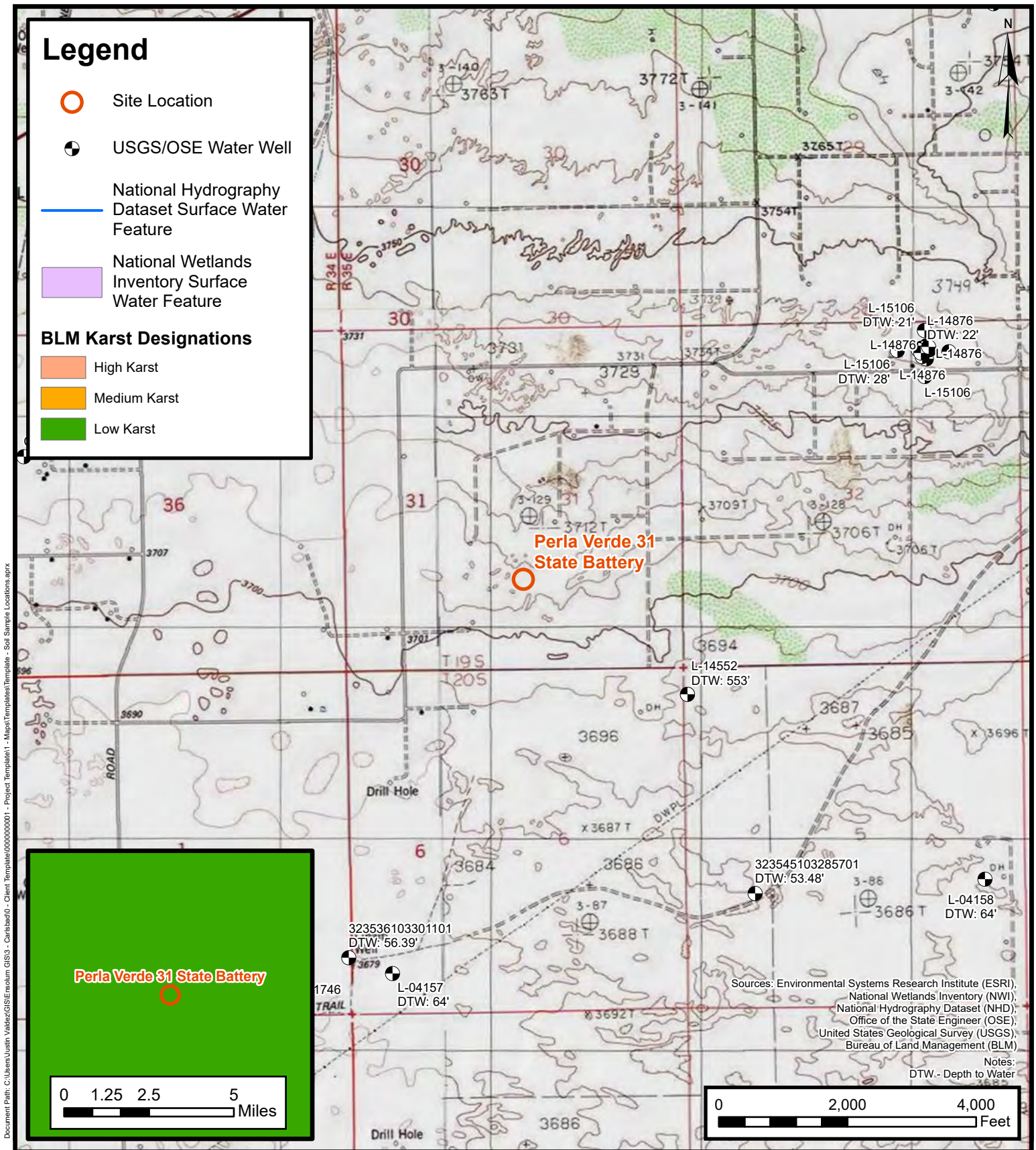
cc: Garrett Green, XTO
Shelby Pennington, XTO
State Land Office

Appendices:

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



FIGURES



Site Receptor Map

Perla Verde 31 State Battery
 XTO ENERGY, INC
 Incident Number: nAPP2303444414
 Unit J, Section 31, T19S, R35E
 Lea County, New Mexico

FIGURE
 1

Legend

- Delineation Soil Sample in Compliance with Closure Criteria



SS01@0.5'

SS02@0.5'

SS04@0.5'

BH01@0.5'
BH01A@1'

SS03@0.5'

0 100 200 Feet

Sources: Environmental Systems Research Institute (ESRI)

**Delineation Soil Sample Locations**

Perla Verde 31 State Battery
XTO ENERGY, INC
Incident Number: nAPP2303444414
Unit J, Section 31, T19S, R35E
Lea County, New Mexico

FIGURE**2**



TABLES



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
PERLA VERDE 31 STATE BATTERY
XTO ENERGY, INC
LEA COUNTY, NM

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Delineation Soil Samples										
SS01	03/15/2023	0.5	<0.00201	<0.00402	<50.0	91.6	<50.0	91.6	91.6	73.6
SS02	03/15/2023	0.5	<0.00202	<0.00404	<50.0	<50.0	<50.0	<50.0	<50.0	18.7
SS03	03/15/2023	0.5	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	99.4
SS04	03/15/2023	0.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	39.3
BH01	03/21/2023	0.5	<0.00200	<0.00401	<49.8	<49.8	<49.8	<49.8	<49.8	127
BH01A	03/21/2023	1	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	71.7

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

NMAC: New Mexico Administrative Code



APPENDIX A

Referenced Well Records



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) POD12		WELL TAG ID NO.		OSE FILE NO(S). L 14552		2019 APR 11 PM 4:14		STATE ENGINEER'S OFFICE ROSSELL, NEW MEXICO	
	WELL OWNER NAME(S) NuWater Resources, LLC - Roger Perry (John Shomaker & Associates Inc)					PHONE (OPTIONAL) 505-345-3407				
	WELL OWNER MAILING ADDRESS 514 Via De La Valle, Suite 302					CITY Solana Beach		STATE CA		ZIP 92075
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE	MINUTES 32	SECONDS 36	16.7 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND				
	LONGITUDE	103	27	34.9 W	* DATUM REQUIRED: WGS 84					
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE NE1/4 SW1/4 NE1/4 of Section 04, T20S, R35E										
2. DRILLING & CASING INFORMATION	LICENSE NO. WD-767		NAME OF LICENSED DRILLER Bruce J. Reichmuth				NAME OF WELL DRILLING COMPANY Hydro Resources Mid Continent, Inc			
	DRILLING STARTED February 13, 2019		DRILLING ENDED Feb. 27, 2019		DEPTH OF COMPLETED WELL (FT) 1389		BORE HOLE DEPTH (FT) 1390		DEPTH WATER FIRST ENCOUNTERED (FT)	
	COMPLETED WELL IS: <input checked="" type="checkbox"/> ARTESIAN <input type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)								STATIC WATER LEVEL IN COMPLETED WELL (FT) 553	
	DRILLING FLUID: <input type="checkbox"/> AIR <input checked="" type="checkbox"/> MUD ADDITIVES - SPECIFY:									
	DRILLING METHOD: <input type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input checked="" type="checkbox"/> OTHER - SPECIFY: Reverse Rotary									
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)		
	FROM	TO								
	0	30	24	18" OD Steel, ASTM A53 Grade B	None	17.25	.375			
	0	920	16	10.75" OD, J55 API Casing	Threaded	10.05	.350			
	-2	916	9 7/8	7" OD J55 API Casing	Threaded	6.37	.317			
916	1379	9 7/8	7" OD J55 API Perforated Casing	Threaded	6.37	.317	.100			
1379	1389	9 7/8	7" OD J55 API Casing	Threaded	6.37	.317				
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT				
	FROM	TO								
	0	30	24	Cement	54	Tremie				
	0	920	16	Cement	1015	Pressure				

FOR OSE INTERNAL USE

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

FILE NO.	L-14552	POD NO.	12	TRN NO.	637545
LOCATION	322 T20S R35 Sec 4	WELL TAG ID NO.	NA	PAGE 1 OF 2	

STATE OF	OFFICE OF THE
PROSECUTOR GENERAL	ATTORNEY GENERAL
2019 APR 11	PAGE 1

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

Bruce Reichmuth

From: Sherry Fritz <sfritz@shomaker.com>
Sent: Sunday, March 17, 2019 7:40 PM
To: Bruce Reichmuth
Subject: Lith for K1-17

