

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	NAPP2226628060
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 32.33576 Longitude -103.81984
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	JRU 17 CTB	Site Type	Central Tank Battery
Date Release Discovered	09/10/2022	API#	(if applicable)

Unit Letter	Section	Township	Range	County
F	6	23S	31E	Eddy

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 type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 47.36	Volume Recovered (bbls) 45.00
	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 Corrosion caused a release of fluids from a flow line associated with the James Ranch 17 and 7-30 CTBs. A vacuum truck recovered all free fluids. A third-party contractor has been retained for remediation purposes.

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Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? A release equal to or greater than 25 barrels.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, by Melanie Collins to ocd.enviro@state.nm.us, Mike Bratcher, and Robert Hamlet on 09/11/2022 via email.	

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: <u>Garrett Green</u>	Title: <u>SSHE Coordinator</u>
Signature: <u></u>	Date: <u>9/22/2022</u>
email: <u>garrett.green@exxonmobil.com</u>	Telephone: <u>575-200-0729</u>
<u>OCD Only</u>	
Received by: <u>Jocelyn Harimon</u>	Date: <u>09/23/2022</u>

Location:	JRU 17 CTB	
Spill Date:	9/10/2022	
Area 1		
Approximate Area =	636.33	sq. ft.
Average Saturation (or depth) of spill =	1.25	inches
Average Porosity Factor =	0.20	
VOLUME OF LEAK		
Total Crude Oil =	0.00	bbls
Total Produced Water =	47.36	bbls
TOTAL VOLUME OF LEAK		
Total Crude Oil =	0.00	bbls
Total Produced Water =	47.36	bbls
TOTAL VOLUME RECOVERED		
Total Crude Oil =	0.00	bbls
Total Produced Water =	45.00	bbls

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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 checked="" type="checkbox"/> Yes <input 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 4

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Printed Name: Garrett Green Title: Environmental Coordinator

Signature:  Date: 12/8/2022

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

OCD Only

Received by: Jocelyn Harimon Date: 12/09/2022

Incident ID	NAPP2226628060
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Remediation Plan


Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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.

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Signature:  Date: 12/8/2022
email: garrett.green@exxonmobil.com Telephone: 575-200-0729

OCD Only

Received by: Jocelyn Harimon Date: 12/09/2022

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

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Printed Name: Garrett Green Title: Environmental Coordinator
Signature:  Date: 12/8/2022
email: garrett.green@exxonmobil.com Telephone: 575-200-0729

OCD Only

Received by: Jocelyn Harimon Date: 12/09/2022

☐ Approved ☒ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature:  Date: 3/17/2023



December 8, 2022

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

**Re: Remediation Work Plan
JRU 17 CTB
Incident Number NAPP2226628060
Eddy County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of XTO Energy, Inc. (XTO), has prepared the following *Remediation Work Plan* to document the site assessment activities completed to date and propose a work plan to address impacted soil identified at the JRU 17 Central Tank Battery (CTB, Site). The purpose of the site assessment activities was to delineate the lateral and vertical extent of impacted soil resulting from a release of produced water. The following Work Plan proposes to excavate impacted soil within the top 4 feet of the release extent.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Unit F, Section 6, Township 23 South, Range 31 East, in Eddy County, New Mexico (32.33576°N, 103.81984°W) and is associated with oil and gas exploration and production operations on land under the stewardship of the Bureau of Land Management (BLM).

On September 10, 2022, corrosion in a flowline resulted in the release of 47.36 barrels (bbls) of produced water to the surrounding pasture area. A vacuum truck was dispatched to the Site and recovered 45 bbls of the released fluids. XTO immediately reported the release to the NMOCD via email on September 11, 2022 and submitted a Release Notification Form C-141 (Form C-141) on September 22, 2022. The release was assigned Incident Number NAPP2226628060.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site was characterized to assess the applicability of Table 1, 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 well data. The closest permitted groundwater well with depth to groundwater data is United States Geological Survey (USGS) well 321946103492001, located approximately 0.4 miles southeast of the Site. The most recent measurement was taken in 2013 and the groundwater well was dry. The well depth is 180 feet bgs. The Well Record and Log is included in Appendix A and all wells used for depth to water determination are depicted on Figure 1.

XTO Energy, Inc.
Remediation Work Plan
JRU 17 CTB

The closest continuously flowing or significant watercourse to the Site is an emergent wetland, located approximately 3,750 feet southwest 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 (medium potential karst designation area).

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

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

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

SITE ASSESSMENT AND DELINEATION ACTIVITIES

On November 21, 2022, potholes PH01 through PH03 were advanced via hand auger and hydrovacuum within the release extent. The boreholes were advanced to a maximum depth of 4 feet bgs. Discrete soil samples were collected from each pothole at depths ranging from 1-foot bgs to 4 feet bgs. Soil from the boreholes was field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. Field screening results and observations were logged on lithologic/soil sampling logs, which are included in Appendix B. The soil sample locations are depicted on Figure 2. Photographic documentation was completed during the site visits and a photographic log is included in Appendix C.

The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C) under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for the delineation soil sample PH02 collected at 1-foot bgs indicated that chloride concentrations exceeded the reclamation requirement applied in the top 4 feet of soil. Laboratory analytical results are presented in Table 1 and the complete laboratory reports and chain-of-custody documentation are presented in Appendix D.

XTO Energy, Inc.
Remediation Work Plan
JRU 17 CTB

PROPOSED REMEDIATION WORK PLAN

The delineation soil sampling results indicate soil containing elevated chloride concentrations exists across an approximate 1,190 square foot area and extends to a maximum depth of 4 feet bgs. XTO proposes to complete the following remediation activities:

- Excavation of chloride-impacted soil to a depth of 4 feet bgs. Excavation will proceed laterally until sidewall samples confirm chloride concentrations are compliant with the reclamation requirement in the top four feet.
- The soil samples will be handled as described above and analyzed for chloride. The soil samples will be analyzed for chloride only since benzene, BTEX, or TPH concentrations were not identified as a constituent of concern (COC) in the soil samples.
- An estimated 44 cubic yards of chloride impacted soil will be excavated. The excavated soil will be transferred to an approved landfill facility for disposal.
- The excavation will be backfilled and recontoured to match pre-existing conditions and re-seeded with the recommended BLM seed mixture.

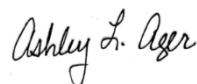
XTO will complete the excavation and soil sampling activities within 90 days of the date of approval of this *Work Plan* by the NMOCD.

