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

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1521257588 2100787

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P.	Contact: Tony Savoie
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: JRU-10	Facility Type: Exploration and Production

Surface Owner: Federal	Mineral Owner: Federal	API No.30-015-23075

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	1	23S	30E	1980	North	660	East	Eddy

Latitude N 32.335568° Longitude W 103.827592°

NATURE OF RELEASE

Type of Release: Produced water and condensate	Volume of Release: 50 bbls. PW and 5 bbls. condensate	Volume Recovered: 13 bbls. PW and 2 bbls. condensate
Source of Release: Produced water tank	Date and Hour of Occurrence: 7/29/15, time unknown	Date and Hour of Discovery: 7/29/15 at approximately 8:30 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher, Heather Patterson, and Jim Amos	
By Whom? Tony Savoie	Date and Hour 7/29/15, first attempt at 1:51 p.m. confirmed at 6:14 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 30 2015
RECEIVED

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
A coupling on the water transfer pump failed causing the tank to overflow. The coupling was replaced the day of the release.

Describe Area Affected and Cleanup Action Taken.*
The spill impacted about 1000 sq.ft. inside the earthen containment around the Oil and PW tanks. All of the free standing fluid was recovered with a vacuum truck.
The spill area will be cleaned up in accordance to the NMOCD and BLM remediation guidelines.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: Tony Savoie
Printed Name: Tony Savoie
Title: Waste Management and Remediation Specialist
E-mail Address: tasavoie@basspet.com
Date: 7/30/15 Phone: 432-556-8730

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 7/31/15 Expiration Date: N/A

Conditions of Approval: Attached ☐
Remediation per O.C.D. Rules & Guidelines
SUBMIT REMEDIATION PROPOSAL NO
LATER THAN: 9/3/15

2RP-3179

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
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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	
District RP	2RP-3179
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: XTO Energy, Inc	OGRID: 5380
Contact Name: Kyle Littrell	Contact Telephone: (432)-221-7331
Contact email: Kyle_Littrell@xtoenergy.com	Incident #: 2RP-3179
Contact mailing address 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

Location of Release Source

Latitude 32.335568 Longitude -103.827592
(NAD 83 in decimal degrees to 5 decimal places)

Site Name JRU-10	Site Type Exploration and Production
Date Release Discovered 07/29/15	API# *(if applicable)* 30-015-23075

Unit Letter	Section	Township	Range	County
H	1	23S	30E	Eddy

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 50	Volume Recovered (bbls) 13
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☒ Condensate	Volume Released (bbls) 5	Volume Recovered (bbls) 2
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
A coupling on the water transfer pump failed causing the tank to overflow. The coupling was replaced the day of the release. The spill impacted about 1000 sq.ft. inside the earthen containment around the Oil and produced water tanks. All of the free standing fluid was recovered with a vacuum truck.

Form C-141
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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3179
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The release was greater than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, by Tony Savoie to Mike Bratcher/Heather Patterson (NMOCD), and Jim Amos (BLM) on 7/29/2015.	

Initial Response

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

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: 432-221-7331

OCD Only

Received by: Date:

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3179
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

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

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

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

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

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

Form C-141

Page 4

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3179
Facility ID	
Application ID	

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3179
Facility ID	
Application ID	

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.

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

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

Signature: Date:

NM OIL CONSERVATION
ARTESIA DISTRICT
DEC 22 2015
RECEIVED

District I
1625 N. French Dr., Hobbs, NM 88240
District II
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State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
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Santa Fe, NM 87505

Form C-141
Revised August 8, 2011
Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1535754357 dl0737

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P.	Contact: Amy Ruth
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: James Ranch Unit #10 Battery	Facility Type: Exploration and Production

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-23075

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	1	23S	30E	1980	North	660	East	Eddy

Latitude 32.335560° Longitude -103.827584°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 81 bbls	Volume Recovered: 40 bbls
Source of Release: Tank Overflow	Date and Hour of Occurrence: 12/14/2015 time unknown	Date and Hour of Discovery: 12/14/2015 11:15 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher/Heather Patterson (NMOCD), Jim Amos (BLM)	
By Whom? Amy Ruth	Date and Hour: 12/14/2015 4:52 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
Coupling on water transfer pump failed and pump shut down. Produced water tank filled and overflowed into the battery earthen containment. The pump was repaired.

Describe Area Affected and Cleanup Action Taken.*
The leak affected 1550 ft² of well pad within the tank containment and standing fluids were recovered.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature:
Printed Name: Amy C. Ruth
Title: Remediation Specialist
E-mail Address: ACRuth@basspet.com
Date: 12/22/2015 Phone: 432-661-0571

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:
Approval Date: 12/23/15 Expiration Date: N/A
Conditions of Approval: Remediation per O.C.D. Rules & Guidelines Attached ☐
SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 1/24/16

2RP-3464

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
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1000 Rio Brazos Road, Aztec, NM 87410
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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	
District RP	2RP-3464
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: XTO Energy, Inc	OGRID: 5380
Contact Name: Kyle Littrell	Contact Telephone: (432)-221-7331
Contact email: Kyle_Littrell@xtoenergy.com	Incident #: 2RP-3464
Contact mailing address 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

Location of Release Source

Latitude 32.335560 Longitude -103.827584
(NAD 83 in decimal degrees to 5 decimal places)

Site Name James Ranch Unit #10 Battery	Site Type Exploration and Production
Date Release Discovered 12/14/15	API# *(if applicable)* 30-015-23075

Unit Letter	Section	Township	Range	County
H	1	23S	30E	Eddy

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 81	Volume Recovered (bbls) 40
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☒ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
Coupling on water transfer pump failed and pump shut down. Produced water tank filled and overflowed into the battery earthen containment. The pump was repaired. The leak affected 1550 ft² of well pad within the tank containment and standing fluids were recovered.
Fluids remained within the containment with exception of the southwest corner, though what little escaped remained on the well pad.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3464
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The release was greater than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, immediate notice was given by Amy Ruth to Mike Bratcher/ Heather Patterson (NMOCD), and Jim Amos (BLM) on 12/14/15.	

Initial Response

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

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: 432-221-7331

OCD Only

Received by: Date:

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3464
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

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

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3464
Facility ID	
Application ID	

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3464
Facility ID	
Application ID	

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.

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

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

Signature: Date:

District I
1625 N. French Dr., Hobbs, NM 88240
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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	NAB1904653072
District RP	2RP-5243
Facility ID	
Application ID	pAB1904652533

Release Notification

Responsible Party

Responsible Party: XTO Energy, Inc	OGRID: 5380
Contact Name: Kyle Littrell	Contact Telephone: (432)-221-7331
Contact email: Kyle_Littrell@xtoenergy.com	Incident #: 2RP-5243
Contact mailing address 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

Location of Release Source

Latitude 32.335540 Longitude -103.827513
(NAD 83 in decimal degrees to 5 decimal places)

Site Name James Ranch Unit #10 Battery	Site Type Bulk Storage and Separation Facility
Date Release Discovered 01/29/19	API# *(if applicable)* 30-015-23075

Unit Letter	Section	Township	Range	County
H	1	23S	30E	Eddy

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

Nature and Volume of Release

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

☒ Crude Oil	Volume Released (bbls) 9.8	Volume Recovered (bbls) 7
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
Just prior to unloading the tanks by oil haulers, an overload of fluids enter the facility and overran the oil tank into the earthen berm. This was due to increased production efficiency by the lease operator and the subsequent unloading of the well into the facility. A vaccum truck recovered free standing fluids and the battery is being evaluated for upgrades. An environmental contractor has been retained to assist with remediation efforts.

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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5243
Facility ID	
Application ID	

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

Initial Response

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

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: 432-221-7331

OCD Only

Received by: Date:

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5243
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

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

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

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

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

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

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State of New Mexico
Oil Conservation Division

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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: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

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State of New Mexico
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Application ID	

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.

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

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

Signature: Date:

Bratcher, Mike, EMNRD

From: Ashley Ager <aager@ltenv.com>
Sent: Wednesday, May 1, 2019 12:44 PM
To: Bratcher, Mike, EMNRD; caweaver@blm.gov
Cc: Hamlet, Robert, EMNRD; adrian_baker@xtoenergy.com; Littrell, Kyle; Venegas, Victoria, EMNRD; Billings, Bradford, EMNRD; jamos@blm.gov; McKinney, Deborah
Subject: RE: [EXT] Re: [EXTERNAL] RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Mike and Crystal,

On behalf of XTO, we will proceed with the direction provided by NMOCD and BLM and complete a more detailed delineation of impacted soil, as well as investigate groundwater depth and flow direction. We will schedule the drilling event to occur in the next two weeks, then will submit a revised remediation work plan by June 28, 2019. Thank you for your input and if you have additional questions, please let me know.

Ashley

Ashley Ager
Vice President of Regional Offices

(970) 385-1096 office
(970) 946-1093 mobile

From: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Sent: Monday, April 29, 2019 8:23 AM
To: Ashley Ager <aager@ltenv.com>; caweaver@blm.gov
Cc: Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; adrian_baker@xtoenergy.com; Littrell, Kyle <Kyle_Littrell@xtoenergy.com>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; jamos@blm.gov; McKinney, Deborah <dmckinne@blm.gov>
Subject: RE: [EXT] Re: [EXTERNAL] RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Good Morning,

A meeting to discuss this site may be appropriate at some point, however, it may be problematic to get it scheduled. I will attempt to provide an outline of what minimally, OCD is going to require at this site. If BLM is in agreement, this may allow XTO to have some idea of a path forward, and continue the work and/or scheduling as required.