0 - 40	<u>sand</u> : overall tan, fine grained, some caliche
40 - 50	<u>silt</u> : overall tan with areas of more yellowish-tan and areas of more reddish-tan, clay present
50 - 330	<u>clays and silts</u> : overall reddish-brown and maroon-brown, high plasticity, some sticky, very soft, silty
330 - 370	<u>silty clay to clay stone</u> : orange-reddish-brown, silty, some is more indurated
370 - 420	<u>clayey silt</u> : slightly orange-reddish-brown, very clayey, soft, more indurated pieces are friable, platy, also present are more indurated pieces of maroon-brown
420 - 430	<u>silty clay</u> : orange-reddish-brown, soft, low plasticity, some greenish-gray spots, some more indurated spots
430 - 440	<u>silt to siltstone</u> : orange-reddish-brown; siltstone is reddish-brown, more indurated, dry inside, breaks with moderate force
440 - 490	<u>silt and clays</u> : reddish-brown, clayey, soft to slightly indurated; greenish-gray spots of silt, some more indurated; maroon-brown spots of silt more indurated
490 - 510	<u>silt to siltstone</u> : brown & gray, clayey, silty; siltstone is brown, indurated, chips up to 30 mm, pieces break apart with force; greenish-gray siltstone chips
510 - 520	<u>clay to claystone</u> : overall gray, very soft, low plasticity, silty, slick, sticky; indurated pieces up to 20 mm, break apart easily
520 - 580	<u>sandstone and silt</u> : overall gray, sandstone chips are up to 40 mm, rounded, break apart with force; silt is gray, sandy; maroon-brown silt
580 - 590	<u>sandstone and silt</u> : silt is brown, clayey; sandstone chips are up to 40 mm, subrounded, break apart with force; gray silt
590 - 650	<u>silt</u> : brown to reddish-brown, clayey; maroon-brown silt is more indurated, breaks apart easily; greenish-gray silt, up to slightly indurated
650 - 660	<u>silt to siltstone</u> : reddish-brown overall, clayey; maroon-brown silt present, indurated pieces up to 20 mm, pieces break apart easily; greenish-gray silt present
660 - 720	<u>silt and silty clay</u> : reddish-brown and maroon-brown overall, clay is soft, high plasticity, silty, some pieces more indurated; greenish-gray silt very soft to slightly indurated
720 - 750	<u>clay</u> : brown to orange-brown, soft to medium stiff, low to medium plasticity, slick, silty in spots, some pieces more indurated up to 10 mm pieces that break apart easily; greenish-gray silt to siltstone present; maroon-brown silt to siltstone present
750 - 760	<u>silt</u> : overall reddish-brown, clayey; greenish-gray silt present, some with slight induration; maroon-brown pieces present that are more indurated than the greenish-gray, yet still break apart easily

STATE POWER OFFICE
 ROSWELL, NEW MEXICO

760 - 780	<u>clayey silt</u> : overall reddish brown, clayey, greenish-gray silt present, some with slight induration; maroon-brown pieces present up to 10 mm that are more indurated, break apart easily
780 - 790	<u>silt</u> : overall reddish-brown, clayey; greenish-gray spots present; maroon-brown pieces up to 10 mm present
790 - 810	<u>clay</u> : overall reddish-brown, soft, medium to high plasticity, silty, sticky, sticky; greenish-gray silt present; maroon-brown pieces of silt present up to 10 mm
810 - 820	<u>clayey silt</u> : reddish-brown, clayey; greenish-gray pieces up to 10 mm that break apart with force; maroon-brown pieces up to 45 mm that break apart easily
820 - 830	<u>silt</u> : reddish-brown, clayey; greenish-gray areas; maroon-brown pieces up to 10 mm present, break easily
830 - 870	<u>silty clay</u> : reddish-brown, soft to medium stiff, medium to high plasticity; greenish-gray silt present; maroon-brown pieces up to 10 mm present, break easily
870 - 880	<u>clayey silt</u> : reddish-brown, clayey; greenish-gray pieces up to 20 mm, very soft; maroon-brown pieces up to 20 mm, break apart easily
880 - 910	<u>silt</u> : reddish-brown, clayey; greenish-gray present; maroon-brown present
910 - 920	<u>silty clay</u> : reddish-brown, up to medium stiff, high plasticity, silty; maroon-brown pieces up to 20 mm, breaks easily; greenish-gray present
920 - 930	<u>clayey silt</u> : reddish-brown, clayey; greenish-gray present; maroon-brown pieces up to 10 mm present. NOTE : at 925 started to see light gray to white pieces, angular, blocky, hard, could not break apart, siltstone to sandstone
930 - 960	<u>clayey silt to siltstone</u> : overall reddish-brown, clayey; siltstone to sandstone present, up to 15 mm
960 - 990	<u>sand and silt</u> : overall reddish-brown, silt is reddish-brown, clayey; sand is light gray to white, pieces up to 10 mm that are up to slightly indurated; sand is maroon-brown pieces up to 40 mm
990 - 1,000	<u>silty clay</u> : reddish-brown, soft, low to medium plasticity, silty, sticky; silt, greenish-gray to gray
1,000 - 1,130	<u>silt</u> : reddish-brown, clayey; greenish-gray, pieces up to 20 mm, break apart easily, some maroon-brown pieces present, some parts clayey
1,130 - 1,160	<u>sandy silt</u> : brown silt, clayey; white silt; greenish-gray sand, pieces up to 30 mm, break apart easily; maroon-brown pieces present, up to 5 mm, break easily
1,160 - 1,180	<u>clayey silt</u> : brown, clayey
1,180 - 1,310	<u>silt</u> : brown to reddish brown, clayey in spots, sandy in spots
1,310 - 1,320	<u>sandy silty clay</u> : red, very fine to fine; silt, brown; clay, red, sticky, medium plasticity, soft
1,320 - 1,330	<u>silty sand</u> : gray; sand very fine to fine; silt, brown
1,330 - 1,340	<u>clayey sand</u> : gray; sand very fine to fine; clay, red, sticky, medium plasticity, soft
1,340 - 1,390	<u>clayey silt</u> : red, sticky, clayey

STATE POWER OFFICE
ROSMET, MEXICO
2019 APR 11 PM 4:14

Sherry Fritz
Project Hydrogeologist

AQUIFER TEST

NAME Muwater ResourcesDATE 3/8/19

OBSERVED WELL _____

PUMPING WELL _____

DISTANCE AND DIRECTION FROM PUMPING WELL _____

MEASURING POINT: Top of 1 1/4" PVC pipe22 3/8

FEET ABOVE GROUND LEVEL

DATE	TIME OF DAY	ELAPSED TIME IN MINUTES	TAPE READING	WATER LEVEL BELOW MEASURING POINT	DRAWDOWN IN FEET	PUMPING RATE OF TEST WELL
3/8/19	11:00am	SWL	553' 0"			
		0				
	11:01	1	559' 0"			56 GPM
	11:02	2	578' 9"			56
	11:03	3	589' 6"			56
	11:04	4	599' 0"			55
	11:05	5	610' 1"			53
	11:07	7	622' 0"			54
	11:09	9	633' 7"			54
	11:11	11	645' 1"			54
	11:15	15	657' 5"			53
	11:20	20	667' 0"			56
	11:25	25	673' 11"			55
	11:30	30	678' 8"			54
	11:35	35	681' 11"			55
	11:40	40	684' 3"			54
	11:45	45	685' 10"			54
	11:50am	50	687' 4"			54
	12:00pm	60	689' 6"			54
	12:10	70	691' 5"			54
	12:20	80	693			54
	12:30	90	696' 7"			56
	12:40	100	698			55
	1:00	120	700' 2"			56
	1:30	150	702' 2"			55
	2:00	180	704' 0"			55
- Gas	2:30	210	704' 7"			55
	3:00	240	707' 0"			55
	3:30	270	708' 0"			55
	4:00	300	709			55
	4:30	330	710			55
- Gas	5:00	360	710' 3"			55
	6:00	420	711' 8"			55
	7:00	480	712' 10"			53
- Gas	8:00	540	713' 16"			54
	9:00	600	714' 8"			52 - 57 Adjust
	10:00	660	719' 1"			55
- Gas	11:00pm	720	720' 2"			55
3/9/19	12:00am	780	720' 11"		69 PSI	54
	1:00	840	721' 6"			54
	2:00	900	722' 2"			54
	3:00	960	722' 9"			53
	4:00	1020	723' 2"			53
	5:00	1080	723' 8"		70 PSI	54
	6:00	1140	723' 11"			55
	7:00	1200	724' 3"			55 GPM
	8:00	1260	725' 0"			55
	9:00	1320	725' 4"			55 GPM
	10:00	1380	725' 8"			55
	11:00am	1440	726' 3"			55 GPM
	12:00pm					