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

Sincerely,
Ensolum, LLC



Anita Thapalia, PhD, PG
Project Geologist



Ashley Ager, MS, PG
Principal, Geologist

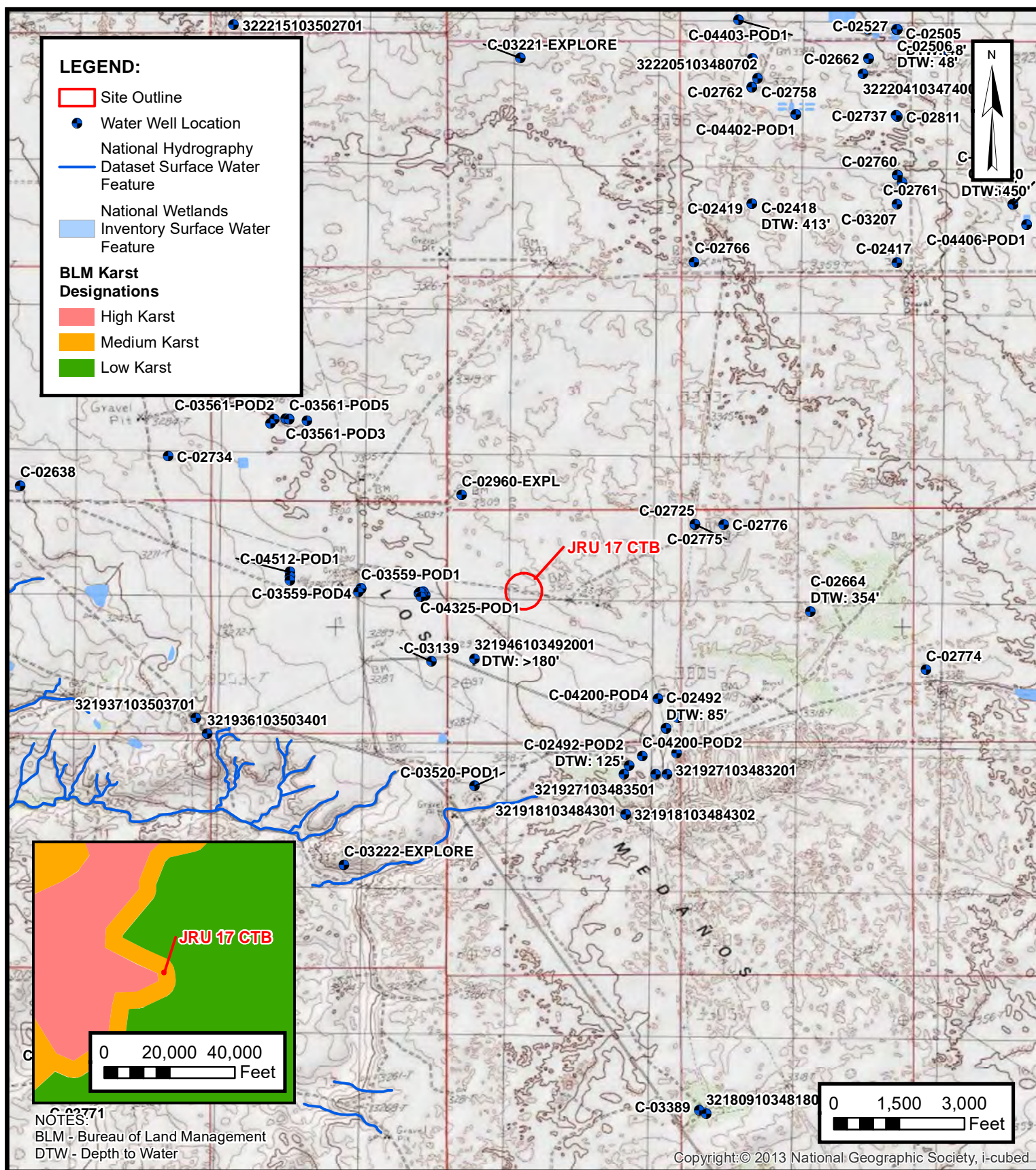
cc: Garrett Green, XTO
Shelby Pennington, XTO
Bureau of Land Management

Appendices:

Figure 1	Site Location Map
Figure 2	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/Correspondence



FIGURES



SITE RECEPTOR MAP

XTO ENERGY, INC
JRJ 17 CTB
NAPP2226628060
Unit F, Sec 6, T23S, R31E
Eddy County, New Mexico

FIGURE
1





TABLES



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
JRU 17 CTB
XTO Energy, Inc.
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Delineation Soil Samples										
PH01	11/21/2022	1	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	189
PH01A	11/21/2022	4	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	5,630
PH02	11/21/2022	1	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	1,430
PH02A	11/21/2022	4	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	6,570
PH03	11/21/2022	1	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	473
PH03A	11/21/2022	4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	17,400

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

Concentrations in **bold** exceed the NMOCD Table 1 Closure Criteria or reclamation standard where applicable.

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

NMAC: New Mexico Administrative Code



APPENDIX A

Referenced Well Records



USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

Data Category:

Groundwater

▼

Geographic Area:

United States

▼

GO

Click to hideNews Bulletins

- See the [Water Data for the Nation Blog](#) for the latest news and updates.

Groundwater levels for the Nation

i Important: [Next Generation Monitoring Location Page](#)

Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 321946103492001

Minimum number of levels = 1
[Save file of selected sites](#) to local disk for future upload

USGS 321946103492001 23S.31E.06.312333

Eddy County, New Mexico
Latitude 32°19'53.3", Longitude 103°49'24.8" NAD83
Land-surface elevation 3,305.00 feet above NGVD29
The depth of the well is 180 feet below land surface.
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Chinle Formation (231CHNL) 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 measu
1959-02-04			D	62610	3160.28	NGVD29	1	Z		
1959-02-04			D	62611	3161.92	NAVD88	1	Z		
1959-02-04			D	72019	144.72		1	Z		
2013-01-16	22:30 UTC		m	62610		NGVD29	D	S	USGS	
2013-01-16	22:30 UTC		m	62611		NAVD88	D	S	USGS	
2013-01-16	22:30 UTC		m	72019			D	S	USGS	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level date-time accuracy	m	Date is accurate to the Minute

Section	Code	Description
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Status	D	Dry
Method of measurement	S	Steel-tape measurement.
Method of measurement	Z	Other.
Measuring agency		Not determined
Measuring agency	USGS	U.S. Geological Survey
Source of measurement		Not determined
Source of measurement	S	Measured by personnel of reporting agency.
Water-level approval status	A	Approved for publication -- Processing and review completed.

[Questions about sites/data?](#)

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[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

Title: Groundwater for USA: Water Levels


URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>


Page Contact Information: [USGS Water Data Support Team](#)


Page Last Modified: 2022-12-06 11:00:44 EST


0.31 0.27 nadww01





		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01		Date: 5/22/19		
Project Name: JRU 10		RP Number: 2RP-3404, 2RP-3464, 2RP-3179						
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: BEN BELILL		Method: <i>Sanic</i>		
Lat/Long: 32.335339 -103.827697		Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.		Hole Diameter: 6.15"		Total Depth: 150'		
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	0.5	N	MW01	0	1'	(SP-SM)	Silty SAND, dry, brn/red, poorly graded, f.-m., some vegetation.
D	<112	0.4	N	MW01A	2	2'		
D	<112	0.1	N	MW01B	3	3'		
D	<112	0.3	N	MW01C	4	4'	CLICHE	CLICHE w/ Sand, dry, lt brn/ffk tan, pily caliche, some m. red sand, no odor.
P	<112	0.1	N	MW01D	5	5'		
D	<112	0.5	N	MW01E	6	6'		
D	<112	0.4	N	MW01F	7	7'		
D	<112	0.3	N	MW01G	8	8'		
D	403	0.1	N	MW01H	9	9'	SP	SAND w/ caliche, dry, lt brn/brn, f.-m., poorly graded, no odor.
D	345	0.8	N	MW01I	10	10'		SAA
D	345	3.1	N	MW01J	11	11'	(SP-SM)	SAND w/ caliche, dry, brn/red, sample not, silty sand, no odor, some fine sand, pily graded, f.-m., no odor.
					12	12'		


 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier XXXX MW01	Date 5/22/19					
Project Name: JRU 10		RP Number: 2RP-3464, 2RP-3179 2RP-3243						
LITHOLOGIC / SOIL BORING LOG		Logged By: BEN BELILL	Method					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO	Hole Diameter: 6.00					
Total Depth:		Comment: All Chloride test include a 60% error factor.						
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
1650	D <112	1.6	N	MW01K	12	12'	(SP-Sm)	STFA
	D <112	3.8	N	MW01L	13	13'		
	D <112	4.9	N	MW01M	14	14'		
	D <112	4.8	N	MW01N	15	15'		
	D <112	1.1	N	MW01O	16	16'		
	D <112	0	N	MW01P	17	17'		
	D <112	4.1	N	MW01Q	18	18'	ML	SILT, dry, ben/ind, no plastic, no odor
	D <112	6.5	N	MW01R	19	19'		
	D <180	1.3	N	MW01S	20	20'		
	D <180	9.2	N	MW01T	21	21'		
	D <112	7.4	N	MW01U	22	22'		
1725	D <112	5.1	N	MW01V	23	23'		
					24	24'		


 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MWD1 Date: 5/22/19						
LITHOLOGIC / SOIL BORING LOG		Project Name: JRU 10 RP Number: 2RP-3464, 2RP-3179, 2RP-3243						
Lat/Long:	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Logged By: BEN BELILL Method: Total Depth						
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	6.5	N	MWD1 AA	24	24	ML	SAA
D	<112	4.6	N	MWD1 X	25	25'		
D	<112	5.1	N	MWD1 Y	26	26'		
D	<112	9.4	N	MWD1 Z	27	27'		
D	<112	0.8	N	MWD1 AB	28	28		
D	<112	1.2	N	MWD1 AC	29	29		
D	<112	0.9	N	MWD1 AD	30	30		
D	<112	0.8	N	MWD1 AE	31	31		
D	<112	3.0	N	MWD1 AF	32	32		
D	<112	3.1	N	MWD1 AG	33	33		
D	<112	0.0	N	MWD1 AH	34	34		
	<112	0.0	N	MWD1 AI	35	35		
					36			