- Actual depth to groundwater will need to be established, by installation of a monitor well. I would suggest completing it in a manner that will allow for potential long term monitoring. There may some data available that establishes gradient. If not, this will need to be established by the installation of other water well borings as necessary to establish gradient. The completed water well needs to be installed down gradient, and in very close proximity to the impacted battery site.
- A more complete delineation of impact needs to be performed. OCD would request a minimum of two borings be installed in the battery area, in what would be the more highly impacted areas. Samples are to be obtained at five feet intervals throughout the delineation. The purpose is to have a more precise idea of the levels and volume of hydrocarbon impact that exist. Sampling for chloride will be required as well.
- Based on data already obtained, a four feet excavation and liner installation will not be an acceptable remedial proposal for this site. A deeper excavation will likely be required, along with a proposed method for mitigating

the deeper impact that may not be practicable to excavate. Of particular concern, is the lighter end hydrocarbons that have been determined to exist at significant depths.

- I would expect this to potentially be a long term project, so if XTO needs to return the well to production, the battery will need to be rebuilt in a different area of the well pad. Allow for potential deep excavations and monitoring at the impacted site when deciding on position of a new battery, if that is what XTO chooses to do. BLM will need to be consulted if additional surface disturbance is required.

If you have any questions or concerns, please let me know, but hopefully this will allow work to continue on this project. Please coordinate with OCD and BLM moving forward. If XTO still believes a meeting is required prior to moving forward, please advise and we will attempt to accommodate as soon as possible.

Thank you,

Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, NM 88210
575-748-1283 Ext 108

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

From: Weaver, Crystal <caweaver@blm.gov>
Sent: Sunday, April 28, 2019 9:47 AM
To: Ashley Ager (aager@ltenv.com) <aager@ltenv.com>
Cc: Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; adrian_baker@xtoenergy.com; Littrell, Kyle <Kyle_Littrell@xtoenergy.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; jamos@blm.gov; McKinney, Deborah <dmckinne@blm.gov>
Subject: [EXT] Re: [EXTERNAL] RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Hello all,

A meeting would be fine. This week is pretty busy at the BLM internally, with a lot of required safety training going on this week. Perhaps the week after would be best for us.
However, I will say BLM understands that depth was pursued at the 80' reach but it wasn't in the same areas where the impact was showing. For example the 42' impact was next to the tank farthest on the end yet the 80' was pursued in an area next to the tank in the middle and again 80' was pursued at a point along the perimeter. Why not where the 42' area had revealed high numbers? Also same with the question about SS1. BLM sees that 4ft. depth was pursued for excavation for that whole area demarked by the black dashing but no bottom hole samples are shown aside from around the perimeter of that area. That is the questions we have about this. If the tank on the east end leaked ever for an extended period of time we would never be certain regarding potential ground water impact for that area cause the contamination trail was not concluded on in that area. If XTO has an explanation for why further delineation didn't happen in that area we would be welcome to hearing it.

I hope that helped paint the picture of what we are seeing. I understand that being the folks that did the work you know what you know but us being the folks that review it, we can only get what we can from the info there.

If XTO and LTE still require a meeting to further discuss this as stated BLM is able and willing hopefully next week May 6-10.

Thank you,

On Fri, Apr 26, 2019, 3:00 PM Ashley Ager <aager@ltenv.com> wrote:

> All,
>
> I've pulled both Crystal's and Robert's responses into one email so that we could address each comment in one effort. Please see the text in blue below. Although I attempted to respond to each comment, would it be prudent to set up a meeting to work through the issues given the number of comments and concern expressed by the regulators? We'd like to better understand the expectations. Discussing potential options for moving forward is probably easier than emailing back and forth. Would NMOCD and BLM be available for a meeting in the next two weeks?
>
> Thank You,
>
> Ashley
>
> **Ashley Ager**
>
> **Vice President of Regional Offices**
>
> (970) 385-1096 office
>
> (970) 946-1093 mobile
>
> **From:** Weaver, Crystal <caweaver@blm.gov>
> **Sent:** Friday, April 26, 2019 1:45 PM
> **To:** adrian_baker@xtoenergy.com
> **Cc:** Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; jamos@blm.gov; Ashley Ager <aager@ltenv.com>; Littrell, Kyle <Kyle_Littrell@xtoenergy.com>
> **Subject:** Re: [EXTERNAL] Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Hello all,

BLM concurs with OCD that prior to any further authorizations that additional delineation and more concise intervals of data would be required.

Why was delineation stopped at PH02A at a depth of 42' when lab results showed 92.3mg/kg for total BTEX and 6140mg/kg for total TPH? The work plan documents LTE's site characterization assessment and states that due to site specific factors a full delineation of the most stringent level is required for this project (documented as referencing OCD's Table 1 from their spill rule under the category of <50 feet ground water).

PH02 is not the vertical delineation point. PH02 was advanced with a track hoe to the maximum depth possible with the available equipment on site. When total depth of the impacted soil could not be identified, LTE had to abandon the pothole and utilize a drill rig to go deeper. BH01 was drilled with a hollow stem auger rig and is the vertical delineation point in the center of the impacted area. It was drilled to 80 feet bgs, sampled and field screened every 5 feet, and 2 samples were submitted for laboratory analysis – the soil with the highest field screening result at 35 feet bgs and the bottom of the borehole at 80 feet bgs. The sample collected at 80 feet bgs was clean and represents vertical delineation at the Site.

Also I cross checked the depth to ground water data myself. For this area it was found that while the work plan did mention depth to groundwater data for well C-2492-POD2 being depth to water (dtw) of 125 ft bgs, however, the work plan failed to mention well C-2492 which is closer to the spill site (but not very far from C-2492-POD2) had recorded depth to water at 85 ft bgs and the difference in elevation of surface from the location of the spill and the location of that well is something approx. to 10ft. according to what Google Earth states (accuracy on elevation is debatable). Installation of triangulated placement of monitoring wells may need to be considered here if for no other reason then to at least rule out the possibility that groundwater impact occurred.

BH01 was drilled to 80 feet bgs on site and no saturated sediments representative of the presence of groundwater was encountered. The borehole was left open for more than 24 hours and no groundwater filled in.

BLM interpreted that the review of this work plan was urgent due to the tank battery currently being removed. However, BLM also interprets that since the tank battery has been removed that XTO should take advantage of the opportunity to further investigate the area both vertically and horizontally where the tanks once were since it can be derived from the data that residual fluid loss over time may have likely been a concern here regarding how much contaminants are present at the depths shown. Replacement of the battery in this same exact spot on the pad will most likely not be something that BLM would authorize anytime soon. Therefore, relocation of this battery appears to be appropriate to discuss if there is urgency to put things back into production currently while the battery's original location receives further attention.

LTE and XTO believe vertical and lateral delineation has been achieved with boreholes BH01 – BH06.

In addition regarding further investigation concerns, BLM would like to request that more representative investigation efforts regarding delineation and sampling be made around the area demarked by the black X (on the provided site map) that indicates the approx. origination of the other two points of release for the older releases. SS1 showed high TPH 8300mg/kg and total BTEX 139mg/kg at the 0.5' increment and then no data around that area was further provided.

All soil represented by soil sample SS1 has been excavated. Soil within the black dashed line has been removed to 4 feet bgs. Subsurface samples near the black X include PH01 at 6’ bgs approximately 20 feet to the southwest, BH01, BH05, and BH06 approximately 30 feet to the southeast, northeast, and west respectively. Samples were collected every 5 feet in each of those boreholes for field screening and two samples from each were submitted for laboratory analysis. In addition, excavation sidewall samples nearest the black X, SW02 and SW04, were collected after removing the top four feet of soil and laboratory analytical results of those samples were clean.

Finally, although delineation is still not complete, currently as things stand, the remediation solution prescribed for this release does not seem adequate in regards to being the most effective for mitigating this site. Additional or alternate proposed efforts will need to be provided.

Soil impact extends from approximately 4 feet to 75 feet bgs. The depth of impacted soil makes excavation/removal impractical due to the benching and shoring that would be required. Disturbance of unaffected areas would be significant and would result in additional environmental impact. The affected soil is characterized by both elevated hydrocarbons and chloride. While the hydrocarbons can be addressed in situ, the chloride cannot. Based on the depth of the impact, presence of elevated chloride, and documentation of clean soil above groundwater, LTE proposed capping the remaining impact and leaving it in place. If that plan is not acceptable, would BLM consider *in situ* measures that only address hydrocarbon concentrations and not chloride, or does BLM expect excavation of the soil to the depths identified?

If further questions or concerns are needing to be addressed with the BLM please contact myself or Jim Amos.

Thank you,

Crystal Weaver

Environmental Protection Specialist

BLM - Carlsbad, NM

Desk: 575-234-5943

Cell: 575-200-0426

caweaver@blm.gov

BLM Carlsbad Field Office

620 E. Greene Street

Carlsbad NM 88220

"3 percent of the water on this planet is considered freshwater. Of that 3 percent only 1 percent is considered accessible, meaning the majority of the remaining 2 percent is trapped in glaciers or snowfields." - National Geographic

The **BLM acceptance/approval does not** relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that may pose a threat to groundwater, surface water, human health or the environment or if the location fails to reclaim properly. In such an event that the location does not re-vegetate, or future issues with contaminants are encountered, the operator will be asked to address the issues until the contaminant issues are fully mitigated and the location is successfully reclaimed. In addition, BLM approval does not relieve the operator of responsibility for compliance with any other federal, state or local laws/regulations.