TEST PERFORMED BY _____

JOB NO. 14870

Flowmeter 000011000

72 hours Test

2 of 2 Page 20 of 76

NAME Nuwater Resources

AQUIFER TEST

DATE 3/8/19

OBSERVED WELL _____

PUMPING WELL _____

DISTANCE AND DIRECTION FROM PUMPING WELL _____

MEASURING POINT: Top of 1 1/4" PVC pipe 22" 3/8 FEET ABOVE GROUND LEVEL

DATE	TIME OF DAY	ELAPSED TIME IN MINUTES	TAPE READING	WATER LEVEL BELOW MEASURING POINT	DRAWDOWN IN FEET	PUMPING RATE OF TEST WELL
3/9/19		SWL				
	12:00pm	1500	727' 0"			55 GPM
	1:00	1560	727' 6"			55 GPM
	2:00	1620	727' 9"			55 GPM
	3:00	1680	728' 0"			55 GPM
	4:00	1740	728' 4"			55 GPM
	5:00	1800	728' 5"			55 GPM
	6:00	1860	728' 7"			55 GPM
	7:00	1920	728' 8"			55 GPM
	8:00	1980	728' 10"			55 GPM
	9:00	2040	728' 10"			55 GPM
	10:00	2100	729			54 GPM
	11:00	2160	729' 2"			54 GPM
3/10/19	12:00am	2220	729' 4"			55 GPM
	1:00	2280	729' 7"			55 GPM
	2:00	2340	729' 9"			55
	3:00	2400	730			55
	4:00	2460	730.2			55
	5:00	2520	730.4			53
	6:00	2580	730.6			53
	7:00	2640	730' 8"			54
	8:00	2700	730' 10"			54 GPM
	9:00	2760	731' 0"			54
	10:00	2820	731' 4"			54
	11:00	2880	731' 10"			54
	12:00pm	2940	732' 0"			54
	1:00	3000	732' 4"			54
	2:00	3060	732' 0"			54
	3:00	3120	735' 2"			56
	4:00	3180	735' 9"			56
	5:00	3240	736' 0"			56
	6:00	3300	736.3			55
	7:00	3360	736.5			55
	8:00	3420	736.8			56
	9:00	3480	736.10			55
	10:00	3540	736.11			55
	11:00	3600	737.1			55
3/11/19	12:00am	3660	737.3			55
	1:00am	3720	737.3			55
	2:00	3780	737.3			55
	3:00	3840	737.5			55
	4:00	3900	737.7			55
	5:00	3960	737.8			55
	6:00	4020	737.8			55
	7:00	4080	737.9			55
	8:00	4140	738' 0"			55
	9:00	4200	738' 2"			55
	10:00	4260	738' 5"			55
	11:00	4320	738' 8"			55 GPM

STATE OF NEW MEXICO
NORMAN NEW MEXICO

Lea County, New Mexico
Latitude 32°35'59", Longitude 103°29'03" NAD27
Land-surface elevation 3,685.00 feet above NGVD29
The depth of the well is 70 feet below land surface.
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Ogallala Formation (121OGLL) local aquifer.

Output formats

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

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Water-level approval status
1961-03-08			D 62610		3623.44	NGVD29	P		Z		A
1961-03-08			D 62611		3624.98	NAVD88	P		Z		A
1961-03-08			D 72019	61.56			P		Z		A
1966-04-06			D 62610		3631.13	NGVD29	1		Z		A
1966-04-06			D 62611		3632.67	NAVD88	1		Z		A
1966-04-06			D 72019	53.87			1		Z		A
1971-01-21			D 62610		3630.42	NGVD29	P		Z		A
1971-01-21			D 62611		3631.96	NAVD88	P		Z		A
1971-01-21			D 72019	54.58			P		Z		A
1976-02-19			D 62610		3631.44	NGVD29	1		Z		A
1976-02-19			D 62611		3632.98	NAVD88	1		Z		A
1976-02-19			D 72019	53.56			1		Z		A
1981-02-17			D 62610		3631.60	NGVD29	1		Z		A
1981-02-17			D 62611		3633.14	NAVD88	1		Z		A
1981-02-17			D 72019	53.40			1		Z		A
1986-04-02			D 62610		3632.17	NGVD29	1		Z		A
1986-04-02			D 62611		3633.71	NAVD88	1		Z		A
1986-04-02			D 72019	52.83			1		Z		A
1991-07-03			D 62610		3630.77	NGVD29	1		S		A
1991-07-03			D 62611		3632.31	NAVD88	1		S		A
1991-07-03			D 72019	54.23			1		S		A
1996-01-25			D 62610		3631.52	NGVD29	1		S		A
1996-01-25			D 62611		3633.06	NAVD88	1		S		A
1996-01-25			D 72019	53.48			1		S		A



APPENDIX B

Photographic Log



Photographic Log

XTO Energy

Perla Verde 31 State Battery

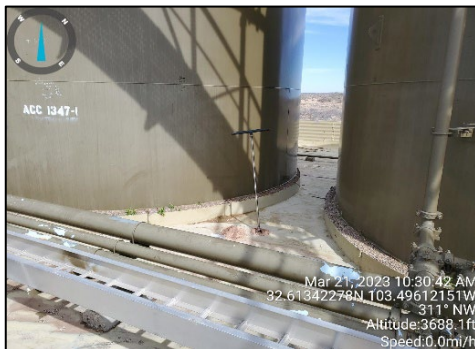
Incident ID: NAPP2303444414



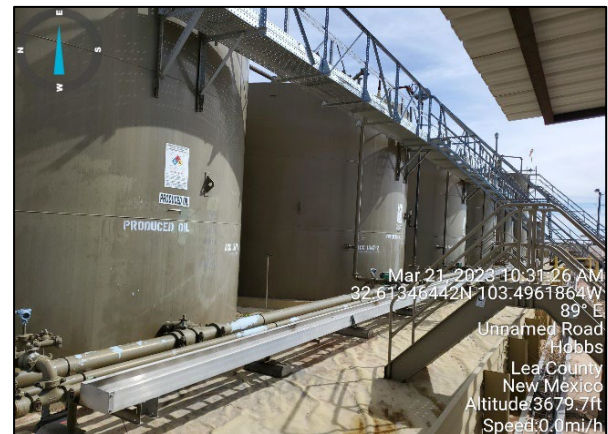
Photograph: 1 Date: 2/3/2023
Description: Initial liner inspection
View: Facing Northwest



Photograph: 2 Date: 2/3/2022
Description: Initial liner inspection
View: Down



Photograph: 3 Date: 3/21/2023
Description: Delineation
View: Facing Northwest




Photograph: 4 Date: 3/21/2023
Description: Delineation
View: Facing East



APPENDIX C

Lithologic Soil Sampling Logs

								Sample Name: BH01		Date: 3/21/23	
								Site Name: Perla Verde 31 State Battery			
								Incident Number: NAPP2303444414			
								Job Number: 03C1558186			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: Peter Van Patten		Method: Hand Auger	
Coordinates: 32.613446, -103.496142								Hole Diameter: 4"		Total Depth: 1'	
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% correction factor included.											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
Dry	<173	0.9	N	BH01	0.5	0	CCHE	Caliche-light pink-off white, no stain, no odor			
Dry	<173	0.4	N	BH01A	1	1	SP-SC	Sand-dry, light brown-tan, medium-fine grained, poorly graded, non-plastic, noncohesive, sub-round small gravel, some caliche, no stain or odor			
TD at 1 ft bgs.											



APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation



Environment Testing

1

2

3

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ANALYTICAL REPORT

PREPARED FOR

Attn: Tacoma Morrissey
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 3/29/2023 10:43:42 AM

JOB DESCRIPTION

XTO PerlaVerde 31 State Battery
SDG NUMBER 03C1558186

JOB NUMBER

890-4318-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad**Job Notes**

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
3/29/2023 10:43:42 AM

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

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Laboratory Job ID: 890-4318-1
SDG: 03C1558186

Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Client Sample Results	6
Surrogate Summary	10
QC Sample Results	11
QC Association Summary	15
Lab Chronicle	17
Certification Summary	19
Method Summary	20
Sample Summary	21
Chain of Custody	22
Receipt Checklists	23

1

2

3

4

5

6

7

8

9

10

11

12

13

14

Definitions/Glossary

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
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: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Job ID: 890-4318-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-4318-1****Receipt**

The samples were received on 3/15/2023 1:14 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 4.4°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: SS01 (890-4318-1), SS02 (890-4318-2), SS03 (890-4318-3) and SS04 (890-4318-4).