 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01	Date: 5/22/14 - 5/23/14					
		Project Name: JRU 10	RP Number: 2RP-3464, 2RP-3179 2RP-3243					
LITHOLOGIC / SOIL BORING LOG		Logged By: BEN BELJILL	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter: 6.15"					
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	1.0	N	MW01 AF 36	36	36	CL	silty CLAY, dry, red/bra, low plasticity, no odor.
D	<112	0.0	N	MW01 AJ 37	37	37		
D	<112	1.5	N	MW01 AK 38	38	38		
D	<112	0.0	N	MW01 AL 39	39	39		
D	<112	0.0	N	MW01 AM 40	40	40		
D	<112	0.0	N	MW01 AN 41	41	41		
D	<112	1.4	N	MW01 AO 42	42	42		
D	<112	2.8	N	MW01 AP 43	43	43		
D	<112	1.8	N	MW01 AQ 44	44	44		
D	<112	2.5	N	MW01 AR 45	45	45		
D	<112	1.9	N	MW01 AS 46	46	46		
D	<112	2.0	N	MW01 AT 47	47	47		
					48			


		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier MW01		Date 5/23/19		
Project Name JRU 10		RP Number: 2RP-3464, 2RP-3179 2RP-3243						
LITHOLOGIC / SOIL BORING LOG				Logged By: BEN BELILL		Method:		
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.		Hole Diameter: 6.15"		Total Depth:		
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0730	D <112	0.3	N	MW01 AW 48	48	48	CL	silty CLAY, dry, red/brn, low plasticity, no odor
0735	D <112	1.3	N	MW01 AX 49	49	49		silty CLAY w/ calcine, dry, red/brn, low plasticity, some poly coated tan calcine gravel, no odor
0740	D <112	1.2	N	MW01 AW 50	50	50		silty CLAY, dry, red/brn, low plasticity, no odor
0750	D <112	1.2	N	MW01 AX 51	51	51		
0800	D <112	1.3	N	MW01 AX 52	52	52		
0810	D <112	1.5	N	MW01 AZ 53	53	53		
	D <112	0.1	N	MW01 BA 54	54	54		
	D <112	0.3	N	MW01 BB 55	55	55		
	D <112	2.0	N	MW01 BC 56	56	56		
	D <112	2.9	N	MW01 BD 57	57	57		
	D <112	3.8	N	MW01 BE 58	58	58		
	D <112	2.3	N	MW01 BF 59	59	59		
					60			


		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01		Date: 5/23/19		
				Project Name: JRU 10		RP Number: 2RP-3179, 2RP-3464, 2RP-5243		
LITHOLOGIC / SOIL BORING LOG				Logged By: BEN BELILL		Method:		
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.		Hole Diameter:		Total Depth:		
Comment All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	2.8	N	MW01 B 60	60	60	CL	Silty CLAY, dry, brn/md, low plasticity, no odor.
P	<112	2.9	N	MW01 B 61	61	61		
P	<112	2.8	N	MW01 B 62	62	62		
D	<112	3.4	N	MW01 B 63	63	63		
D	<112	1.6	N	MW01 B 64	64	64		
D	<112	11.7	N	MW01 B 65	65	65		
P	<112	4.5	N	MW01 B 66	66	66		
P	<112	3.7	N	MW01 B 67	67	67		
P	<112	1.9	N	MW01 B 68	68	68		
D	<112	1.1	N	MW01 B 69	69	69		
D	<112	2.3	N	MW01 B 70	70	70		
D	<112	1.7	N	MW01 B 71	71	71		
					72			


 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01 Project Name: JRU 10	Date: 5/23/19 RP Number: 2RP-3179, 2RP-3464, 2RP-5243					
LITHOLOGIC / SOIL BORING LOG		Logged By: BEN BELILL	Method:					
Lat/Long:	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO	Hole Diameter:	Total Depth:					
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
P	<112	3.1	N	MW01 BS 72	72	72	CL	Soft
B	<112	1.0	N	MW01 BT 73	73	73		
D	<112	1.1	N	MW01 BV 74	74	74		
D	<112	6.0	N	MW01 BV 75	75	75		
D	<112	5.6	N	MW01 BW 76	76	76		
D	<112	3.4	N	MW01 BX 77	77	77		
D	<112	1.1	N	MW01 BY 78	78	78		
P	243	1.2	N	MW01 BZ 79	79	79		
D	<112	2.4	N	MW01 CA 80	80	80		
B	<112	4.7	N	MW01 CB 81	81	81		
D	<112	3.7	N	MW01 CC 82	82	82		
P	<112	3.7	N	MW01 CD 83	83	83		
					84			


		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01		Date: 5/23/14		
				Project Name: JRU 10		RP Number: 2RP-3179, 2RP-3464, 2RP-5243		
LITHOLOGIC / SOIL BORING LOG				Logged By: BEN BELILL		Method:		
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.		Hole Diameter:		Total Depth:		
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	4.9	N	MW01CE	84	84	CL	SLAY
D	<112	1.5	N	MW01CF	85	85		
D	<112	5.3	N	MW01CG	86	86		
D	<112	2.4	N	MW01CH	87	87		
D	<112	1.6	N	MW01CI	88	88		
D	<112	1.1	N	MW01CJ	89	89		
D	<112	0.9	N	MW01CK	90	90		
D	<112	3.6	N	MW01CL	91	91	CL	CLAY silty SLAY, dry, lt brn/red, low plasticity, no odor.
D	<112	3.8	N	MW01CM	92	92		
D	<112	1.4	N	MW01CN	93	93		
D	<112	1.2	N	MW01CO	94	94		
D	<112	0.8	N	MW01CP	95	95		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01	Date: 5/23/19					
		Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243					
LITHOLOGIC / SOIL BORING LOG		Logged By: BEN BELILL	Method:					
Lat/Long:	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter:	Total Depth:					
Comment All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	1.4	N	MW01CQ	96	96	CL	silty CLAY, brn/red, low plasticity, no odor.
D	<112	4.2	N	MW01CR	97	97		
D	2112	2.2	N	MW01CS	98	98		
D	<112	1.8	N	MW01CT	99	99		
D	<112	1.1	N	MW01CU	100	100		
D	<112	1.5	N	MW01CV	101	101		
D	2112	0.4	N	MW01CW	102	102		
D	<112	1.1	N	MW01CX	103	103		
D	<112	1.6	N	MW01CY	104	104		
D	<112	0.7	N	MW01CZ	105	105		
	<112	1.3	N	MW01DA	106	106		
	<112	0.6	N	MW01DB	107	107		
					108			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01 Date: 5/23/19/5/24						
Project Name: JRU 10		RP Number: 2RP-3179, 2RP-3464, 2RP-5243						
LITHOLOGIC / SOIL BORING LOG		Logged By: BEN BELILL Method:						
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO. Hole Diameter:						
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	1.3	N	MW01 D	72 108	108	CL	SAA
D	<112	0.3	N	MW01 D	73 109	109		
D	<112	0.6	N	MW01 D	74 110	110		
D	<112	0.6	N	MW01 D	75 111	111		
D	<112	0.5	N	MW01 D	76 112	112		
D	<112	3.5	N	MW01 D	77 113	113		
D	<112	5.3	N	MW01 D	78 114	114		
D	<112	1.3	N	MW01 D	79 115	115		
D	<112	3.3	N	MW01 D	80 116	116		
D	<112	2.9	N	MW01 D	81 117	117		
D	<112	3.3	N	MW01 D	82 118	118		
D	<112	4.8	N	MW01 D	83 119	119		
					84			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01	Date: 5/29/19 - 6/3/19					
		Project Name: JRU 10	RP Number: 2RP-3404, 2RP-3464, 2RP-3179					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BEN BELILL	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 6.15"					
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<112	3.8	N	MW01 D0	120	120	CL	SAA
D	<112	3.1	N	MW01 D1	121	121		
D	<112	1.2	N	MW01 D2	122	122		
D	<112	0.4	N	MW01 D3	123	123		
D	<112	0.5	N	MW01 D4	124	124		
D	<112	0.6	N	MW01 D5	125	125		
D	<112	0.8	N	MW01 D6	126	126		
D	<112	0.7	N	MW01 D7	127	127		
D	<112	1.0	N	MW01 D8	128	128		
D	<112	0.4	N	MW01 D9	129	129		
D	<112	0.5	N	MW01 D10	130	130		
D	<112	1.1	N	MW01 D11	131	131		
					132			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MV01	Date: 6/3/19 - 6/4/19					
		Project Name: JRU 10	RP Number: 2RP-3404, 2RP-3464, 2RP-3179					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BEN BELILL	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 6.15"					
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0	<112	0.8	N	MWD1EA	132	132	CL	SAA ↓ CLAY w/ gravel, dry, lt brn/red, low plasticity, no odor. ↓ CLAY silty CLAY, brown/red, low plasticity, no odor
0	<112	0.7	N	MWD1EB	133	133		
0	<112	0.8	N	MWD1EC	134	134		
0	<112	0.9	N	MWD1ED	135	135		
0	<112	0.6	N	MWD1EE	136	136		
1700	<112	0.7	N	MWD1EF	137	137		
64	<112	1.0	N	MWD1EG	138	138	CL	
0900	<112	0.9	N	MWD1EH	139	139		
0905	<112	3.8	N	MWD1EI	140	140	CL	
0910	<112	3.5	N	MWD1EJ	141	141		
0915	<112	3.1	N	MWD1EK	142	142		
0920	<112	1.8	N	MWD1EL	143	143		
0925					144			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: MW01 Project Name: JRU 10	Date: 6/1/19 RP Number: 2RP-3404, 2RP-3464, 2RP-3179					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BEN BELILL	Method:					
Lat/Long:		Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 6.15"					
Total Depth:								
Comment: All Chloride test include a 60% error factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0930	Q	<112	3.5	N	MW01 E M	144	CL	Silt
0935	D	<112	3.2	N	MW01 E N	145		
0940	D	<112	2.7	N	MW01 E O	146		
0945	D	<112	3.1	N	MW01 E 8	147		
0950	D	<112	3.0	N	MW01 E Q	148		
0955	D	<112	1.8	N	MW01 E R	149		
1000	D	<112	1.5	N	MW01 E S	150		
					7			
					8			
					9			
					10			
					11			
					12			