From: Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>
Sent: Wednesday, April 24, 2019 9:22 AM
To: Adrian Baker <abaker@ltenv.com>
Cc: Ashley Ager <aager@ltenv.com>; Littrell, Kyle <Kyle_Littrell@xtoenergy.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; caweaver@blm.gov; jamos@blm.gov; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; 'jamos@blm.gov' <jamos@blm.gov>; McKinney, Deborah <dmckinne@blm.gov>
Subject: RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Adrian,

I'm glad that you removed the tank battery. The depth of contamination on this site is significant. A couple of things need to be addressed. First, the OCD needs soil samples taken on the boreholes at 5 ft increments to a depth the organics are under the limit. We need a clearer picture of the whole interval, not just at 20 and 42 ft. Essentially, the site hasn't been fully delineated if the bottom sample is still "hot". Second, the depth of the contamination on this site might require close inspection of the tanks to verify their durability.

We agree that data from the potholes did not delineate the impacted soil, so we utilized a drill rig to delineate. BH01, drilled at the center of the release footprint, documented vertical delineation with a clean sample obtained from 80 feet bgs. A borehole log for BH01 is included in the report and field screening with the laboratory analytical data indicate the soil is impacted from just below 4' bgs to approximately 75' bgs. All boreholes (BH01 through BH06) were sampled every 5 feet, described, and field screened. We conducted laboratory analysis on the samples collected from the intervals with the highest field screening result and from the bottom of each borehole. Lateral delineation was achieved with boreholes BH02 through BH06. The initial potholing data is only presented to document all work conducted on site and to supplement borehole data within the impacted area.

Regarding the comment about tank inspection, are you asking that we provide construction information about the new tanks that will be set above the impacted area?

XTO intends to replace the problematic water tank and all other tanks will be integrity tested prior to reinstallation.

Please let me know if you have any questions.

Thanks,

Robert J Hamlet

State of New Mexico

Energy, Minerals, and Natural Resources

Oil Conservation Division

811 S. First St., Artesia NM 88210

(575) 840-5963

Robert.Hamlet@state.nm.us

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to groundwater, surface water, human health or the environment. In

addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

From: Adrian Baker <abaker@ltenv.com>
Sent: Friday, April 12, 2019 3:25 PM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; caweaver@blm.gov; jamos@blm.gov
Cc: Ashley Ager <aager@ltenv.com>; Littrell, Kyle <Kyle_Littrell@xtoenergy.com>
Subject: [EXT] Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243
Importance: High

All,

Attached is a Work Plan for a recent release and two historical releases at JRU 10/2RP-3179, 2RP-3464, and 2RP-5243. XTO removed the tank battery and needs to replace the tanks as soon as possible for production purposes. Can you please review as quickly as possible?

Thank you

Adrian Baker

Project Geologist/Office Manager

432.894.5641 *cell*

432.704.5178 *direct*

3300 N "A" Street, Building 1, Unit 103, Midland, TX 79705

www.ltenv.com

Venegas, Victoria, EMNRD

From: Venegas, Victoria, EMNRD
Sent: Thursday, July 25, 2019 10:32 AM
To: 'Ashley Ager'; Bratcher, Mike, EMNRD; Hamlet, Robert, EMNRD; jamos@blm.gov
Cc: Kyle_Littrell@xtoenergy.com; Tacoma Morrissey; Dan Moir; dmckinne@blm.gov
Subject: RE: Revised Remediation Work Plan - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243
Attachments: 14.OCD mb response 4.29.19.pdf; C141 Remediation - James Ranch Unit #10 Battery (2RP-5243) 7.25.19.pdf; C141 Remediation - James Ranch Unit #10 Battery (2RP-3179) 7.25.19.pdf; C141 Remediation- James Ranch Unit #10 Battery (2RP-3464) 7.25.19.pdf

RE: Revised Remediation Work Plan - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243

Ms. Ager,
OCD has received the Revised Remediation Work Plan for - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243, thank you. This work plan proposal is DENIED for the following reasons (see attachment 14.OCD mb response 4.29.19 and email below👇):

From: Bratcher, Mike, EMNRD
Sent: Monday, April 29, 2019 8:23 AM
To: Ashley Ager (aager@ltenv.com); caweaver@blm.gov
Cc: Hamlet, Robert, EMNRD; adrian_baker@xtoenergy.com; Littrell, Kyle; Venegas, Victoria, EMNRD; Billings, Bradford, EMNRD; jamos@blm.gov; McKinney, Deborah
Subject: RE: [EXT] Re: [EXTERNAL] RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243
Good Morning,
A meeting to discuss this site may be appropriate at some point, however, it may be problematic to get it scheduled. I will attempt to provide an outline of what minimally, OCD is going to require at this site. If BLM is in agreement, this may allow XTO to have some idea of a path forward, and continue the work and/or scheduling as required.

- Actual depth to groundwater will need to be established, by installation of a monitor well. I would suggest completing it in a manner that will allow for potential long term monitoring. There may some data available that establishes gradient. If not, this will need to be established by the installation of other water well borings as necessary to establish gradient. The completed water well needs to be installed down gradient, and in very close proximity to the impacted battery site.
- A more complete delineation of impact needs to be performed. OCD would request a minimum of two borings be installed in the battery area, in what would be the more highly impacted areas. Samples are to be obtained at five feet intervals throughout the delineation. The purpose is to have a more precise idea of the levels and volume of hydrocarbon impact that exist. Sampling for chloride will be required as well.
- Based on data already obtained, a four feet excavation and liner installation will not be an acceptable remedial proposal for this site. A deeper excavation will likely be required, along with a proposed method for mitigating the deeper impact that may not be practicable to excavate. Of particular concern, is the lighter end hydrocarbons that have been determined to exist at significant depths.
- I would expect this to potentially be a long term project, so if XTO needs to return the well to production, the battery will need to be rebuilt in a different area of the well pad. Allow for potential deep excavations and monitoring at the impacted site when deciding on position of a new battery, if that is what XTO chooses to do. BLM will need to be consulted if additional surface disturbance is required.

If you have any questions or concerns, please let me know, but hopefully this will allow work to continue on this project. Please coordinate with OCD and BLM moving forward. If XTO still believes a meeting is required prior to moving forward, please advise and we will attempt to accommodate as soon as possible.

Thank you,
Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, NM 88210
575-748-1283 Ext 108

If you have any questions, please call or email District II supervisor.
Thank you,

Victoria Venegas
EMNRD
OCD-District II
811 S First St. Artesia
NM 88210
Victoria.Venegas@state.nm.us

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to groundwater, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

From: Ashley Ager <aager@ltenv.com>
Sent: Friday, June 28, 2019 10:26 PM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; jamos@blm.gov
Cc: Kyle_Littrell@xtoenergy.com; Tacoma Morrissey <tmorrissey@ltenv.com>; Dan Moir <dmoir@ltenv.com>
Subject: [EXT] RE: Revised Remediation Work Plan - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243

All,

The C141s for these sites are attached here.

Ashley Ager
Senior Geologist

(970) 385-1096 office
(970) 946-1093 mobile

From: Dan Moir <dmoir@ltenv.com>
Sent: Friday, June 28, 2019 10:15 PM
To: mike.bratcher@state.nm.us; Robert.Hamlet@state.nm.us; Victoria.Venegas@state.nm.us; jamos@blm.gov; Bradford.Billings@state.nm.us
Cc: Ashley Ager <aager@ltenv.com>; Kyle_Littrell@xtoenergy.com; Tacoma Morrissey <tmorrissey@ltenv.com>
Subject: Revised Remediation Work Plan - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243

All,

On behalf of XTO, the Revised Remediation Work Plan for two historical releases (2RP-3179 and 2RP-3464) and one recent release (2RP-5243) at the James Ranch Unit #10 Battery is attached for your review.

Please let me know if you have any questions.

Respectfully,

Daniel R. Moir, P.G.
Senior Geologist / Permian Basin Office Manager

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
3300 North “A” Street
Building 1, Unit 103
Midland, Texas 79705
(432) 236-3849 cell
(432) 704-5178 office
www.ltenv.com
dmoir@ltenv.com
Join us on:

Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3464
Facility ID	
Application ID	

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.

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: Date: 06/28/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Victoria Venegas Date: 06/28/2019

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

Signature: Date: 07/24/2019

- Based on data already obtained, ***a four feet excavation and liner installation will not be an acceptable remedial proposal for this site***. A deeper excavation will likely be required, along with a proposed method for mitigating the deeper impact that may not be practicable to excavate. Of particular concern, is the lighter end hydrocarbons that have been determined to exist at significant depths.

Venegas, Victoria, EMNRD

From: Tacoma Morrissey <tmorrissey@ltenv.com>
Sent: Monday, September 16, 2019 3:30 PM
To: Venegas, Victoria, EMNRD; Ashley Ager; Bratcher, Mike, EMNRD; Hamlet, Robert, EMNRD; jamos@blm.gov
Cc: Kyle_Littrell@xtoenergy.com; Dan Moir; dmckinne@blm.gov
Subject: [EXT] RE: Revised Remediation Work Plan - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243

Good afternoon,

This email serves as an update for the James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243. A remediation work plan was submitted June 28, 2019 and denied July 25, 2019 with explanation from the NMOCD. XTO has decided to pursue in situ active remediation. A soil vapor extraction (SVE) pilot test has been developed and will begin this week, which will include the installation of four SVE pilot test wells and vacuum testing to assess the radius of influence within the subsurface and ability to draw out petroleum hydrocarbon vapors through the pilot test wells. Once the pilot test has been completed and pending results of the pilot, XTO will draft and submit a revised remediation work plan for a full-scale SVE remediation system or an alternative remedial approach to the NMOCD and BLM for review. XTO expects to finalize and submit the remediation work plan October 30, 2019.