GC VOA

Method 8021B: Surrogate recovery for the following sample was outside control limits: SS01 (890-4318-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-49414 and analytical batch 880-49684 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is 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: Surrogate recovery for the following samples were outside control limits: (CCV 880-49069/47), (LCS 880-49114/2-A) and (LCSD 880-49114/3-A). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-49114 and analytical batch 880-49069 was outside the upper control 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: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Client Sample ID: SS01

Lab Sample ID: 890-4318-1

Date Collected: 03/15/23 10:30

Matrix: Solid

Date Received: 03/15/23 13:14

Sample Depth: 0.5'

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U F2 F1	0.00201	mg/Kg		03/24/23 12:44	03/28/23 11:41	1
Toluene	<0.00201	U F2 F1	0.00201	mg/Kg		03/24/23 12:44	03/28/23 11:41	1
Ethylbenzene	<0.00201	U F2 F1	0.00201	mg/Kg		03/24/23 12:44	03/28/23 11:41	1
m-Xylene & p-Xylene	<0.00402	U F2 F1	0.00402	mg/Kg		03/24/23 12:44	03/28/23 11:41	1
o-Xylene	<0.00201	U F2 F1	0.00201	mg/Kg		03/24/23 12:44	03/28/23 11:41	1
Xylenes, Total	<0.00402	U F2 F1	0.00402	mg/Kg		03/24/23 12:44	03/28/23 11:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	64	S1-	70 - 130	03/24/23 12:44	03/28/23 11:41	1
1,4-Difluorobenzene (Surr)	77		70 - 130	03/24/23 12:44	03/28/23 11:41	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			03/28/23 17:54	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	91.6		50.0	mg/Kg			03/22/23 16:11	1

Method: SW846 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		03/21/23 12:04	03/22/23 04:04	1
Diesel Range Organics (Over C10-C28)	91.6		50.0	mg/Kg		03/21/23 12:04	03/22/23 04:04	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		03/21/23 12:04	03/22/23 04:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	99		70 - 130	03/21/23 12:04	03/22/23 04:04	1
o-Terphenyl	111		70 - 130	03/21/23 12:04	03/22/23 04:04	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	73.6		4.97	mg/Kg			03/27/23 16:19	1

Client Sample ID: SS02

Lab Sample ID: 890-4318-2

Date Collected: 03/15/23 10:40

Matrix: Solid

Date Received: 03/15/23 13:14

Sample Depth: 0.5'

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		03/24/23 12:44	03/28/23 16:59	1
Toluene	<0.00202	U	0.00202	mg/Kg		03/24/23 12:44	03/28/23 16:59	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		03/24/23 12:44	03/28/23 16:59	1
m-Xylene & p-Xylene	<0.00404	U	0.00404	mg/Kg		03/24/23 12:44	03/28/23 16:59	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		03/24/23 12:44	03/28/23 16:59	1
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		03/24/23 12:44	03/28/23 16:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130	03/24/23 12:44	03/28/23 16:59	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Client Sample ID: SS02

Lab Sample ID: 890-4318-2

Date Collected: 03/15/23 10:40

Matrix: Solid

Date Received: 03/15/23 13:14

Sample Depth: 0.5'

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	78		70 - 130	03/24/23 12:44	03/28/23 16:59	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404	mg/Kg			03/29/23 09:39	1

Method: SW846 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			03/22/23 16:11	1

Method: SW846 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		03/21/23 12:04	03/22/23 04:26	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		03/21/23 12:04	03/22/23 04:26	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		03/21/23 12:04	03/22/23 04:26	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	85		70 - 130			03/21/23 12:04	03/22/23 04:26	1
o-Terphenyl	99		70 - 130			03/21/23 12:04	03/22/23 04:26	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18.7		4.96	mg/Kg			03/25/23 16:03	1

Client Sample ID: SS03

Lab Sample ID: 890-4318-3

Date Collected: 03/15/23 10:50

Matrix: Solid

Date Received: 03/15/23 13:14

Sample Depth: 0.5'

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		03/24/23 12:44	03/28/23 17:19	1
Toluene	<0.00199	U	0.00199	mg/Kg		03/24/23 12:44	03/28/23 17:19	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		03/24/23 12:44	03/28/23 17:19	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		03/24/23 12:44	03/28/23 17:19	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		03/24/23 12:44	03/28/23 17:19	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		03/24/23 12:44	03/28/23 17:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 130	03/24/23 12:44	03/28/23 17:19	1
1,4-Difluorobenzene (Surr)	86		70 - 130	03/24/23 12:44	03/28/23 17:19	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			03/29/23 09:39	1

Method: SW846 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			03/22/23 16:11	1

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Client Sample Results

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Client Sample ID: SS03

Lab Sample ID: 890-4318-3

Date Collected: 03/15/23 10:50

Matrix: Solid

Date Received: 03/15/23 13:14

Sample Depth: 0.5'

Method: SW846 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		03/21/23 12:04	03/22/23 04:49	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		03/21/23 12:04	03/22/23 04:49	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		03/21/23 12:04	03/22/23 04:49	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	88		70 - 130			03/21/23 12:04	03/22/23 04:49	1
o-Terphenyl	96		70 - 130			03/21/23 12:04	03/22/23 04:49	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	99.4		5.04	mg/Kg			03/25/23 16:16	1

Client Sample ID: SS04

Lab Sample ID: 890-4318-4

Date Collected: 03/15/23 11:00

Matrix: Solid

Date Received: 03/15/23 13:14

Sample Depth: 0.5'

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		03/24/23 12:44	03/28/23 17:40	1
Toluene	<0.00199	U	0.00199	mg/Kg		03/24/23 12:44	03/28/23 17:40	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		03/24/23 12:44	03/28/23 17:40	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		03/24/23 12:44	03/28/23 17:40	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		03/24/23 12:44	03/28/23 17:40	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		03/24/23 12:44	03/28/23 17:40	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130			03/24/23 12:44	03/28/23 17:40	1
1,4-Difluorobenzene (Surr)	89		70 - 130			03/24/23 12:44	03/28/23 17:40	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			03/29/23 09:39	1

Method: SW846 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			03/22/23 16:11	1

Method: SW846 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		03/21/23 12:04	03/22/23 05:12	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		03/21/23 12:04	03/22/23 05:12	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		03/21/23 12:04	03/22/23 05:12	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	101		70 - 130			03/21/23 12:04	03/22/23 05:12	1
o-Terphenyl	112		70 - 130			03/21/23 12:04	03/22/23 05:12	1

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Client Sample Results

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Client Sample ID: SS04
Date Collected: 03/15/23 11:00
Date Received: 03/15/23 13:14
Sample Depth: 0.5'

Lab Sample ID: 890-4318-4
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	39.3		5.02	mg/Kg			03/25/23 16:21	1	

Surrogate Summary

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-4318-1	SS01	64 S1-	77
890-4318-1 MS	SS01	100	107
890-4318-1 MSD	SS01	92	108
890-4318-2	SS02	93	78
890-4318-3	SS03	85	86
890-4318-4	SS04	104	89
LCS 880-49414/1-A	Lab Control Sample	84	119
LCSD 880-49414/2-A	Lab Control Sample Dup	104	112
MB 880-49414/5-A	Method Blank	72	97
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)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-26040-A-1-B MS	Matrix Spike	101	104
880-26040-A-1-C MSD	Matrix Spike Duplicate	102	107
890-4318-1	SS01	99	111
890-4318-2	SS02	85	99
890-4318-3	SS03	88	96
890-4318-4	SS04	101	112
LCS 880-49114/2-A	Lab Control Sample	108	132 S1+
LCSD 880-49114/3-A	Lab Control Sample Dup	109	135 S1+
MB 880-49114/1-A	Method Blank	117	144 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-49414/5-A

Matrix: Solid

Analysis Batch: 49684

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 49414

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		03/24/23 12:44	03/28/23 11:19	1
Toluene	<0.00200	U	0.00200	mg/Kg		03/24/23 12:44	03/28/23 11:19	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/24/23 12:44	03/28/23 11:19	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		03/24/23 12:44	03/28/23 11:19	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/24/23 12:44	03/28/23 11:19	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		03/24/23 12:44	03/28/23 11:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		70 - 130	03/24/23 12:44	03/28/23 11:19	1
1,4-Difluorobenzene (Surr)	97		70 - 130	03/24/23 12:44	03/28/23 11:19	1

Lab Sample ID: LCS 880-49414/1-A

Matrix: Solid

Analysis Batch: 49684

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 49414

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1197		mg/Kg		120	70 - 130
Toluene	0.100	0.09552		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.08488		mg/Kg		85	70 - 130
m-Xylene & p-Xylene	0.200	0.1702		mg/Kg		85	70 - 130
o-Xylene	0.100	0.08508		mg/Kg		85	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	84		70 - 130
1,4-Difluorobenzene (Surr)	119		70 - 130