FOR @ 150'



APPENDIX B

Photographic Log

**Photographic Log**

XTO Energy, Inc.

JRU 17 CTB

Incident No. NAPP2226628060



Photograph: 1 Date: 11/10/2022
Description: Staining observed during assessment.
View: Southwest



Photograph: 2 Date: 11/14/2022
Description: Staining observed during assessment.
View: Southeast



Photograph: 3 Date: 11/21/2022
Description: Photo of delineation sampling.
View: Northwest





Photograph: 4 Date: 11/21/2022
Description: Photo of delineation sampling.
View: Southeast




APPENDIX C

Lithologic Soil Sampling Logs

 ENSOLUM Environmental, Engineering and Hydrogeologic Consultants		Sample Name: PH01		Date: 11/21/22					
		Site Name: JRU 17 CTB							
		Incident Number: NAPP2226628060							
		Job Number: 03E1558135							
LITHOLOGIC / SOIL SAMPLING LOG									
Coordinates: 32.33576, -103.81984			Logged By: Kase Parker		Method: Hand Auger				
			Hole Diameter: ~4"		Total Depth: 4'				
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% error factor is included.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions	
Drv	207	0.7	N	PH01	1'	1'	SP	0-1', SILTY SAND, drv, red, poorly graded, fine grain, no stain and odor.	
Drv	207	0.4	N		2'	2'	SP	SAA	
Drv	2,497	0.2	N		3'	3'	SP	SAA	
Drv	7,946	0.2	N	PH01A	4'	4'	SP	SAA	
						TD	Total depth at 4' bgs.		

 ENSOLUM Environmental, Engineering and Hydrogeologic Consultants		Sample Name: PH02		Date: 11/21/22					
		Site Name: JRU 17 CTB							
		Incident Number: NAPP2226628060							
		Job Number: 03E1558135							
LITHOLOGIC / SOIL SAMPLING LOG									
Coordinates: 32.33576, -103.81984			Logged By: Kase Parker		Method: Hand Auger				
			Hole Diameter: ~4"		Total Depth: 4'				
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% error factor is included.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions	
Drv	1,590	0.1	N	PH02	1'	1'	SP	0-1', SILTY SAND, drv, red, poorly graded, fine grained, no stain and odor.	
Drv	5,756	0.0	N		2'	2'	SP	SAA	
Drv	6,776	0.0	N		3'	3'	SP	SAA	
Drv	9,290	0.0	N	PH02A	4'	4'	SP	SAA	
						TD	Total depth at 4' bgs.		

 ENSOLUM Environmental, Engineering and Hydrogeologic Consultants		Sample Name: PH03		Date: 11/21/22					
		Site Name: JRU 17 CTB							
		Incident Number: NAPP2226628060							
		Job Number: 03E1558135							
LITHOLOGIC / SOIL SAMPLING LOG									
Coordinates: 32.33576, -103.81984			Logged By: Kase Parker		Method: Hand Auger				
			Hole Diameter: ~4"		Total Depth: 4'				
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% error factor is included.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions	
Dry	280	0.1	N	PH03	1'	1'	SP	0-1', SILTY SAND, dry, red, poorly graded, fine grained, no stain and odor.	
Dry	1,002	0.0	N		2'	2'	SP	SAA	
Dry	7,341	0.0	N		3'	3'	SP	SAA	
Dry	21,151	0.0	N	PH03A	4'	4'	SP	SAA	
						TD	Total depth at 4' bgs.		



APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

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

Generated 12/1/2022 1:03:25 PM

JOB DESCRIPTION

JRU 17 CTB
SDG NUMBER 03E1558135

JOB NUMBER

890-3541-1

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

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

Client: Ensolum
Project/Site: JRU 17 CTB

Laboratory Job ID: 890-3541-1
SDG: 03E1558135

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Definitions/Glossary

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

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, low biased.
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.
α	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: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

Job ID: 890-3541-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-3541-1****Receipt**

The samples were received on 11/21/2022 4:13 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 13.0°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: PH01 (890-3541-1), PH01A (890-3541-2), PH02 (890-3541-3), PH02A (890-3541-4), PH03 (890-3541-5) and PH03A (890-3541-6).

GC VOA

Method 8021B: The matrix spike duplicate (MSD) recoveries for preparation batch 880-40555 and analytical batch 880-40657 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 samples were outside control limits: PH02A (890-3541-4), PH03 (890-3541-5) and PH03A (890-3541-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-40353 and analytical batch 880-40348 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: PH01A (890-3541-2) and PH02 (890-3541-3). 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: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

Client Sample ID: PH01

Lab Sample ID: 890-3541-1

Date Collected: 11/21/22 07:50

Matrix: Solid

Date Received: 11/21/22 16:13

Sample Depth: 1'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		11/29/22 09:19	11/30/22 19:07	1
Toluene	<0.00201	U	0.00201	mg/Kg		11/29/22 09:19	11/30/22 19:07	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		11/29/22 09:19	11/30/22 19:07	1
m-Xylene & p-Xylene	<0.00402	U F1	0.00402	mg/Kg		11/29/22 09:19	11/30/22 19:07	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		11/29/22 09:19	11/30/22 19:07	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		11/29/22 09:19	11/30/22 19:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		70 - 130	11/29/22 09:19	11/30/22 19:07	1
1,4-Difluorobenzene (Surr)	110		70 - 130	11/29/22 09:19	11/30/22 19:07	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			12/01/22 13:42	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			11/28/22 08:46	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		11/24/22 11:13	11/25/22 03:05	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		11/24/22 11:13	11/25/22 03:05	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		11/24/22 11:13	11/25/22 03:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130	11/24/22 11:13	11/25/22 03:05	1
o-Terphenyl	111		70 - 130	11/24/22 11:13	11/25/22 03:05	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	189		4.98	mg/Kg			11/28/22 20:28	1