Thank you,

LT Environmental, Inc.
Advancing Opportunity
25 YEARS

Tacoma Morrissey
Staff Geologist
432.556.3617 *cell*
3300 North "A" St. Bldg 1 #103 Midland, TX 79705
www.ltenv.com

From: Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>
Sent: Thursday, July 25, 2019 11:32 AM
To: Ashley Ager <aager@ltenv.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; jamos@blm.gov
Cc: Kyle_Littrell@xtoenergy.com; Tacoma Morrissey <tmorrissey@ltenv.com>; Dan Moir <dmoir@ltenv.com>; dmckinne@blm.gov
Subject: RE: Revised Remediation Work Plan - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243

RE: Revised Remediation Work Plan - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243

Ms. Ager,
OCD has received the Revised Remediation Work Plan for - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243, thank you. This work plan proposal is DENIED for the following reasons (see attachment 14.OCD mb response 4.29.19 and email below👇):

From: Bratcher, Mike, EMNRD
Sent: Monday, April 29, 2019 8:23 AM
To: Ashley Ager (aager@ltenv.com); caweaver@blm.gov
Cc: Hamlet, Robert, EMNRD; adrian_baker@xtoenergy.com; Littrell, Kyle; Venegas, Victoria, EMNRD; Billings, Bradford, EMNRD; jamos@blm.gov; McKinney, Deborah
Subject: RE: [EXT] Re: [EXTERNAL] RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Good Morning,
A meeting to discuss this site may be appropriate at some point, however, it may be problematic to get it scheduled. I will attempt to provide an outline of what minimally, OCD is going to require at this site. If BLM is in agreement, this may allow XTO to have some idea of a path forward, and continue the work and/or scheduling as required.

- Actual depth to groundwater will need to be established, by installation of a monitor well. I would suggest completing it in a manner that will allow for potential long term monitoring. There may some data available that establishes gradient. If not, this will need to be established by the installation of other water well borings as necessary to establish gradient. The completed water well needs to be installed down gradient, and in very close proximity to the impacted battery site.
- A more complete delineation of impact needs to be performed. OCD would request a minimum of two borings be installed in the battery area, in what would be the more highly impacted areas. Samples are to be obtained at five feet intervals throughout the delineation. The purpose is to have a more precise idea of the levels and volume of hydrocarbon impact that exist. Sampling for chloride will be required as well.
- Based on data already obtained, a four feet excavation and liner installation will not be an acceptable remedial proposal for this site. A deeper excavation will likely be required, along with a proposed method for mitigating the deeper impact that may not be practicable to excavate. Of particular concern, is the lighter end hydrocarbons that have been determined to exist at significant depths.
- I would expect this to potentially be a long term project, so if XTO needs to return the well to production, the battery will need to be rebuilt in a different area of the well pad. Allow for potential deep excavations and monitoring at the impacted site when deciding on position of a new battery, if that is what XTO chooses to do. BLM will need to be consulted if additional surface disturbance is required.

If you have any questions or concerns, please let me know, but hopefully this will allow work to continue on this project. Please coordinate with OCD and BLM moving forward. If XTO still believes a meeting is required prior to moving forward, please advise and we will attempt to accommodate as soon as possible.
Thank you,
Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, NM 88210
575-748-1283 Ext 108

If you have any questions, please call or email District II supervisor.
Thank you,

Victoria Venegas
EMNRD
OCD-District II
811 S First St. Artesia
NM 88210
Victoria.Venegas@state.nm.us

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Cc: Kyle_Littrell@xtoenergy.com; Tacoma Morrissey <tmorrissey@ltenv.com>; Dan Moir <dmoir@ltenv.com>
Subject: [EXT] RE: Revised Remediation Work Plan - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243

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The C141s for these sites are attached here.

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Subject: Revised Remediation Work Plan - James Ranch Unit #10 Battery / 2RP-3179, 2RP-3464, and 2RP-5243

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Please let me know if you have any questions.

Respectfully,

Daniel R. Moir, P.G.
Senior Geologist / Permian Basin Office Manager

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(432) 704-5178 office
www.ltenv.com
dmoir@ltenv.com
Join us on:

DIRECTION
95 deg(T)

32.33557°N
103.82769°W

ACCURACY 5 m
DATUM WGS84

COMMENT 1
–

COMMENT 2
–

2015-12-14
15:30:52-07:00

XTO

JRU 10 * 015-23075 * 1-23s-30e

LT Environmental, Inc.
3300 North "A" Street
Building 1, Unit 103
Midland, Texas 79705
432.704.5178

April 12, 2019

Mr. Mike Bratcher
New Mexico Oil Conservation Division
811 South First Street
Artesia, New Mexico 88210

RE: Proposed Remediation Work Plan
James Ranch Unit #10 Battery
Remediation Permit Numbers 2RP-3179, 2RP-3464, and 2RP-5243
Eddy County, New Mexico

Dear Mr. Bratcher:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following report detailing remediation activities completed to date and a proposed remediation work plan to address residual impacted soil at the James Ranch Unit #10 Battery (Site). The Site is located in Unit H, Section 1, Township 23 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the remediation activities and proposed work plan is to address impacts to soil after three separate events caused the release of crude oil/condensate and produced water within the earthen tank battery containment.

On July 29, 2015, a coupling failed on the water transfer pump causing a tank to overflow. Approximately 50 barrels (bbls) of produced water and 5 bbls of condensate were released within the earthen tank battery containment. The free-standing fluids were recovered with a vacuum truck; approximately 13 bbls of produced water and 2 bbls of condensate were recovered. The release affected approximately 1,000 square feet within the tank battery containment. The former operator reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on July 30, 2015, and was assigned Remediation Permit (RP) Number 2RP-3179 (Attachment 1).

On December 14, 2015, a coupling failed on the same water transfer pump, causing the pump to shut down and the produced water tank to overflow. Approximately 81 bbls of produced water were released within the tank battery containment. A small volume of the released fluid escaped the containment at the southwest corner but remained on the well pad. The free-standing fluids were recovered with a vacuum truck; approximately 40 bbls of produced water were recovered. The release affected approximately 1,550 square feet within the tank battery containment. The former operator reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on December 22, 2015, and was assigned Remediation Permit (RP) Number 2RP-3464 (Attachment 1).

On January 29, 2019, an overload of fluids entered the facility due to an increase in production efficiency by the lease operator. The overload in fluids caused the oil tank to overflow within the earthen tank battery containment. Approximately 9.8 bbls of crude oil were released. The free-standing fluids were recovered with a vacuum truck; approximately 7 bbls of crude oil were recovered. XTO reported the release to the NMOCD on a Release Notification and Corrective Action Form C-141 on February 8, 2019, and was assigned RP Number 2RP-5243 (Attachment 1).

Two of the releases occurred while the facility was operated by the previous operator; however, XTO is the current operator and is committed to addressing any releases that remain unresolved. Since the three releases occurred in the tank battery containment area, excavation and sampling activities were completed to address the three releases simultaneously. Remediation permit numbers 2RP-3179 and 2RP-3464 are included in the Compliance Agreement for Remediation for Historical Releases (Compliance Agreement) between XTO and the NMOCD effective November 13, 2018. The purpose of the Compliance Agreement is to ensure that reportable releases that occurred prior to August 14, 2018, where XTO is responsible for the corrective action, comply with Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC) as amended on August 14, 2018. The release is categorized as a Tier III site in the Compliance Agreement, meaning remediation of the release began prior to August 14, 2018, the effective date of 19.15.29 NMAC, however remediation was ongoing.

This proposed remediation work plan summarizes remediation activities and is designed to address remaining impacts to soil by additional excavation above 4 feet bgs and installation of a 20-mil impermeable liner in the subsurface.

BACKGROUND

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data. The nearest permitted water well with depth to water data is United States Geological Survey (USGS) well USGS 321936103503401 23S.30E.02.44414, located approximately 1.1 miles southwest of the Site. The water well has a depth to groundwater of 260.75 feet and a total depth of 320 feet. The water well is approximately 53 feet lower in elevation than the Site. A second permitted water well with depth to water data is well C 02492 POD 2, which is located approximately 1.17 miles southeast of the Site. The water well has a depth to groundwater of 125 feet and a total depth of 400 feet. The water well is approximately 3 feet lower in elevation than the Site. The nearest continuously flowing water or significant watercourse is an unnamed dry wash located 4,100 feet south 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 located in a medium karst area. Based on these criteria,

the following NMOCD Table 1 closure criteria apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX); 100 mg/kg total petroleum hydrocarbons (TPH); and 600 mg/kg chloride.

PRELIMINARY SOIL SAMPLING ACTIVITIES

On January 4, 2018, LTE personnel inspected the Site to evaluate the release extents associated with the two historical 2015 releases. Hydrocarbon staining was observed within the tank battery containment berm. The release extent was mapped using a handheld Global Positing System (GPS) unit and is depicted on Figure 2. LTE personnel collected nine preliminary soil samples (SS1 through SS9) in and around the release area from a depth 0.5 feet bgs to assess the lateral extent of soil impacts.