Lab Sample ID: LCSD 880-49414/2-A

Matrix: Solid

Analysis Batch: 49684

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 49414

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1164		mg/Kg		116	70 - 130	3	35
Toluene	0.100	0.1045		mg/Kg		104	70 - 130	9	35
Ethylbenzene	0.100	0.09983		mg/Kg		100	70 - 130	16	35
m-Xylene & p-Xylene	0.200	0.2101		mg/Kg		105	70 - 130	21	35
o-Xylene	0.100	0.1053		mg/Kg		105	70 - 130	21	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	112		70 - 130

Lab Sample ID: 890-4318-1 MS

Matrix: Solid

Analysis Batch: 49684

Client Sample ID: SS01

Prep Type: Total/NA

Prep Batch: 49414

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F2 F1	0.100	0.003071	F1	mg/Kg		3	70 - 130
Toluene	<0.00201	U F2 F1	0.100	<0.00201	U F1	mg/Kg		1	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

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

Lab Sample ID: 890-4318-1 MS

Matrix: Solid

Analysis Batch: 49684

Client Sample ID: SS01

Prep Type: Total/NA

Prep Batch: 49414

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F2 F1	0.100	<0.00201	U F1	mg/Kg		2	70 - 130
m-Xylene & p-Xylene	<0.00402	U F2 F1	0.201	<0.00402	U F1	mg/Kg		2	70 - 130
o-Xylene	<0.00201	U F2 F1	0.100	0.003131	F1	mg/Kg		3	70 - 130

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

Lab Sample ID: 890-4318-1 MSD

Matrix: Solid

Analysis Batch: 49684

Client Sample ID: SS01

Prep Type: Total/NA

Prep Batch: 49414

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U F2 F1	0.0990	0.002044	F2 F1	mg/Kg		2	70 - 130	40	35
Toluene	<0.00201	U F2 F1	0.0990	<0.00198	U F2 F1	mg/Kg		0.7	70 - 130	72	35
Ethylbenzene	<0.00201	U F2 F1	0.0990	<0.00198	U F2 F1	mg/Kg		0.8	70 - 130	66	35
m-Xylene & p-Xylene	<0.00402	U F2 F1	0.198	<0.00396	U F2 F1	mg/Kg		1	70 - 130	54	35
o-Xylene	<0.00201	U F2 F1	0.0990	0.002147	F2 F1	mg/Kg		2	70 - 130	37	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		70 - 130
1,4-Difluorobenzene (Surr)	108		70 - 130

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

Lab Sample ID: MB 880-49114/1-A

Matrix: Solid

Analysis Batch: 49069

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 49114

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		03/21/23 12:04	03/21/23 19:58	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		03/21/23 12:04	03/21/23 19:58	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		03/21/23 12:04	03/21/23 19:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	117		70 - 130	03/21/23 12:04	03/21/23 19:58	1
o-Terphenyl	144	S1+	70 - 130	03/21/23 12:04	03/21/23 19:58	1

Lab Sample ID: LCS 880-49114/2-A

Matrix: Solid

Analysis Batch: 49069

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 49114

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	963.2		mg/Kg		96	70 - 130
Diesel Range Organics (Over C10-C28)	1000	854.6		mg/Kg		85	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

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

Lab Sample ID: LCS 880-49114/2-A

Matrix: Solid

Analysis Batch: 49069

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 49114

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	108		70 - 130
o-Terphenyl	132	S1+	70 - 130

Lab Sample ID: LCSD 880-49114/3-A

Matrix: Solid

Analysis Batch: 49069

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 49114

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	952.5		mg/Kg		95	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	1000	878.0		mg/Kg		88	70 - 130	3	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	109		70 - 130
o-Terphenyl	135	S1+	70 - 130

Lab Sample ID: 880-26040-A-1-B MS

Matrix: Solid

Analysis Batch: 49069

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 49114

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	1058		mg/Kg		106	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	997	1078		mg/Kg		106	70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	101		70 - 130
o-Terphenyl	104		70 - 130

Lab Sample ID: 880-26040-A-1-C MSD

Matrix: Solid

Analysis Batch: 49069

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 49114

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	<50.0	U	998	1066		mg/Kg		107	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	1110		mg/Kg		109	70 - 130	3	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	107		70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-49263/1-A

Matrix: Solid

Analysis Batch: 49472

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			03/25/23 14:27	1

Lab Sample ID: LCS 880-49263/2-A

Matrix: Solid

Analysis Batch: 49472

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	242.2		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-49263/3-A

Matrix: Solid

Analysis Batch: 49472

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	249.0		mg/Kg		100	90 - 110	3	20

Lab Sample ID: 890-4316-A-5-C MS

Matrix: Solid

Analysis Batch: 49472

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	667		251	911.5		mg/Kg		97	90 - 110

Lab Sample ID: 890-4316-A-5-D MSD

Matrix: Solid

Analysis Batch: 49472

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	667		251	914.5		mg/Kg		99	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

GC VOA

Prep Batch: 49414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4318-1	SS01	Total/NA	Solid	5035	
890-4318-2	SS02	Total/NA	Solid	5035	
890-4318-3	SS03	Total/NA	Solid	5035	
890-4318-4	SS04	Total/NA	Solid	5035	
MB 880-49414/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-49414/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-49414/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4318-1 MS	SS01	Total/NA	Solid	5035	
890-4318-1 MSD	SS01	Total/NA	Solid	5035	

Analysis Batch: 49684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4318-1	SS01	Total/NA	Solid	8021B	49414
890-4318-2	SS02	Total/NA	Solid	8021B	49414
890-4318-3	SS03	Total/NA	Solid	8021B	49414
890-4318-4	SS04	Total/NA	Solid	8021B	49414
MB 880-49414/5-A	Method Blank	Total/NA	Solid	8021B	49414
LCS 880-49414/1-A	Lab Control Sample	Total/NA	Solid	8021B	49414
LCSD 880-49414/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	49414
890-4318-1 MS	SS01	Total/NA	Solid	8021B	49414
890-4318-1 MSD	SS01	Total/NA	Solid	8021B	49414

Analysis Batch: 49772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4318-1	SS01	Total/NA	Solid	Total BTEX	
890-4318-2	SS02	Total/NA	Solid	Total BTEX	
890-4318-3	SS03	Total/NA	Solid	Total BTEX	
890-4318-4	SS04	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 49069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4318-1	SS01	Total/NA	Solid	8015B NM	49114
890-4318-2	SS02	Total/NA	Solid	8015B NM	49114
890-4318-3	SS03	Total/NA	Solid	8015B NM	49114
890-4318-4	SS04	Total/NA	Solid	8015B NM	49114
MB 880-49114/1-A	Method Blank	Total/NA	Solid	8015B NM	49114
LCS 880-49114/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	49114
LCSD 880-49114/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	49114
880-26040-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	49114
880-26040-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	49114

Prep Batch: 49114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4318-1	SS01	Total/NA	Solid	8015NM Prep	
890-4318-2	SS02	Total/NA	Solid	8015NM Prep	
890-4318-3	SS03	Total/NA	Solid	8015NM Prep	
890-4318-4	SS04	Total/NA	Solid	8015NM Prep	
MB 880-49114/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-49114/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

GC Semi VOA (Continued)

Prep Batch: 49114 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-49114/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-26040-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-26040-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 49233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4318-1	SS01	Total/NA	Solid	8015 NM	
890-4318-2	SS02	Total/NA	Solid	8015 NM	
890-4318-3	SS03	Total/NA	Solid	8015 NM	
890-4318-4	SS04	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 49263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4318-1	SS01	Soluble	Solid	DI Leach	
890-4318-2	SS02	Soluble	Solid	DI Leach	
890-4318-3	SS03	Soluble	Solid	DI Leach	
890-4318-4	SS04	Soluble	Solid	DI Leach	
MB 880-49263/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-49263/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-49263/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-4316-A-5-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-4316-A-5-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 49472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4318-1	SS01	Soluble	Solid	300.0	49263
890-4318-2	SS02	Soluble	Solid	300.0	49263
890-4318-3	SS03	Soluble	Solid	300.0	49263
890-4318-4	SS04	Soluble	Solid	300.0	49263
MB 880-49263/1-A	Method Blank	Soluble	Solid	300.0	49263
LCS 880-49263/2-A	Lab Control Sample	Soluble	Solid	300.0	49263
LCSD 880-49263/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	49263
890-4316-A-5-C MS	Matrix Spike	Soluble	Solid	300.0	49263
890-4316-A-5-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	49263