Client Sample ID: PH01A

Lab Sample ID: 890-3541-2

Date Collected: 11/21/22 08:05

Matrix: Solid

Date Received: 11/21/22 16:13

Sample Depth: 4'

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		11/29/22 09:19	11/30/22 19:27	1
Toluene	<0.00199	U	0.00199	mg/Kg		11/29/22 09:19	11/30/22 19:27	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		11/29/22 09:19	11/30/22 19:27	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		11/29/22 09:19	11/30/22 19:27	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		11/29/22 09:19	11/30/22 19:27	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		11/29/22 09:19	11/30/22 19:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	81		70 - 130	11/29/22 09:19	11/30/22 19:27	1

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Client Sample Results

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

Client Sample ID: PH01A

Lab Sample ID: 890-3541-2

Date Collected: 11/21/22 08:05

Matrix: Solid

Date Received: 11/21/22 16:13

Sample Depth: 4'

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	108		70 - 130	11/29/22 09:19	11/30/22 19:27	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			12/01/22 13:42	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			11/28/22 08:46	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		11/24/22 11:13	11/25/22 03:26	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/24/22 11:13	11/25/22 03:26	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/24/22 11:13	11/25/22 03:26	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	1	S1-	70 - 130			11/24/22 11:13	11/25/22 03:26	1
o-Terphenyl	2	S1-	70 - 130			11/24/22 11:13	11/25/22 03:26	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5630		50.0	mg/Kg			11/28/22 20:48	10

Client Sample ID: PH02

Lab Sample ID: 890-3541-3

Date Collected: 11/21/22 11:00

Matrix: Solid

Date Received: 11/21/22 16:13

Sample Depth: 1'

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		11/29/22 09:19	11/30/22 19:48	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/29/22 09:19	11/30/22 19:48	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/29/22 09:19	11/30/22 19:48	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		11/29/22 09:19	11/30/22 19:48	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/29/22 09:19	11/30/22 19:48	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		11/29/22 09:19	11/30/22 19:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		70 - 130	11/29/22 09:19	11/30/22 19:48	1
1,4-Difluorobenzene (Surr)	111		70 - 130	11/29/22 09:19	11/30/22 19:48	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			12/01/22 13:42	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			11/28/22 08:46	1

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Client Sample Results

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

Client Sample ID: PH02

Lab Sample ID: 890-3541-3

Date Collected: 11/21/22 11:00

Matrix: Solid

Date Received: 11/21/22 16:13

Sample Depth: 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		11/24/22 11:13	11/25/22 03:47	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		11/24/22 11:13	11/25/22 03:47	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		11/24/22 11:13	11/25/22 03:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	0.1	S1-	70 - 130			11/24/22 11:13	11/25/22 03:47	1
o-Terphenyl	0.5	S1-	70 - 130			11/24/22 11:13	11/25/22 03:47	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430		25.0	mg/Kg			11/28/22 20:55	5

Client Sample ID: PH02A

Lab Sample ID: 890-3541-4

Date Collected: 11/21/22 11:15

Matrix: Solid

Date Received: 11/21/22 16:13

Sample Depth: 4'

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		11/29/22 09:19	11/30/22 20:08	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/29/22 09:19	11/30/22 20:08	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/29/22 09:19	11/30/22 20:08	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		11/29/22 09:19	11/30/22 20:08	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/29/22 09:19	11/30/22 20:08	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		11/29/22 09:19	11/30/22 20:08	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 130			11/29/22 09:19	11/30/22 20:08	1
1,4-Difluorobenzene (Surr)	118		70 - 130			11/29/22 09:19	11/30/22 20:08	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			12/01/22 13:42	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			11/28/22 08:46	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		11/24/22 11:13	11/25/22 04:09	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/24/22 11:13	11/25/22 04:09	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/24/22 11:13	11/25/22 04:09	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	0.02	S1-	70 - 130			11/24/22 11:13	11/25/22 04:09	1
o-Terphenyl	0.2	S1-	70 - 130			11/24/22 11:13	11/25/22 04:09	1

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Client Sample Results

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

Client Sample ID: PH02A

Lab Sample ID: 890-3541-4

Date Collected: 11/21/22 11:15

Matrix: Solid

Date Received: 11/21/22 16:13

Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6570		50.5	mg/Kg			11/28/22 21:01	10

Client Sample ID: PH03

Lab Sample ID: 890-3541-5

Date Collected: 11/21/22 11:20

Matrix: Solid

Date Received: 11/21/22 16:13

Sample Depth: 1'

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		11/29/22 09:19	11/30/22 20:29	1
Toluene	<0.00199	U	0.00199	mg/Kg		11/29/22 09:19	11/30/22 20:29	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		11/29/22 09:19	11/30/22 20:29	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		11/29/22 09:19	11/30/22 20:29	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		11/29/22 09:19	11/30/22 20:29	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		11/29/22 09:19	11/30/22 20:29	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130			11/29/22 09:19	11/30/22 20:29	1
1,4-Difluorobenzene (Surr)	109		70 - 130			11/29/22 09:19	11/30/22 20:29	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			12/01/22 13:42	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			11/28/22 08:46	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		11/24/22 11:13	11/25/22 04:30	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/24/22 11:13	11/25/22 04:30	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/24/22 11:13	11/25/22 04:30	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	0.02	S1-	70 - 130			11/24/22 11:13	11/25/22 04:30	1
o-Terphenyl	0.2	S1-	70 - 130			11/24/22 11:13	11/25/22 04:30	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	473		4.97	mg/Kg			11/28/22 21:08	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

Client Sample ID: PH03A

Lab Sample ID: 890-3541-6

Date Collected: 11/21/22 11:35

Matrix: Solid

Date Received: 11/21/22 16:13

Sample Depth: 4'

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		11/29/22 09:19	11/30/22 20:49	1
Toluene	<0.00199	U	0.00199	mg/Kg		11/29/22 09:19	11/30/22 20:49	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		11/29/22 09:19	11/30/22 20:49	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		11/29/22 09:19	11/30/22 20:49	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		11/29/22 09:19	11/30/22 20:49	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		11/29/22 09:19	11/30/22 20:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130	11/29/22 09:19	11/30/22 20:49	1
1,4-Difluorobenzene (Surr)	118		70 - 130	11/29/22 09:19	11/30/22 20:49	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			12/01/22 13:42	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			11/28/22 08:46	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		11/24/22 11:13	11/25/22 04:52	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		11/24/22 11:13	11/25/22 04:52	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		11/24/22 11:13	11/25/22 04:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	0.003	S1-	70 - 130	11/24/22 11:13	11/25/22 04:52	1
o-Terphenyl	0.2	S1-	70 - 130	11/24/22 11:13	11/25/22 04:52	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17400		248	mg/Kg			11/28/22 21:28	50

Surrogate Summary

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

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)
890-3541-1	PH01	79	110
890-3541-1 MS	PH01	88	111
890-3541-1 MSD	PH01	91	103
890-3541-2	PH01A	81	108
890-3541-3	PH02	89	111
890-3541-4	PH02A	85	118
890-3541-5	PH03	92	109
890-3541-6	PH03A	83	118
LCS 880-40555/1-A	Lab Control Sample	85	110
LCSD 880-40555/2-A	Lab Control Sample Dup	83	107
MB 880-40555/5-A	Method Blank	71	108
MB 880-40657/8	Method Blank	71	112
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)
880-21911-A-1-H MS	Matrix Spike	112	115
880-21911-A-1-I MSD	Matrix Spike Duplicate	118	121
890-3541-1	PH01	100	111
890-3541-2	PH01A	1 S1-	2 S1-
890-3541-3	PH02	0.1 S1-	0.5 S1-
890-3541-4	PH02A	0.02 S1-	0.2 S1-
890-3541-5	PH03	0.02 S1-	0.2 S1-
890-3541-6	PH03A	0.003 S1-	0.2 S1-
LCS 880-40353/2-A	Lab Control Sample	94	104
LCSD 880-40353/3-A	Lab Control Sample Dup	85	92
MB 880-40353/1-A	Method Blank	146 S1+	168 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