The soil samples were screened for volatile aromatic hydrocarbons and chloride using a photo-ionization detector (PID) and Hach® chloride QuanTab® test strips. The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler, method of analysis, and immediately placed on ice. The soil samples were shipped at 4 degrees Celsius (°C) under strict chain-of-custody procedures to ESC Lab Sciences in Mount Juliet, Tennessee for analysis of BTEX by United States Environmental Protection Agency (USEPA) Method 8021B, TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) by USEPA Method 8015M/D, and chloride by USEPA Method 300.0. The preliminary soil sample locations and depths are presented on Figure 2.

Laboratory analytical results for preliminary soil samples SS1 through SS4, SS8, and SS9 indicated that BTEX, TPH, and/or chloride concentrations exceeded the NMOCD Table 1 closure criteria. Laboratory analytical results for preliminary soil samples SS5, SS6, and SS7 indicated that BTEX, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria. Based on the laboratory analytical results and the subsequent January 2019 crude oil release in the same location, excavation of impacted soil was required. The laboratory analytical results are presented on Figure 2 and summarized in Table 1, and the laboratory analytical report is included in Attachment 2.

EXCAVATION ACTIVITIES

During February and March 2019, LTE personnel returned to the Site to oversee excavation of impacted soil as indicated by laboratory analytical results for the preliminary soil samples and the documented release area for the recent January 2019 release. To direct excavation activities, LTE screened soil using a PID and Hach® chloride QuanTab® test strips. Impacted soil was excavated to a depth of 4 feet bgs. Following removal of impacted soil above 4 feet bgs, LTE collected 5-point composite soil samples every 200 square feet from the sidewalls of the excavation. The 5-point composite samples were collected by depositing 5 aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite

soil samples SW01 through SW05 were collected from the sidewalls of the excavation from depths of 1 foot to 4 feet bgs. No soil samples were submitted for laboratory analysis from the floor of the excavation based on elevated field screening results in the excavation floor at 4 feet bgs. The sidewall soil samples were collected, handled, and analyzed as described above and submitted to Xenco Laboratories (Xenco) in Midland, Texas. The sidewall soil sample locations are presented on Figure 3.

Laboratory analytical results for sidewall samples SW01 through SW03 indicated that BTEX, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria. Laboratory analytical results for sidewall samples SW04 and SW05 indicated that TPH or chloride concentrations exceeded the NMOCD Table 1 closure criteria. The laboratory analytical results are presented on Figure 3 and summarized in Table 1 and the laboratory analytical report is included in Attachment 2. Based on laboratory analytical results for the excavation sidewall samples and field screening activities for the excavation floor, potholing was scheduled to delineate the lateral and vertical extent of impacted soil remaining in place in order to evaluate remediation options.

The excavation measured approximately 5,000 square feet in area. The horizontal extent of the excavation is presented on Figure 3. A total of approximately 740 cubic yards of impacted soil were removed from the excavation. The impacted soil will be transported and properly disposed of at the Lea Land landfill facility, in Hobbs, New Mexico.

DELINEATION ACTIVITIES

During March and April 2019, LTE personnel were at the Site to oversee potholing and boreholing activities to delineate the lateral and vertical extent of impacted soil remaining in place. Potholes PH01 and PH02 were advanced within the release area via track hoe to depths of 25 feet and 42 feet bgs, respectively. Two delineation soil samples were collected from each pothole PH01 and PH02 from depths ranging from 6 feet to 42 feet bgs.

Boreholes BH01 through BH06 were advanced via a hollow-stem auger drilling rig within and around the excavated area to depths ranging from 10 feet to 80 feet bgs. An LTE geologist logged and described soils every five feet, which were collected with a hammer sampler. Soil was field screened in the potholes and boreholes using a PID and Hach® chloride QuanTab® test strips. Two delineation soil samples were collected from each borehole BH01 through BH06 from depths ranging from 5 feet to 80 feet bgs. Samples were chosen from the borehole intervals with the highest field screening results and from total depth of the boreholes. The soil samples were collected, handled, and analyzed as described above and submitted to Xenco in Midland, Texas. The delineation soil sample locations and depths are presented on Figure 4 and soil sample logs are included as Attachment 3.

Laboratory analytical results for the soil samples collected from potholes PH01 and PH02 indicated that soil samples PH01, PH02, and PH02A collected from depths ranging from 6 feet to 42 feet bgs exceeded the NMOCD Table 1 closure criteria for chloride and/or TPH and BTEX. Laboratory analytical results for soil sample PH01A collected at 25 feet bgs indicated that BTEX, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria.

Laboratory analytical results for soil samples collected from boreholes BH01 through BH06 indicated that soil samples BH01F, BH03, and BH03A collected from depths ranging from 5 feet to 35 feet bgs exceeded the NMOCD Table 1 closure criteria for TPH, BTEX, and/or chloride.

Laboratory analytical results for soil samples collected from boreholes BH01 through BH06 indicated that soil samples BH01O, BH02B, BH02O, BH04D, BH04I, BH05C, BH05E, BH06, and BH06E collected from depths ranging from 5 feet to 80 feet bgs were compliant with the NMOCD Table 1 closure criteria for BTEX, TPH, and chloride. The laboratory analytical results are presented on Figure 4 and summarized in Table 1, and the laboratory analytical report is included in Attachment 2.

ANALYTICAL RESULTS

Laboratory analytical results indicated that BTEX, TPH, and/or chloride concentrations initially exceeded the NMOCD Table 1 closure criteria in preliminary soil samples SS1 through SS4, SS8, and SS9. Impacted soil was excavated to a depth of 4 feet bgs. Laboratory analytical results for excavation sidewall samples SW01 through SW03 indicated that BTEX, TPH, and chloride concentrations were compliant with the NMOCD Table 1 closure criteria. Based on the laboratory analytical results, no further lateral excavation was required in the northern portion of the excavation. Laboratory analytical results for excavation sidewall samples SW04 and SW05 indicated that TPH or chloride concentrations exceeded the NMOCD Table 1 closure criteria. Based on the laboratory analytical results, impacted soil remained in place above 4 feet bgs beyond the current excavation extent in the southern portion of the excavation.

Laboratory analytical results for the delineation soil samples collected from potholes PH01 and PH02 and boreholes BH01 through BH06 indicated that samples PH01, PH02, PH02A, BH01F, BH03, and BH03A exceeded the NMOCD Table 1 closure criteria for BTEX, TPH, and/or chloride. Laboratory analytical results for the delineation soil samples collected from potholes PH01 and PH02 and boreholes BH01 through BH06 indicated that soil samples PH01A, BH01O, BH02B, BH02O, BH04D, BH04I, BH05C, BH05E, BH06, and BH06E were compliant with the NMOCD Table 1 closure criteria. Based on the laboratory analytical results, impacted soil above 4 feet bgs was delineated laterally and scheduled for additional excavation and impacted soil below 4 feet was delineated laterally and vertically and remained in place.

The soil sample locations and depths are presented on Figure 2 through Figure 4. The laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Attachment 2.

PROPOSED WORK PLAN

Approximately 740 cubic yards of impacted soil were removed from the release area to a depth of 4 feet bgs. Based on field screening activities and laboratory analytical results for the excavation and delineation soil samples, additional excavation to a depth of 4 feet bgs will proceed to the south and east of the current excavation extents. The excavation will be extended to the south to the location of borehole BH02 and to the east to the location of borehole BH04. Confirmation soil samples will be collected from the sidewalls of the additional excavated areas to confirm that impacted soil above 4 feet bgs has been removed. The laboratory analytical results for the confirmation samples will be provided to the NMOCD in a supplemental remediation report. The proposed additional excavation extent is depicted on Figure 4.

Once the additional excavation has been completed, XTO proposes to cap the residual impacted soil below 4 feet bgs with an impermeable liner. An estimated 30,500 cubic yards of impacted soil remain in place, assuming a maximum 75-foot depth based on field screening activities and soil samples collected from potholes PH01 and PH02 and boreholes BH01 through BH06.

Delineation and excavation soil sampling provided full vertical and lateral delineation of the impacted soil, which extended below 4 feet bgs. Due to the nature of the release and extent of contamination in the subsurface, XTO requests to install a 20-mil impermeable liner over the residual impacted soil to mitigate further impacts into the subsurface. XTO will complete the additional excavation and liner installation within 5 days of the date of approval of this work plan by NMOCD. An updated NMOCD Form C-141 is included in Attachment 1. A photographic log of the Site is included as Attachment 4.

If you have any questions or comments, please do not hesitate to contact Ms. Adrian Baker at (432) 887-1255.

Sincerely,

LT ENVIRONMENTAL, INC.