Lab Chronicle

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Client Sample ID: SS01

Lab Sample ID: 890-4318-1

Date Collected: 03/15/23 10:30

Matrix: Solid

Date Received: 03/15/23 13:14

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	49414	03/24/23 12:44	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	49684	03/28/23 11:41	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			49772	03/28/23 17:54	SM	EET MID
Total/NA	Analysis	8015 NM		1			49233	03/22/23 16:11	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	49114	03/21/23 12:04	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	49069	03/22/23 04:04	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	49263	03/22/23 22:04	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	49472	03/27/23 16:19	SMC	EET MID

Client Sample ID: SS02

Lab Sample ID: 890-4318-2

Date Collected: 03/15/23 10:40

Matrix: Solid

Date Received: 03/15/23 13:14

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	49414	03/24/23 12:44	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	49684	03/28/23 16:59	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			49772	03/29/23 09:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			49233	03/22/23 16:11	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	49114	03/21/23 12:04	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	49069	03/22/23 04:26	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	49263	03/22/23 22:04	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	49472	03/25/23 16:03	SMC	EET MID

Client Sample ID: SS03

Lab Sample ID: 890-4318-3

Date Collected: 03/15/23 10:50

Matrix: Solid

Date Received: 03/15/23 13:14

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	49414	03/24/23 12:44	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	49684	03/28/23 17:19	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			49772	03/29/23 09:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			49233	03/22/23 16:11	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	49114	03/21/23 12:04	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	49069	03/22/23 04:49	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	49263	03/22/23 22:04	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	49472	03/25/23 16:16	SMC	EET MID

Client Sample ID: SS04

Lab Sample ID: 890-4318-4

Date Collected: 03/15/23 11:00

Matrix: Solid

Date Received: 03/15/23 13:14

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	49414	03/24/23 12:44	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	49684	03/28/23 17:40	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			49772	03/29/23 09:39	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Client Sample ID: SS04

Lab Sample ID: 890-4318-4

Date Collected: 03/15/23 11:00

Matrix: Solid

Date Received: 03/15/23 13:14

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			49233	03/22/23 16:11	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	49114	03/21/23 12:04	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	49069	03/22/23 05:12	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	49263	03/22/23 22:04	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	49472	03/25/23 16:21	SMC	EET MID

Laboratory References:
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

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	T104704400-22-25	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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Method Summary

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

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

Protocol References:

- ASTM = ASTM International
- EPA = US Environmental Protection Agency
- 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:

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

Sample Summary

Client: Ensolum
Project/Site: XTO PerlaVerde 31 State Battery

Job ID: 890-4318-1
SDG: 03C1558186

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-4318-1	SS01	Solid	03/15/23 10:30	03/15/23 13:14	0.5'
890-4318-2	SS02	Solid	03/15/23 10:40	03/15/23 13:14	0.5'
890-4318-3	SS03	Solid	03/15/23 10:50	03/15/23 13:14	0.5'
890-4318-4	SS04	Solid	03/15/23 11:00	03/15/23 13:14	0.5'

- 1
- 2
- 3
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- 10
- 11
- 12
- 13
- 14



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: _____

www.xenco.com Page 1 of 1

Project Manager:	Tacoma Morrissey	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	601 N Marienfeld St Suite 400	Address:	3104 E. Green St
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Carlsbad, NM 88220
Phone:	337-257-8307	Email:	tmorrissey@ensolum.com, Garrett.Green@ExxonMobil.com

Work Order Comments	
Program:	UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting:	Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables:	EDD <input type="checkbox"/> ADaPT <input type="checkbox"/> Other: _____

Project Name:		Turn Around		ANALYSIS REQUEST												Preservative Codes		
Project Number:	03C1558186	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush		Pres. Code													None: NO	DI Water: H ₂ O
Project Location:	Lea County, NM	Due Date:		Parameters	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)										Cool: Cool	MeOH: Me
Sampler's Name:	Dmitry Nikanorov	TAT starts the day received by the lab, if received by 4:30pm															HCL: HC	HNO ₃ : HN
PO #:																	H ₂ SO ₄ : H ₂	NaOH: Na
SAMPLE RECEIPT		Temp Blank: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No														H ₃ PO ₄ : HP	
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID:															NaHSO ₄ : NABIS	
Cooler Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Correction Factor:		Na ₂ S ₂ O ₃ : NaSO ₃														
Sample Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Temperature Reading:		Zn Acetate+NaOH: Zn														
Total Containers:		Corrected Temperature:		NaOH+Ascorbic Acid: SAPC														
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont											Sample Comments	
SS01	S	3/15/2023	10:30	0.5'	Grab	1	X	X	X								Incident Number	
SS02	S	3/15/2023	10:40	0.5'	Grab	1	X	X	X								nAPP2303444414	
SS03	S	3/15/2023	10:50	0.5'	Grab	1	X	X	X								Cost Center	
SS04	S	3/15/2023	11:00	0.5'	Grab	1	X	X	X								1073541001	
 890-4318 Chain of Custody																	API 30-025-41861 (PERLA VERDE 31 STATE COM #002H)	

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 Ti 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 Ti 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 <i>DN</i>	<i>Alexander Stief</i>	3/15/23 13:12			
3					
5					

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4318-1

SDG Number: 03C1558186

Login Number: 4318

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.	N/A	Refer to Job Narrative for details.
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: 890-4318-1

SDG Number: 03C1558186

Login Number: 4318

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 03/16/23 10:28 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	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Tacoma Morrissey
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 4/3/2023 3:15:03 PM

JOB DESCRIPTION

Perla Verde 31 State Battery
SDG NUMBER 03C1558186


JOB NUMBER

890-4383-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad**Job Notes**

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
4/3/2023 3:15:03 PM

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

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Laboratory Job ID: 890-4383-1
SDG: 03C1558186

Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Client Sample Results	6
Surrogate Summary	8
QC Sample Results	9
QC Association Summary	13
Lab Chronicle	15
Certification Summary	16
Method Summary	17
Sample Summary	18
Chain of Custody	19
Receipt Checklists	20

1

2

3

4

5

6

7

8

9

10

11

12

13

14

Definitions/Glossary

Client: Ensolum

Job ID: 890-4383-1

Project/Site: Perla Verde 31 State Battery

SDG: 03C1558186

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
S1+	Surrogate recovery exceeds control limits, high biased.
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: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

Job ID: 890-4383-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-4383-1

Receipt

The samples were received on 3/21/2023 4:48 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 4.6°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH01 (890-4383-1) and BH01A (890-4383-2).

GC VOA

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-49808 and analytical batch 880-50000 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.

GC Semi VOA

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: BH01A (890-4383-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

Client Sample ID: BH01

Lab Sample ID: 890-4383-1
Matrix: Solid

Date Collected: 03/21/23 09:35
Date Received: 03/21/23 16:48
Sample Depth: 0.5

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		03/29/23 10:19	04/01/23 11:32	1
Toluene	<0.00200	U	0.00200	mg/Kg		03/29/23 10:19	04/01/23 11:32	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/29/23 10:19	04/01/23 11:32	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		03/29/23 10:19	04/01/23 11:32	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/29/23 10:19	04/01/23 11:32	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		03/29/23 10:19	04/01/23 11:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130	03/29/23 10:19	04/01/23 11:32	1
1,4-Difluorobenzene (Surr)	98		70 - 130	03/29/23 10:19	04/01/23 11:32	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			04/03/23 15:17	1

Method: SW846 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			03/28/23 11:17	1

Method: SW846 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		03/27/23 12:51	03/28/23 04:13	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		03/27/23 12:51	03/28/23 04:13	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		03/27/23 12:51	03/28/23 04:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130	03/27/23 12:51	03/28/23 04:13	1
o-Terphenyl	123		70 - 130	03/27/23 12:51	03/28/23 04:13	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	127		5.01	mg/Kg			03/31/23 02:28	1

Client Sample ID: BH01A

Lab Sample ID: 890-4383-2
Matrix: Solid

Date Collected: 03/21/23 09:40
Date Received: 03/21/23 16:48
Sample Depth: 1.0

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		03/29/23 10:19	04/01/23 11:53	1
Toluene	<0.00199	U	0.00199	mg/Kg		03/29/23 10:19	04/01/23 11:53	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		03/29/23 10:19	04/01/23 11:53	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		03/29/23 10:19	04/01/23 11:53	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		03/29/23 10:19	04/01/23 11:53	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		03/29/23 10:19	04/01/23 11:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130	03/29/23 10:19	04/01/23 11:53	1