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QC Sample Results

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-40555/5-A

Matrix: Solid

Analysis Batch: 40657

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 40555

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		11/29/22 09:19	11/30/22 18:38	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/29/22 09:19	11/30/22 18:38	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/29/22 09:19	11/30/22 18:38	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		11/29/22 09:19	11/30/22 18:38	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/29/22 09:19	11/30/22 18:38	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		11/29/22 09:19	11/30/22 18:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		70 - 130	11/29/22 09:19	11/30/22 18:38	1
1,4-Difluorobenzene (Surr)	108		70 - 130	11/29/22 09:19	11/30/22 18:38	1

Lab Sample ID: LCS 880-40555/1-A

Matrix: Solid

Analysis Batch: 40657

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 40555

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1083		mg/Kg		108	70 - 130
Toluene	0.100	0.1113		mg/Kg		111	70 - 130
Ethylbenzene	0.100	0.1072		mg/Kg		107	70 - 130
m-Xylene & p-Xylene	0.200	0.1903		mg/Kg		95	70 - 130
o-Xylene	0.100	0.09383		mg/Kg		94	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	85		70 - 130
1,4-Difluorobenzene (Surr)	110		70 - 130

Lab Sample ID: LCSD 880-40555/2-A

Matrix: Solid

Analysis Batch: 40657

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 40555

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09982		mg/Kg		100	70 - 130	8	35
Toluene	0.100	0.1053		mg/Kg		105	70 - 130	6	35
Ethylbenzene	0.100	0.09979		mg/Kg		100	70 - 130	7	35
m-Xylene & p-Xylene	0.200	0.1780		mg/Kg		89	70 - 130	7	35
o-Xylene	0.100	0.08708		mg/Kg		87	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	83		70 - 130
1,4-Difluorobenzene (Surr)	107		70 - 130

Lab Sample ID: 890-3541-1 MS

Matrix: Solid

Analysis Batch: 40657

Client Sample ID: PH01

Prep Type: Total/NA

Prep Batch: 40555

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.100	0.1041		mg/Kg		104	70 - 130
Toluene	<0.00201	U	0.100	0.1058		mg/Kg		106	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

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

Lab Sample ID: 890-3541-1 MS

Matrix: Solid

Analysis Batch: 40657

Client Sample ID: PH01

Prep Type: Total/NA

Prep Batch: 40555

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.100	0.1027		mg/Kg		103	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.200	0.1471		mg/Kg		74	70 - 130
o-Xylene	<0.00201	U	0.100	0.08940		mg/Kg		89	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	88		70 - 130
1,4-Difluorobenzene (Surr)	111		70 - 130

Lab Sample ID: 890-3541-1 MSD

Matrix: Solid

Analysis Batch: 40657

Client Sample ID: PH01

Prep Type: Total/NA

Prep Batch: 40555

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0998	0.08692		mg/Kg		87	70 - 130	18	35
Toluene	<0.00201	U	0.0998	0.09156		mg/Kg		92	70 - 130	14	35
Ethylbenzene	<0.00201	U	0.0998	0.09170		mg/Kg		92	70 - 130	11	35
m-Xylene & p-Xylene	<0.00402	U F1	0.200	0.1310	F1	mg/Kg		66	70 - 130	12	35
o-Xylene	<0.00201	U	0.0998	0.08143		mg/Kg		81	70 - 130	9	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: MB 880-40657/8

Matrix: Solid

Analysis Batch: 40657

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg			11/30/22 12:15	1
Toluene	<0.00200	U	0.00200	mg/Kg			11/30/22 12:15	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg			11/30/22 12:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg			11/30/22 12:15	1
o-Xylene	<0.00200	U	0.00200	mg/Kg			11/30/22 12:15	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg			11/30/22 12:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		70 - 130		11/30/22 12:15	1
1,4-Difluorobenzene (Surr)	112		70 - 130		11/30/22 12:15	1

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

Lab Sample ID: MB 880-40353/1-A

Matrix: Solid

Analysis Batch: 40348

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 40353

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		11/24/22 11:13	11/24/22 19:56	1

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QC Sample Results

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

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

Lab Sample ID: MB 880-40353/1-A

Matrix: Solid

Analysis Batch: 40348

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 40353

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		11/24/22 11:13	11/24/22 19:56	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/24/22 11:13	11/24/22 19:56	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	146	S1+	70 - 130			11/24/22 11:13	11/24/22 19:56	1
o-Terphenyl	168	S1+	70 - 130			11/24/22 11:13	11/24/22 19:56	1

Lab Sample ID: LCS 880-40353/2-A

Matrix: Solid

Analysis Batch: 40348

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 40353

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	915.4		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	1000	956.3		mg/Kg		96	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	94		70 - 130				
o-Terphenyl	104		70 - 130				

Lab Sample ID: LCSD 880-40353/3-A

Matrix: Solid

Analysis Batch: 40348

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 40353

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	987.4		mg/Kg		99	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	1000	994.1		mg/Kg		99	70 - 130	4	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	85		70 - 130						
o-Terphenyl	92		70 - 130						

Lab Sample ID: 880-21911-A-1-H MS

Matrix: Solid

Analysis Batch: 40348

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 40353

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	999	1034		mg/Kg		100	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	999	841.0		mg/Kg		84	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	112		70 - 130						
o-Terphenyl	115		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

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

Lab Sample ID: 880-21911-A-1-I MSD

Matrix: Solid

Analysis Batch: 40348

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 40353

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	997	1072		mg/Kg		104	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<50.0	U	997	878.1		mg/Kg		88	70 - 130	4	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	118		70 - 130								
o-Terphenyl	121		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-40371/1-A

Matrix: Solid

Analysis Batch: 40439

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			11/28/22 20:08	1

Lab Sample ID: LCS 880-40371/2-A

Matrix: Solid

Analysis Batch: 40439

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	265.7		mg/Kg		106	90 - 110

Lab Sample ID: LCSD 880-40371/3-A

Matrix: Solid

Analysis Batch: 40439

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	267.9		mg/Kg		107	90 - 110	1	20

Lab Sample ID: 890-3541-1 MS

Matrix: Solid

Analysis Batch: 40439

Client Sample ID: PH01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	189		249	440.2		mg/Kg		101	90 - 110

Lab Sample ID: 890-3541-1 MSD

Matrix: Solid

Analysis Batch: 40439

Client Sample ID: PH01

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	189		249	437.5		mg/Kg		100	90 - 110	1	20

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QC Association Summary

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

GC VOA

Prep Batch: 40555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3541-1	PH01	Total/NA	Solid	5035	
890-3541-2	PH01A	Total/NA	Solid	5035	
890-3541-3	PH02	Total/NA	Solid	5035	
890-3541-4	PH02A	Total/NA	Solid	5035	
890-3541-5	PH03	Total/NA	Solid	5035	
890-3541-6	PH03A	Total/NA	Solid	5035	
MB 880-40555/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-40555/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-40555/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3541-1 MS	PH01	Total/NA	Solid	5035	
890-3541-1 MSD	PH01	Total/NA	Solid	5035	

Analysis Batch: 40657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3541-1	PH01	Total/NA	Solid	8021B	40555
890-3541-2	PH01A	Total/NA	Solid	8021B	40555
890-3541-3	PH02	Total/NA	Solid	8021B	40555
890-3541-4	PH02A	Total/NA	Solid	8021B	40555
890-3541-5	PH03	Total/NA	Solid	8021B	40555
890-3541-6	PH03A	Total/NA	Solid	8021B	40555
MB 880-40555/5-A	Method Blank	Total/NA	Solid	8021B	40555
MB 880-40657/8	Method Blank	Total/NA	Solid	8021B	
LCS 880-40555/1-A	Lab Control Sample	Total/NA	Solid	8021B	40555
LCSD 880-40555/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	40555
890-3541-1 MS	PH01	Total/NA	Solid	8021B	40555
890-3541-1 MSD	PH01	Total/NA	Solid	8021B	40555