Adrian Baker
Project Geologist

Ashley L. Ager, P.G.
Senior Geologist

cc: Kyle Littrell, XTO

Robert Hamlet, NMOCD
Victoria Venegas, NMOCD
Jim Amos, U.S. Bureau of Land Management
Crystal Weaver, U.S. Bureau of Land Management

Attachments:

Figure 1	Site Location Map
Figure 2	Preliminary Soil Sample Locations
Figure 3	Excavation Soil Sample Locations
Figure 4	Delineation Soil Sample Locations
Table 1	Soil Analytical Results
Attachment 1	Initial/Final NMOCD Form C-141 (2RP-3179, 2RP-3464, and 2RP-5243)
Attachment 2	Laboratory Analytical Reports
Attachment 3	Soil Sampling Logs
Attachment 4	Photographic Log

FIGURES

LEGEND

SITE LOCATION

IMAGE COURTESY OF ESRI/USGS

0 2,000 4,000

Feet

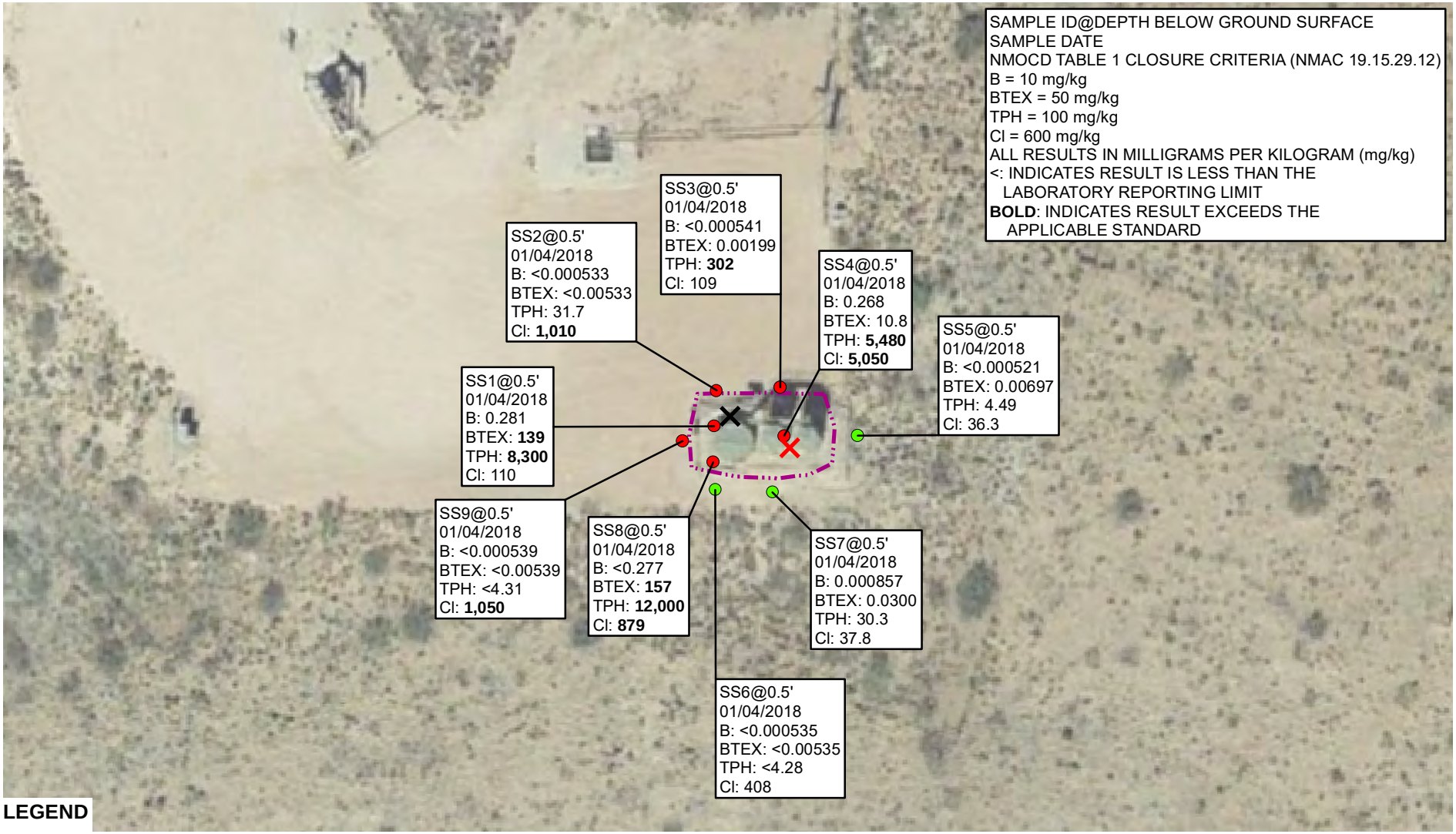
N

NEW MEXICO

NOTE: REMEDIATION PERMIT NUMBERS 2RP-3179, 2RP-3464, & 2RP-5243

FIGURE 1
SITE LOCATION MAP
JAMES RANCH UNIT #10 BATTERY
UNIT H SEC 1 T23S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012918003_JRU 10 TANK BATTERY\012918003_FIG01_SL_2018.mxd



LEGEND

- RELEASE LOCATION 2RP-5243
- RELEASE LOCATION 2RP-3179 & 2RP-3464
- PRELIMINARY SOIL SAMPLE WITH CONCENTRATIONS EXCEEDING APPLICABLE STANDARDS
- PRELIMINARY SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE STANDARDS
- RELEASE EXTENT

IMAGE COURTESY OF GOOGLE EARTH 2017

0 60 120
Feet

N

B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
TPH – TOTAL PETROLEUM HYDROCARBONS
Cl - CHLORIDE
NMAC – NEW MEXICO ADMINISTRATIVE CODE
NMOCD – NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBERS 2RP-3179, 2RP-3464, & 2RP-5243

FIGURE 2
PRELIMINARY SOIL SAMPLE LOCATIONS
JAMES RANCH UNIT #10 BATTERY
UNIT H SEC 1 T23S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012918003_JRU 10 TANK BATTERY\012918003_FIG02_PRELIMINARY SS_2018.mxd

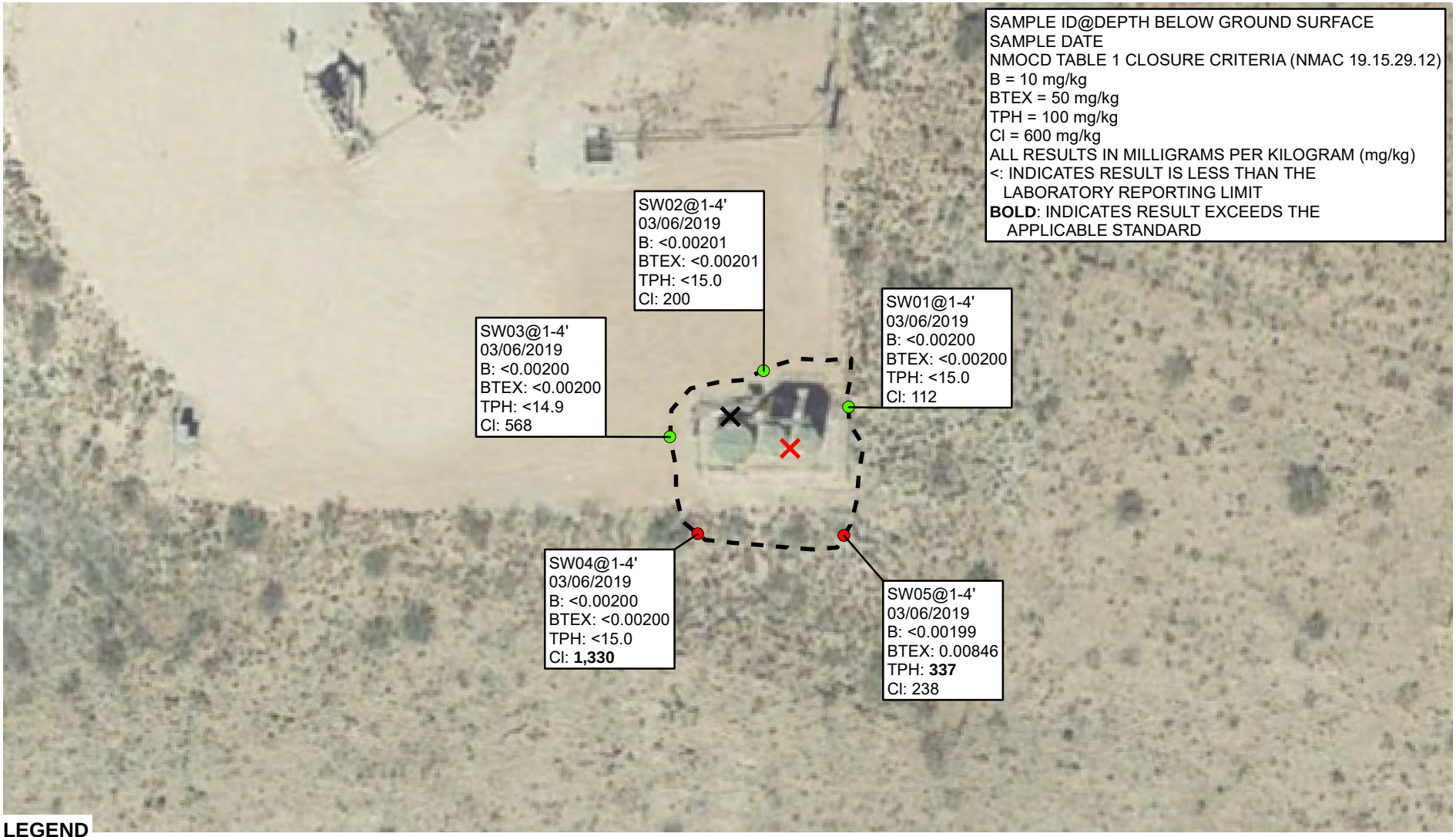


IMAGE COURTESY OF GOOGLE EARTH 2017

LEGEND

- EXCAVATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE STANDARDS
- EXCAVATION SOIL SAMPLE WITH CONCENTRATIONS EXCEEDING APPLICABLE STANDARDS
- RELEASE LOCATION 2RP-5243
- RELEASE LOCATION 2RP-3179 & 2RP-3464
- EXCAVATION EXTENT