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Client Sample Results

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

Client Sample ID: BH01A

Lab Sample ID: 890-4383-2

Date Collected: 03/21/23 09:40

Matrix: Solid

Date Received: 03/21/23 16:48

Sample Depth: 1.0

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	100		70 - 130	03/29/23 10:19	04/01/23 11:53	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			04/03/23 15:17	1

Method: SW846 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			03/28/23 11:17	1

Method: SW846 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		03/27/23 12:51	03/28/23 04:34	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		03/27/23 12:51	03/28/23 04:34	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		03/27/23 12:51	03/28/23 04:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	125		70 - 130			03/27/23 12:51	03/28/23 04:34	1
o-Terphenyl	139	S1+	70 - 130			03/27/23 12:51	03/28/23 04:34	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	71.7		5.00	mg/Kg			03/31/23 02:33	1

Surrogate Summary

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-4381-A-1-B MS	Matrix Spike	113	89
890-4381-A-1-C MSD	Matrix Spike Duplicate	113	84
890-4383-1	BH01	113	98
890-4383-2	BH01A	115	100
LCS 880-49808/1-A	Lab Control Sample	104	88
LCSD 880-49808/2-A	Lab Control Sample Dup	110	88
MB 880-49808/5-A	Method Blank	100	81
MB 880-49933/5-A	Method Blank	103	79
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)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-4375-A-1-H MS	Matrix Spike	105	100
890-4375-A-1-I MSD	Matrix Spike Duplicate	106	101
890-4383-1	BH01	112	123
890-4383-2	BH01A	125	139 S1+
LCS 880-49630/2-A	Lab Control Sample	114	125
LCSD 880-49630/3-A	Lab Control Sample Dup	107	118
MB 880-49630/1-A	Method Blank	112	125
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-49808/5-A

Matrix: Solid

Analysis Batch: 50000

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 49808

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		03/29/23 10:19	04/01/23 09:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		03/29/23 10:19	04/01/23 09:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/29/23 10:19	04/01/23 09:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		03/29/23 10:19	04/01/23 09:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/29/23 10:19	04/01/23 09:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		03/29/23 10:19	04/01/23 09:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130	03/29/23 10:19	04/01/23 09:47	1
1,4-Difluorobenzene (Surr)	81		70 - 130	03/29/23 10:19	04/01/23 09:47	1

Lab Sample ID: LCS 880-49808/1-A

Matrix: Solid

Analysis Batch: 50000

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 49808

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.08736		mg/Kg		87	70 - 130
Toluene	0.100	0.09251		mg/Kg		93	70 - 130
Ethylbenzene	0.100	0.08844		mg/Kg		88	70 - 130
m-Xylene & p-Xylene	0.200	0.1836		mg/Kg		92	70 - 130
o-Xylene	0.100	0.09446		mg/Kg		94	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	88		70 - 130

Lab Sample ID: LCSD 880-49808/2-A

Matrix: Solid

Analysis Batch: 50000

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 49808

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08999		mg/Kg		90	70 - 130	3	35
Toluene	0.100	0.09676		mg/Kg		97	70 - 130	4	35
Ethylbenzene	0.100	0.09340		mg/Kg		93	70 - 130	5	35
m-Xylene & p-Xylene	0.200	0.1958		mg/Kg		98	70 - 130	6	35
o-Xylene	0.100	0.1015		mg/Kg		102	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	110		70 - 130
1,4-Difluorobenzene (Surr)	88		70 - 130

Lab Sample ID: 890-4381-A-1-B MS

Matrix: Solid

Analysis Batch: 50000

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 49808

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00198	U F1	0.0998	0.06102	F1	mg/Kg		61	70 - 130
Toluene	<0.00198	U F1	0.0998	0.06854	F1	mg/Kg		69	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

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

Lab Sample ID: 890-4381-A-1-B MS

Matrix: Solid

Analysis Batch: 50000

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 49808

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00198	U	0.0998	0.06969		mg/Kg		70	70 - 130
m-Xylene & p-Xylene	<0.00396	U	0.200	0.1467		mg/Kg		73	70 - 130
o-Xylene	<0.00198	U	0.0998	0.07643		mg/Kg		77	70 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	89		70 - 130

Lab Sample ID: 890-4381-A-1-C MSD

Matrix: Solid

Analysis Batch: 50000

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 49808

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00198	U F1	0.100	0.07589		mg/Kg		75	70 - 130	22	35
Toluene	<0.00198	U F1	0.100	0.08530		mg/Kg		85	70 - 130	22	35
Ethylbenzene	<0.00198	U	0.100	0.08427		mg/Kg		84	70 - 130	19	35
m-Xylene & p-Xylene	<0.00396	U	0.200	0.1753		mg/Kg		87	70 - 130	18	35
o-Xylene	<0.00198	U	0.100	0.09052		mg/Kg		90	70 - 130	17	35

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	84		70 - 130

Lab Sample ID: MB 880-49933/5-A

Matrix: Solid

Analysis Batch: 50000

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 49933

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		03/30/23 12:24	03/31/23 23:05	1
Toluene	<0.00200	U	0.00200	mg/Kg		03/30/23 12:24	03/31/23 23:05	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		03/30/23 12:24	03/31/23 23:05	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		03/30/23 12:24	03/31/23 23:05	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		03/30/23 12:24	03/31/23 23:05	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		03/30/23 12:24	03/31/23 23:05	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	03/30/23 12:24	03/31/23 23:05	1
1,4-Difluorobenzene (Surr)	79		70 - 130	03/30/23 12:24	03/31/23 23:05	1

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

Lab Sample ID: MB 880-49630/1-A

Matrix: Solid

Analysis Batch: 49555

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 49630

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		03/27/23 12:51	03/27/23 20:02	1

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QC Sample Results

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

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

Lab Sample ID: MB 880-49630/1-A

Matrix: Solid

Analysis Batch: 49555

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 49630

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		03/27/23 12:51	03/27/23 20:02	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		03/27/23 12:51	03/27/23 20:02	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130			03/27/23 12:51	03/27/23 20:02	1
o-Terphenyl	125		70 - 130			03/27/23 12:51	03/27/23 20:02	1

Lab Sample ID: LCS 880-49630/2-A

Matrix: Solid

Analysis Batch: 49555

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 49630

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	985.2		mg/Kg		99	70 - 130
Diesel Range Organics (Over C10-C28)	1000	915.2		mg/Kg		92	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	114		70 - 130				
o-Terphenyl	125		70 - 130				

Lab Sample ID: LCSD 880-49630/3-A

Matrix: Solid

Analysis Batch: 49555

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 49630

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	877.9		mg/Kg		88	70 - 130	12	20
Diesel Range Organics (Over C10-C28)	1000	839.9		mg/Kg		84	70 - 130	9	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	107		70 - 130						
o-Terphenyl	118		70 - 130						

Lab Sample ID: 890-4375-A-1-H MS

Matrix: Solid

Analysis Batch: 49555

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 49630

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	998	933.3		mg/Kg		91	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	998	1099		mg/Kg		106	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	105		70 - 130						
o-Terphenyl	100		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

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

Lab Sample ID: 890-4375-A-1-I MSD

Matrix: Solid

Analysis Batch: 49555

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 49630

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	997	953.0		mg/Kg		93	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.9	U	997	1107		mg/Kg		107	70 - 130	1	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	106		70 - 130								
o-Terphenyl	101		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-49886/1-A

Matrix: Solid

Analysis Batch: 49988

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			03/31/23 01:11	1

Lab Sample ID: LCS 880-49886/2-A

Matrix: Solid

Analysis Batch: 49988

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	261.8		mg/Kg		105	90 - 110

Lab Sample ID: LCSD 880-49886/3-A

Matrix: Solid

Analysis Batch: 49988

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	263.2		mg/Kg		105	90 - 110	1	20

Lab Sample ID: 890-4383-2 MS

Matrix: Solid

Analysis Batch: 49988

Client Sample ID: BH01A

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	71.7		250	323.7		mg/Kg		101	90 - 110

Lab Sample ID: 890-4383-2 MSD

Matrix: Solid

Analysis Batch: 49988

Client Sample ID: BH01A

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	71.7		250	323.8		mg/Kg		101	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

GC VOA

Prep Batch: 49808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4383-1	BH01	Total/NA	Solid	5035	
890-4383-2	BH01A	Total/NA	Solid	5035	
MB 880-49808/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-49808/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-49808/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-4381-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
890-4381-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 49933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-49933/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 50000

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4383-1	BH01	Total/NA	Solid	8021B	49808
890-4383-2	BH01A	Total/NA	Solid	8021B	49808
MB 880-49808/5-A	Method Blank	Total/NA	Solid	8021B	49808
MB 880-49933/5-A	Method Blank	Total/NA	Solid	8021B	49933
LCS 880-49808/1-A	Lab Control Sample	Total/NA	Solid	8021B	49808
LCSD 880-49808/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	49808
890-4381-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	49808
890-4381-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	49808