Analysis Batch: 40804

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3541-1	PH01	Total/NA	Solid	Total BTEX	
890-3541-2	PH01A	Total/NA	Solid	Total BTEX	
890-3541-3	PH02	Total/NA	Solid	Total BTEX	
890-3541-4	PH02A	Total/NA	Solid	Total BTEX	
890-3541-5	PH03	Total/NA	Solid	Total BTEX	
890-3541-6	PH03A	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 40348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3541-1	PH01	Total/NA	Solid	8015B NM	40353
890-3541-2	PH01A	Total/NA	Solid	8015B NM	40353
890-3541-3	PH02	Total/NA	Solid	8015B NM	40353
890-3541-4	PH02A	Total/NA	Solid	8015B NM	40353
890-3541-5	PH03	Total/NA	Solid	8015B NM	40353
890-3541-6	PH03A	Total/NA	Solid	8015B NM	40353
MB 880-40353/1-A	Method Blank	Total/NA	Solid	8015B NM	40353
LCS 880-40353/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	40353
LCSD 880-40353/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	40353
880-21911-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	40353
880-21911-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	40353

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QC Association Summary

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

GC Semi VOA

Prep Batch: 40353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3541-1	PH01	Total/NA	Solid	8015NM Prep	
890-3541-2	PH01A	Total/NA	Solid	8015NM Prep	
890-3541-3	PH02	Total/NA	Solid	8015NM Prep	
890-3541-4	PH02A	Total/NA	Solid	8015NM Prep	
890-3541-5	PH03	Total/NA	Solid	8015NM Prep	
890-3541-6	PH03A	Total/NA	Solid	8015NM Prep	
MB 880-40353/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-40353/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-40353/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-21911-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-21911-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 40382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3541-1	PH01	Total/NA	Solid	8015 NM	
890-3541-2	PH01A	Total/NA	Solid	8015 NM	
890-3541-3	PH02	Total/NA	Solid	8015 NM	
890-3541-4	PH02A	Total/NA	Solid	8015 NM	
890-3541-5	PH03	Total/NA	Solid	8015 NM	
890-3541-6	PH03A	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 40371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3541-1	PH01	Soluble	Solid	DI Leach	
890-3541-2	PH01A	Soluble	Solid	DI Leach	
890-3541-3	PH02	Soluble	Solid	DI Leach	
890-3541-4	PH02A	Soluble	Solid	DI Leach	
890-3541-5	PH03	Soluble	Solid	DI Leach	
890-3541-6	PH03A	Soluble	Solid	DI Leach	
MB 880-40371/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-40371/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-40371/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3541-1 MS	PH01	Soluble	Solid	DI Leach	
890-3541-1 MSD	PH01	Soluble	Solid	DI Leach	

Analysis Batch: 40439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3541-1	PH01	Soluble	Solid	300.0	40371
890-3541-2	PH01A	Soluble	Solid	300.0	40371
890-3541-3	PH02	Soluble	Solid	300.0	40371
890-3541-4	PH02A	Soluble	Solid	300.0	40371
890-3541-5	PH03	Soluble	Solid	300.0	40371
890-3541-6	PH03A	Soluble	Solid	300.0	40371
MB 880-40371/1-A	Method Blank	Soluble	Solid	300.0	40371
LCS 880-40371/2-A	Lab Control Sample	Soluble	Solid	300.0	40371
LCSD 880-40371/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	40371
890-3541-1 MS	PH01	Soluble	Solid	300.0	40371
890-3541-1 MSD	PH01	Soluble	Solid	300.0	40371

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Lab Chronicle

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

Client Sample ID: PH01

Lab Sample ID: 890-3541-1

Date Collected: 11/21/22 07:50

Matrix: Solid

Date Received: 11/21/22 16:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	40555	11/29/22 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	40657	11/30/22 19:07	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			40804	12/01/22 13:42	SM	EET MID
Total/NA	Analysis	8015 NM		1			40382	11/28/22 08:46	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	40353	11/24/22 11:13	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	40348	11/25/22 03:05	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	40371	11/28/22 08:37	CH	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	40439	11/28/22 20:28	CH	EET MID

Client Sample ID: PH01A

Lab Sample ID: 890-3541-2

Date Collected: 11/21/22 08:05

Matrix: Solid

Date Received: 11/21/22 16:13

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	40555	11/29/22 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	40657	11/30/22 19:27	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			40804	12/01/22 13:42	SM	EET MID
Total/NA	Analysis	8015 NM		1			40382	11/28/22 08:46	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	40353	11/24/22 11:13	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	40348	11/25/22 03:26	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	40371	11/28/22 08:37	CH	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	40439	11/28/22 20:48	CH	EET MID

Client Sample ID: PH02

Lab Sample ID: 890-3541-3

Date Collected: 11/21/22 11:00

Matrix: Solid

Date Received: 11/21/22 16:13

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	40555	11/29/22 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	40657	11/30/22 19:48	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			40804	12/01/22 13:42	SM	EET MID
Total/NA	Analysis	8015 NM		1			40382	11/28/22 08:46	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	40353	11/24/22 11:13	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	40348	11/25/22 03:47	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	40371	11/28/22 08:37	CH	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	40439	11/28/22 20:55	CH	EET MID

Client Sample ID: PH02A

Lab Sample ID: 890-3541-4

Date Collected: 11/21/22 11:15

Matrix: Solid

Date Received: 11/21/22 16:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	40555	11/29/22 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	40657	11/30/22 20:08	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			40804	12/01/22 13:42	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

Client Sample ID: PH02A

Lab Sample ID: 890-3541-4

Date Collected: 11/21/22 11:15

Matrix: Solid

Date Received: 11/21/22 16:13

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			40382	11/28/22 08:46	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	40353	11/24/22 11:13	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	40348	11/25/22 04:09	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	40371	11/28/22 08:37	CH	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	40439	11/28/22 21:01	CH	EET MID

Client Sample ID: PH03

Lab Sample ID: 890-3541-5

Date Collected: 11/21/22 11:20

Matrix: Solid

Date Received: 11/21/22 16:13

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	40555	11/29/22 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	40657	11/30/22 20:29	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			40804	12/01/22 13:42	SM	EET MID
Total/NA	Analysis	8015 NM		1			40382	11/28/22 08:46	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	40353	11/24/22 11:13	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	40348	11/25/22 04:30	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	40371	11/28/22 08:37	CH	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	40439	11/28/22 21:08	CH	EET MID

Client Sample ID: PH03A

Lab Sample ID: 890-3541-6

Date Collected: 11/21/22 11:35

Matrix: Solid

Date Received: 11/21/22 16:13

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	40555	11/29/22 09:19	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	40657	11/30/22 20:49	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			40804	12/01/22 13:42	SM	EET MID
Total/NA	Analysis	8015 NM		1			40382	11/28/22 08:46	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	40353	11/24/22 11:13	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	40348	11/25/22 04:52	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	40371	11/28/22 08:37	CH	EET MID
Soluble	Analysis	300.0		50	50 mL	50 mL	40439	11/28/22 21:28	CH	EET MID

Laboratory References:

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

Eurofins Carlsbad

Accreditation/Certification Summary

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

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	T104704400-22-24	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: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

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	MCAWW	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

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: JRU 17 CTB

Job ID: 890-3541-1
SDG: 03E1558135

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3541-1	PH01	Solid	11/21/22 07:50	11/21/22 16:13	1'
890-3541-2	PH01A	Solid	11/21/22 08:05	11/21/22 16:13	4'
890-3541-3	PH02	Solid	11/21/22 11:00	11/21/22 16:13	1'
890-3541-4	PH02A	Solid	11/21/22 11:15	11/21/22 16:13	4'
890-3541-5	PH03	Solid	11/21/22 11:20	11/21/22 16:13	1'
890-3541-6	PH03A	Solid	11/21/22 11:35	11/21/22 16:13	4'