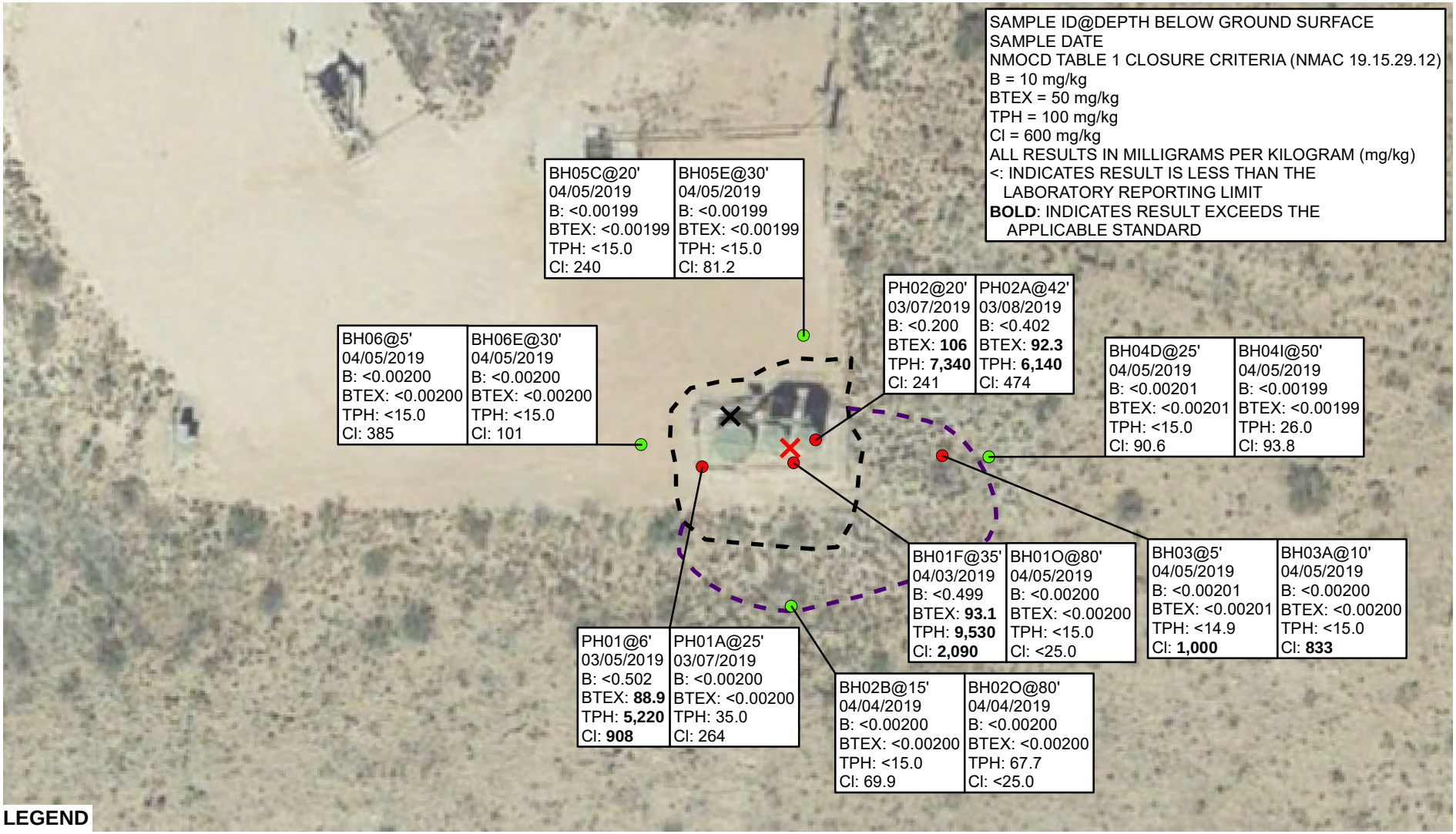
0 60 120
Feet

N

B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
TPH – TOTAL PETROLEUM HYDROCARBONS
Cl - CHLORIDE
NMAC – NEW MEXICO ADMINISTRATIVE CODE
NMOCD – NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBERS 2RP-3179, 2RP-3464, & 2RP-5243

FIGURE 3
EXCAVATION SOIL SAMPLE LOCATIONS
JAMES RANCH UNIT #10 BATTERY
UNIT H SEC 1 T23S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012918003_JRU 10 TANK BATTERY\012918003_FIG03_EXCAVATION SS_2018.mxd



LEGEND

- RELEASE LOCATION 2RP-5243
- RELEASE LOCATION 2RP-3179 & 2RP-3464
- DELINEATION SOIL SAMPLE WITH CONCENTRATIONS EXCEEDING APPLICABLE STANDARDS
- DELINEATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE STANDARDS
- PROPOSED EXCAVATION EXTENT
- EXCAVATION EXTENT

B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
TPH – TOTAL PETROLEUM HYDROCARBONS
Cl - CHLORIDE
NMAC – NEW MEXICO ADMINISTRATIVE CODE
NMOCD – NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBERS 2RP-3179, 2RP-3464, & 2RP-5243

IMAGE COURTESY OF GOOGLE EARTH 2017

0 60 120
Feet

N

FIGURE 4
DELINEATION SOIL SAMPLE LOCATIONS
JAMES RANCH UNIT #10 BATTERY
UNIT H SEC 1 T23S R30E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012918003_JRU 10 TANK BATTERY\012918003_FIG04_DELINEATION SS_2018.mxd

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS

JAMES RANCH UNIT #10 BATTERY
REMEDIATION PERMIT NUMBERS 2RP-3179, 2RP-3464, and 2RP-5243
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	C6-C10 GRO (mg/kg)	C10-C28 DRO (mg/kg)	C28-C40 ORO (mg/kg)	GRO and DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
SS1	0.5	01/04/2018	0.281 B	10.8	2.96	125	**139**	3,140	4,960	201	8,100	**8,300**	110
SS2	0.5	01/04/2018	<0.000533	<0.00533	<0.000533	<0.00160	<0.00533	<0.107	23.6	8.10	23.6	31.7	**1,010**
SS3	0.5	01/04/2018	<0.000541	<0.00541	<0.000541	0.00199	0.00199	<0.108	259	43.3	259	**302**	109
SS4	0.5	01/04/2018	0.268 B	<1.16	0.481	10.1	10.8	1,810	3,510	160	5,320	**5,480**	**5,050**
SS5	0.5	01/04/2018	<0.000521	<0.00521	<0.000521	0.00697	0.00697	<0.10	<4.17	4.49	<4.17	4.49	36.3
SS6	0.5	01/04/2018	<0.000535	<0.00535	<0.000535	<0.00161	<0.00535	<0.107	<4.28	<4.28	<4.28	<4.28	408
SS7	0.5	01/04/2018	0.000857	0.00873	0.00178	0.0186	0.0300	0.236 B	19.3	10.8	19.5	30.3	37.8
SS8	0.5	01/04/2018	<0.277	15.0	3.43	139	**157**	3,160	8,810	<222	12,000	**12,000**	**879**
SS9	0.5	01/04/2018	<0.000539	<0.00539	<0.000539	<0.00162	<0.00539	<0.108	<4.31	<4.31	<4.31	<4.31	**1,050**
PH01	6	03/05/2019	<0.502	4.34	5.28	79.3	**88.9**	3,110	2,090	17.9	5,200	**5,220**	**908**
SW01	1 - 4	03/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	112
SW02	1 - 4	03/06/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	200
SW03	1 - 4	03/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	568
SW04	1 - 4	03/06/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	**1,330**
SW05	1 - 4	03/06/2019	<0.00199	<0.00199	<0.00199	0.00846	0.00846	20.5	316	<15.0	337	**337**	283
PH01A	25	03/07/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	35.0	<14.9	35.0	35.0	264
PH02	20	03/07/2019	<0.200	9.81	11.8	84.5	**106**	4,140	3,180	21.7	7,320	**7,340**	241
PH02A	42	03/08/2019	<0.402	4.19	12.2	75.9	**92.3**	3,400	2,720	18.1	6,120	**6,140**	474
BH01F	35	04/03/2019	<0.499	9.90	11.6	71.6	**93.1**	6,030	3,500	<74.7	9,530	**9,530**	**2,090 D**
BH01O	80	04/04/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<25.0
BH02B	15	04/04/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	69.9
BH02O	80	04/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	50.9	16.8	50.9	67.7	<25.0
BH03	5	04/05/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<14.9	<14.9	<14.9	<14.9	<14.9	**1,000**
BH03A	10	04/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	**833**
BH04D	25	04/05/2019	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	90.6
BH04I	50	04/05/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	26.0	<15.0	26.0	26.0	93.8
BH05C	20	04/05/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	240

TABLE 1 (Continued)
SOIL ANALYTICAL RESULTS

JAMES RANCH UNIT #10 BATTERY
REMEDIATION PERMIT NUMBERS 2RP-3179, 2RP-3464, 2RP-5243
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	C6-C10 GRO (mg/kg)	C10-C28 DRO (mg/kg)	C28-C40 ORO (mg/kg)	GRO and DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH05E	30	04/05/2019	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	81.2
BH06	5	04/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	385
BH06E	30	04/05/2019	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	101
NMOCD Table 1 Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	NE	100	600