Analysis Batch: 50221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4383-1	BH01	Total/NA	Solid	Total BTEX	
890-4383-2	BH01A	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 49555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4383-1	BH01	Total/NA	Solid	8015B NM	49630
890-4383-2	BH01A	Total/NA	Solid	8015B NM	49630
MB 880-49630/1-A	Method Blank	Total/NA	Solid	8015B NM	49630
LCS 880-49630/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	49630
LCSD 880-49630/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	49630
890-4375-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	49630
890-4375-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	49630

Prep Batch: 49630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4383-1	BH01	Total/NA	Solid	8015NM Prep	
890-4383-2	BH01A	Total/NA	Solid	8015NM Prep	
MB 880-49630/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-49630/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-49630/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-4375-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-4375-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

GC Semi VOA

Analysis Batch: 49731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4383-1	BH01	Total/NA	Solid	8015 NM	
890-4383-2	BH01A	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 49886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4383-1	BH01	Soluble	Solid	DI Leach	
890-4383-2	BH01A	Soluble	Solid	DI Leach	
MB 880-49886/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-49886/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-49886/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-4383-2 MS	BH01A	Soluble	Solid	DI Leach	
890-4383-2 MSD	BH01A	Soluble	Solid	DI Leach	

Analysis Batch: 49988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-4383-1	BH01	Soluble	Solid	300.0	49886
890-4383-2	BH01A	Soluble	Solid	300.0	49886
MB 880-49886/1-A	Method Blank	Soluble	Solid	300.0	49886
LCS 880-49886/2-A	Lab Control Sample	Soluble	Solid	300.0	49886
LCSD 880-49886/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	49886
890-4383-2 MS	BH01A	Soluble	Solid	300.0	49886
890-4383-2 MSD	BH01A	Soluble	Solid	300.0	49886

Lab Chronicle

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

Client Sample ID: BH01

Lab Sample ID: 890-4383-1

Date Collected: 03/21/23 09:35

Matrix: Solid

Date Received: 03/21/23 16:48

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	49808	03/29/23 10:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	50000	04/01/23 11:32	SM	EET MID
Total/NA	Analysis	Total BTEX		1			50221	04/03/23 15:17	SM	EET MID
Total/NA	Analysis	8015 NM		1			49731	03/28/23 11:17	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	49630	03/27/23 12:51	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	49555	03/28/23 04:13	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	49886	03/29/23 16:23	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	49988	03/31/23 02:28	SMC	EET MID

Client Sample ID: BH01A

Lab Sample ID: 890-4383-2

Date Collected: 03/21/23 09:40

Matrix: Solid

Date Received: 03/21/23 16:48

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	49808	03/29/23 10:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	50000	04/01/23 11:53	SM	EET MID
Total/NA	Analysis	Total BTEX		1			50221	04/03/23 15:17	SM	EET MID
Total/NA	Analysis	8015 NM		1			49731	03/28/23 11:17	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	49630	03/27/23 12:51	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	49555	03/28/23 04:34	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	49886	03/29/23 16:23	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	49988	03/31/23 02:33	SMC	EET MID

Laboratory References:
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

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	T104704400-22-25	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: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

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

Protocol References:

- ASTM = ASTM International
- EPA = US Environmental Protection Agency
- 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:

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

Sample Summary

Client: Ensolum
Project/Site: Perla Verde 31 State Battery

Job ID: 890-4383-1
SDG: 03C1558186

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-4383-1	BH01	Solid	03/21/23 09:35	03/21/23 16:48	0.5
890-4383-2	BH01A	Solid	03/21/23 09:40	03/21/23 16:48	1.0

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14



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: _____

www.xenco.com Page ____ of ____

Project Manager:	Tacoma Morrissey	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO
Address:	601 N Marienfeld St Suite 400	Address:	
City, State ZIP:	Midland, TX 79701	City, State ZIP:	
Phone:	337-257-8307	Email:	tmorrissey@ensolum.com

Work Order Comments	
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/> State of Project: Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/> Deliverables: EDD <input type="checkbox"/> ADaPT <input type="checkbox"/> Other:	

Project Name:		Turn Around		ANALYSIS REQUEST												Preservative Codes						
Project Number:		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush														None: NO DI Water: H ₂ O						
Project Location:		Due Date:														Cool: Cool MeOH: Me						
Sampler's Name:		TAT starts the day received by the lab, if received by 4:30pm														HCL: HC HNO ₃ : HN						
PO #:																H ₂ SO ₄ : H ₂ NaOH: Na						
SAMPLE RECEIPT		Temp Blank: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Wet Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No														H ₃ PO ₄ : HP				
Samples Received Intact:		Thermometer ID:														NaHSO ₄ : NABIS						
Cooler Custody Seals:		Correction Factor:														Na ₂ S ₂ O ₃ : NaSO ₃						
Sample Custody Seals:		Temperature Reading:														Zn Acetate+NaOH: Zn						
Total Containers:		Corrected Temperature:														NaOH+Ascorbic Acid: SAPC						
Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)											Sample Comments	
BH01		Soil	3/21/2023	935	0.5'	Comp	1	x	x	x											Cost Center	
BH01A		Soil	3/21/2023	940	1.0'	Comp	1	x	x	x											1073541001	
																					API	
																					30-025-41861	
																					NAPP2303444414	

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	Ti	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	Ti	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 <i>Peter Van Patten</i>	<i>Clare Chigo</i>	3-21-23 1648			
3					
5					

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-4383-1

SDG Number: 03C1558186

Login Number: 4383

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.	N/A	Refer to Job Narrative for details.
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: 890-4383-1

SDG Number: 03C1558186

Login Number: 4383

List Number: 2

Creator: Teel, Brianna

List Source: Eurofins Midland

List Creation: 03/23/23 10:27 AM

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.	True	
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").	True	



APPENDIX E

NMOCD Notifications

Green, Garrett J

From: Green, Garrett J
Sent: Monday, January 30, 2023 3:15 PM
To: ocd.enviro@emnrd.nm.gov; Bratcher, Michael, EMNRD; Hamlet, Robert, EMNRD; Harimon, Jocelyn, EMNRD
Cc: DelawareSpills /SM
Subject: XTO 48 Hour Liner Inspection Notification - Perla Verde 31 State Battery

Good afternoon,

This is sent as a 48-hour notification, XTO is scheduled to inspect the lined containment at Perla Verde 31 State Battery released on (1/20/23), on Friday, February 3, 2023, at 8am MST. A 24 hour release notification was not sent out since the release was greater than 25 barrels in volume. Please call us with any questions or concerns.

GPS Coordinates: (32.61327,-103.49609)

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

Ben Belill

From: Green, Garrett J <garrett.green@exxonmobil.com>
Sent: Friday, March 17, 2023 1:38 PM
To: Tacoma Morrissey; Ben Belill
Subject: FW: [EXTERNAL] XTO - Sampling Notification (Week of 3/20/23 - 3/24/23)

[**EXTERNAL EMAIL**]

From: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Sent: Thursday, March 16, 2023 4:33 PM
To: Green, Garrett J <garrett.green@exxonmobil.com>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Subject: RE: [EXTERNAL] XTO - Sampling Notification (Week of 3/20/23 - 3/24/23)

External Email – Think Before You Click

Garrett,

Please be aware that notification requirements are **two business days**, per rule. Please include specific days and times you will be sampling each site. You may proceed on your schedule. This, and all correspondence, should be included in the closure report to insure inclusion in the project file.

Jocelyn Harimon • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1220 South St. Francis Drive | Santa Fe, NM 87505
(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov
[http:// www.emnrd.nm.gov](http://www.emnrd.nm.gov)



From: Green, Garrett J <garrett.green@exxonmobil.com>
Sent: Thursday, March 16, 2023 9:52 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Subject: [EXTERNAL] XTO - Sampling Notification (Week of 3/20/23 - 3/24/23)

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

All,

XTO plans to complete final sampling activities at the additional site the week of Mar 20, 2023.

-
- PLU 27 BD 163 / nAPP2226337852
- PLU CVX JV BS 008H / NAB1602154960
- PLU 420H / nAB1834656162
- Perla Verde 31 State battery/ nAPP2303444414
- BEU Hackberry / nAB1726335399
- Remuda 500 CTB / nAPP2303854000 & nAPP2306544797
- Indian Deep Com 7/ NAPP2301152626
- Nash Unit 36 / nAPP2224236187

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

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 209050

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 209050
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	7/3/2023