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)	Garret Green
Company Name:	Ensolum	Company Name:	XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E. Green St.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	303-887-2946	Email:	Garret.Green@ExxonMobil.com, 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: _____	
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Project Name:	JRU 17 CTB	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code																																																		
Project Number:	03E1558135	Due Date:																																																				
Project Location:	32.33576, -103.81984	TAT starts the day received by the lab, if received by 4:30pm																																																				
Sampler's Name:	Kase Parker																																																					
PO #:																																																						
SAMPLE RECEIPT Samples Received Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Thermometer ID: TMM-007 Cooler Custody Seals: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Correction Factor: -0.2 Sample Custody Seals: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Temperature Reading: 13.2 Total Containers: 13.0 Corrected Temperature: 13.0		ANALYSIS REQUEST CHLORIDES (EPA: 300.0) TPH (8015) BTEX (8021)																																																				
Sample Identification <table border="1"> <thead> <tr> <th>Sample</th> <th>Matrix</th> <th>Date Sampled</th> <th>Time Sampled</th> <th>Depth</th> <th>Grab/Comp</th> <th># of Cont</th> </tr> </thead> <tbody> <tr> <td>PH01</td> <td>S</td> <td>11/21/2022</td> <td>7:50</td> <td>1'</td> <td>Grab/1</td> <td>1</td> </tr> <tr> <td>PH01A</td> <td>S</td> <td>11/21/2022</td> <td>8:05</td> <td>4'</td> <td>Grab/1</td> <td>1</td> </tr> <tr> <td>PH02</td> <td>S</td> <td>11/21/2022</td> <td>11:00</td> <td>1'</td> <td>Grab/1</td> <td>1</td> </tr> <tr> <td>PH02A</td> <td>S</td> <td>11/21/2022</td> <td>11:15</td> <td>4'</td> <td>Grab/1</td> <td>1</td> </tr> <tr> <td>PH03</td> <td>S</td> <td>11/21/2022</td> <td>11:20</td> <td>1'</td> <td>Grab/1</td> <td>1</td> </tr> <tr> <td>PH03A</td> <td>S</td> <td>11/21/2022</td> <td>11:35</td> <td>4'</td> <td>Grab/1</td> <td>1</td> </tr> </tbody> </table>		Sample	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	PH01	S	11/21/2022	7:50	1'	Grab/1	1	PH01A	S	11/21/2022	8:05	4'	Grab/1	1	PH02	S	11/21/2022	11:00	1'	Grab/1	1	PH02A	S	11/21/2022	11:15	4'	Grab/1	1	PH03	S	11/21/2022	11:20	1'	Grab/1	1	PH03A	S	11/21/2022	11:35	4'	Grab/1	1	Preservative Codes None: NO DI Water: H ₂ O Cool: Cool MeOH: Me HCL: HC HNO ₃ : HN H ₂ SO ₄ : H ₂ NaOH: Na H ₃ PO ₄ : HP NaHSO ₄ : NABIS Na ₂ S ₂ O ₅ : NaSO ₃ Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: SAPC			
Sample	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont																																																
PH01	S	11/21/2022	7:50	1'	Grab/1	1																																																
PH01A	S	11/21/2022	8:05	4'	Grab/1	1																																																
PH02	S	11/21/2022	11:00	1'	Grab/1	1																																																
PH02A	S	11/21/2022	11:15	4'	Grab/1	1																																																
PH03	S	11/21/2022	11:20	1'	Grab/1	1																																																
PH03A	S	11/21/2022	11:35	4'	Grab/1	1																																																
Sample Comments Incident ID: NAPP2226628060 Cost Center: 1080921001 AFE: 30-015-27784																																																						



890-3541 Chain of Custody

Total 200.7 / 6010 200.8 / 6020:		8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO ₂ Na Sr Ti Sn U V Zn 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
Circle Method(s) and Metal(s) to be analyzed		

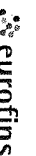
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume 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
<i>[Signature]</i>	<i>[Signature]</i>	11/21/2022 14:13			

1
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12
13
14

1089 N Canal St.
Carlsbad NM 88220
Phone 575-988-3199 Fax: 575-988-3199

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No						
Client Contact:	Phone	Kramer Jessica	State of Origin	890-1040 1	Page 1 of 1						
Shipping/Receiving	E-Mail	Jessica.Kramer@eurofins.com	New Mexico	Job #	890-3541-1						
Company	Eurofins Environment Testing South Center	Accreditations Required (See note)	NE/LAP - Texas								
Address		Due Date Requested									
1211 W Florida Ave,		11/29/2022									
City	Midland	TAI Requested (days)									
State Zip:	TX, 79701	PO #									
Phone	432-704-5440(Te)	WO #									
Email		Project #									
		89000093									
Project Name	JRU 17 CTB	SSOV#									
Site											
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	MATRIX (W=water, S=solid, O=wastewater, BT=Tissue, A=All)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested		Total Number of containers	Special Instructions/Note:
PH01 (890-3541-1)	11/21/22	07 50	Mountain	Solid		X	X	X	X	X	
PH01A (890-3541-2)	11/21/22	08 05	Mountain	Solid		X	X	X	X	X	
PH02 (890-3541-3)	11/21/22	11 00	Mountain	Solid		X	X	X	X	X	
PH02A (890-3541-4)	11/21/22	11 15	Mountain	Solid		X	X	X	X	X	
PH03 (890-3541-5)	11/21/22	11 20	Mountain	Solid		X	X	X	X	X	
PH03A (890-3541-6)	11/21/22	11 35	Mountain	Solid		X	X	X	X	X	
Unconfirmed											
Deliverable Requested I II III, IV Other (specify)		Primary Deliverable Rank 2		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For		Months			
Empty Kit Relinquished by		Date	Time	Method of Shipment							
Relinquished by		Date/Time	Company	Received by		Date/Time	Company				
Relinquished by		Date/Time	Company	Received by		Date/Time	Company				
Relinquished by		Date/Time	Company	Received by		Date/Time	Company				
Custody Seals Intact:		Custody Seal No		Cooler Temperature(s) °C and Other Remarks							
Δ Yes Δ No											

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3541-1

SDG Number: 03E1558135

Login Number: 3541

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: 890-3541-1

SDG Number: 03E1558135

Login Number: 3541

List Number: 2

Creator: Kramer, Jessica

List Source: Eurofins Midland

List Creation: 11/23/22 11:54 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").	N/A	



APPENDIX E

NMOCD Notifications

Collins, Melanie

From: Collins, Melanie
Sent: Friday, September 23, 2022 8:59 AM
To: Morgan, Crisha A; 'CFO_Spill, BLM_NM'
Cc: DelawareSpills /SM; Green, Garrett J
Subject: Initial C-141 JRU 17 Central Tank Battery Flow Line release 9-10-22
Attachments: 9-23-22 Initial C-141 JRU 17 CTB release date 9-10-22.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Crisha,

Please see the attached Initial C-141 for the release that occurred on 09/10/2022 between the JRU 17 and 7-30 CTBs. Corrosion caused a release of fluids from a flow line associated with the James Ranch 17 and 7-30 CTBs. A vacuum truck recovered all free fluids. A third-party contractor has been retained for remediation purposes. Please let me know if you have questions or would like additional information concerning this release.

Thank you—and happy Friday!

Melanie Collins



Environmental Technician

melanie.collins@exxonmobil.com

432-556-3756

From: [Green, Garrett J](#)
To: [Tacoma Morrissey](#)
Subject: FW: XTO - Sampling Notification (Week of 11/21/22 - 11/25/22)
Date: Friday, November 18, 2022 3:38:40 PM

[**EXTERNAL EMAIL**]

From: Green, Garrett J
Sent: Friday, November 18, 2022 8:52 AM
To: 'ocd.enviro@emnrd.nm.gov' <ocd.enviro@emnrd.nm.gov>; 'Bratcher, Michael, EMNRD' <mike.bratcher@emnrd.nm.gov>; 'Hamlet, Robert, EMNRD' <Robert.Hamlet@emnrd.nm.gov>; 'Harimon, Jocelyn, EMNRD' <Jocelyn.Harimon@emnrd.nm.gov>
Cc: DelawareSpills /SM <DelawareSpills@exxonmobil.com>
Subject: XTO - Sampling Notification (Week of 11/21/22 - 11/25/22)

All,

XTO plans to complete final sampling activities at the following sites the week of Nov 21, 2022.

- JRU 17 CTB/ nAPP2226628060
- BEU 158 / nAPP2230548752
- Ross Draw 2531 TB FIRE/ nAPP2226646920
- Remuda 100 CTB / nAPP2226346738
- West Brushy Fed 33 1H/ nAPP2228753314
- Ross Draw 3031/ nAPP2227244441

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 165745

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 165745
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	The Remediation Plan is Conditionally Approved. All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards for site assessment/characterization/proven depth to water determination. Sidewall samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. Confirmation samples should be collected every 200 ft2. All off pad areas must contain a minimum of 4 feet non-waste containing uncontaminated, earthen material with chloride concentrations less than 600 mg/kg and less than 100 mg/kg for TPH. The work will need to occur in 90 days after the work plan has been approved.	3/17/2023