Notes:
bgs - below ground surface
BTEX - benzene, toluene, ethylbenzene, and total xylenes
mg/kg - milligrams per kilogram
NE - not established
NMOCD - New Mexico Oil Conservation Division
DRO - diesel range organics
GRO - gasoline range organics
ORO - oil range organics
TPH - total petroleum hydrocarbons
< - indicates result is below laboratory reporting limits
Bold - indicates result exceeds the applicable regulatory standard
* - indicates sample was collected in area to be reclaimed after remediation is complete; closure criteria for chloride concentration in the top 4 feet of soil is 600 mg/kgTable 1 - closure criteria for soils impacted by a release per NMAC 19.15.29 August 2018 NMAC - New Mexico Administrative Code
B - the same analyte is found in the associated blank
D - the result is from a diluted sample

ATTACHMENT 1: INITIAL/FINAL NMOCD FORM C-141 (2RP-3179, 2RP-3464, and 2RP-5243)

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

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1521257588 2100737

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P.	Contact: Tony Savoie
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: JRU-10	Facility Type: Exploration and Production

Surface Owner: Federal	Mineral Owner: Federal	API No.30-015-23075

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	1	23S	30E	1980	North	660	East	Eddy

Latitude N 32.335568° Longitude W 103.827592°

NATURE OF RELEASE

Type of Release: Produced water and condensate	Volume of Release: 50 bbls. PW and 5 bbls. condensate	Volume Recovered: 13 bbls. PW and 2 bbls. condensate
Source of Release: Produced water tank	Date and Hour of Occurrence: 7/29/15, time unknown	Date and Hour of Discovery: 7/29/15 at approximately 8:30 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher, Heather Patterson, and Jim Amos	
By Whom? Tony Savoie	Date and Hour 7/29/15, first attempt at 1:51 p.m. confirmed at 6:14 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 30 2015
RECEIVED

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
A coupling on the water transfer pump failed causing the tank to overflow. The coupling was replaced the day of the release.

Describe Area Affected and Cleanup Action Taken.*
The spill impacted about 1000 sq.ft. inside the earthen containment around the Oil and PW tanks. All of the free standing fluid was recovered with a vacuum truck.
The spill area will be cleaned up in accordance to the NMOCD and BLM remediation guidelines.

Thereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: Tony Savoie	OIL CONSERVATION DIVISION
Printed Name: Tony Savoie	Approved by Environmental Specialist:
Title: Waste Management and Remediation Specialist	Approval Date: 7/31/15 Expiration Date: N/A
E-mail Address: tasavoie@basspet.com	Conditions of Approval: Attached ☐
Date: 7/30/15 Phone: 432-556-8730	Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 9/3/15

* Attach Additional Sheets If Necessary

2RP-3179

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	
District RP	2RP-3179
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: XTO Energy, Inc	OGRID: 5380
Contact Name: Kyle Littrell	Contact Telephone: (432)-221-7331
Contact email: Kyle_Littrell@xtoenergy.com	Incident #: 2RP-3179
Contact mailing address 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

Location of Release Source

Latitude 32.335568 Longitude -103.827592
(NAD 83 in decimal degrees to 5 decimal places)

Site Name JRU-10	Site Type Exploration and Production
Date Release Discovered 07/29/15	API# *(if applicable)* 30-015-23075

Unit Letter	Section	Township	Range	County
H	1	23S	30E	Eddy

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 50	Volume Recovered (bbls) 13
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☒ Condensate	Volume Released (bbls) 5	Volume Recovered (bbls) 2
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
A coupling on the water transfer pump failed causing the tank to overflow. The coupling was replaced the day of the release. The spill impacted about 1000 sq.ft. inside the earthen containment around the Oil and produced water tanks. All of the free standing fluid was recovered with a vacuum truck.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3179
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The release was greater than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, by Tony Savoie to Mike Bratcher/Heather Patterson (NMOCD), and Jim Amos (BLM) on 7/29/2015.	

Initial Response

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

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: 432-221-7331

OCD Only

Received by: Date:

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3179
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

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

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

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

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

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

Form C-141

Page 4

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3179
Facility ID	
Application ID	

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3179
Facility ID	
Application ID	

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.

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

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

Signature: Date:

NM OIL CONSERVATION
ARTESIA DISTRICT
DEC 22 2015
RECEIVED

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
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State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1535754357 dl00737

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P.	Contact: Amy Ruth
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: James Ranch Unit #10 Battery	Facility Type: Exploration and Production

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-23075

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	1	23S	30E	1980	North	660	East	Eddy

Latitude 32.335560° Longitude -103.827584°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 81 bbls	Volume Recovered: 40 bbls
Source of Release: Tank Overflow	Date and Hour of Occurrence: 12/14/2015 time unknown	Date and Hour of Discovery: 12/14/2015 11:15 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher/Heather Patterson (NMOCD), Jim Amos (BLM)	
By Whom? Amy Ruth	Date and Hour: 12/14/2015 4:52 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
Coupling on water transfer pump failed and pump shut down. Produced water tank filled and overflowed into the battery earthen containment. The pump was repaired.

Describe Area Affected and Cleanup Action Taken.*
The leak affected 1550 ft² of well pad within the tank containment and standing fluids were recovered.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature:
Printed Name: Amy C. Ruth
Title: Remediation Specialist
E-mail Address: ACRuth@basspet.com
Date: 12/22/2015 Phone: 432-661-0571

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:
Approval Date: 12/23/15 Expiration Date: N/A
Conditions of Approval: Remediation per O.C.D. Rules & Guidelines Attached ☐
SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 1/24/16

2RP-3464

* Attach Additional Sheets If Necessary

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	
District RP	2RP-3464
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: XTO Energy, Inc	OGRID: 5380
Contact Name: Kyle Littrell	Contact Telephone: (432)-221-7331
Contact email: Kyle_Littrell@xtoenergy.com	Incident #: 2RP-3464
Contact mailing address 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

Location of Release Source

Latitude 32.335560 Longitude -103.827584
(NAD 83 in decimal degrees to 5 decimal places)

Site Name James Ranch Unit #10 Battery	Site Type Exploration and Production
Date Release Discovered 12/14/15	API# *(if applicable)* 30-015-23075

Unit Letter	Section	Township	Range	County
H	1	23S	30E	Eddy

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 81	Volume Recovered (bbls) 40
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☒ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
Coupling on water transfer pump failed and pump shut down. Produced water tank filled and overflowed into the battery earthen containment. The pump was repaired. The leak affected 1550 ft² of well pad within the tank containment and standing fluids were recovered.
Fluids remained within the containment with exception of the southwest corner, though what little escaped remained on the well pad.

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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3464
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The release was greater than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, immediate notice was given by Amy Ruth to Mike Bratcher/ Heather Patterson (NMOCD), and Jim Amos (BLM) on 12/14/15.	

Initial Response

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

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: 432-221-7331

OCD Only

Received by: Date:

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3464
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

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

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

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

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

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

Form C-141

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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3464
Facility ID	
Application ID	

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-3464
Facility ID	
Application ID	

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.

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

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

Signature: Date:

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	NAB1904653072
District RP	2RP-5243
Facility ID	
Application ID	pAB1904652533

Release Notification

Responsible Party

Responsible Party: XTO Energy, Inc	OGRID: 5380
Contact Name: Kyle Littrell	Contact Telephone: (432)-221-7331
Contact email: Kyle_Littrell@xtoenergy.com	Incident #: 2RP-5243
Contact mailing address 522 W. Mermod, Suite 704 Carlsbad, NM 88220	

Location of Release Source

Latitude 32.335540 Longitude -103.827513
(NAD 83 in decimal degrees to 5 decimal places)

Site Name James Ranch Unit #10 Battery	Site Type Bulk Storage and Separation Facility
Date Release Discovered 01/29/19	API# *(if applicable)* 30-015-23075

Unit Letter	Section	Township	Range	County
H	1	23S	30E	Eddy

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

Nature and Volume of Release

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

☒ Crude Oil	Volume Released (bbls) 9.8	Volume Recovered (bbls) 7
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
Just prior to unloading the tanks by oil haulers, an overload of fluids enter the facility and overran the oil tank into the earthen berm. This was due to increased production efficiency by the lease operator and the subsequent unloading of the well into the facility. A vaccum truck recovered free standing fluids and the battery is being evaluated for upgrades. An environmental contractor has been retained to assist with remediation efforts.

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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5243
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Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: 432-221-7331

OCD Only

Received by: Date:

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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5243
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

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

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

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

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

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

Form C-141

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State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5243
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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: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5243
Facility ID	
Application ID	

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.

Printed Name: Kyle Littrell Title: SH&E Coordinator

Signature: Date: 4/12/2019

email: Kyle_Littrell@xtoenergy.com Telephone: (432)-221-7331

OCD Only

Received by: Date:

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

Signature: Date:

ATTACHMENT 2: LABORATORY ANALYTICAL REPORTS

ANALYTICAL REPORT

January 12, 2018

XTO Energy- Delaware Division

Sample Delivery Group:	L961536
Samples Received:	01/06/2018
Project Number:	30-015-23075
Description:	Confirmation Soil Samples
Site:	JRU-10 (2RP-3179)
Report To:	Kyle Littrell
	6401 N Holiday Hill Rd
	Suite 200
	Midland, TX 79707

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

SS1 L961536-01 Solid

Collected by	Collected date/time	Received date/time
Aaron Williamson	01/04/18 13:41	01/06/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1060773	1	01/09/18 13:10	01/09/18 13:17	KDW
Wet Chemistry by Method 300.0	WG1060409	1	01/08/18 16:26	01/09/18 01:56	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1060606	500	01/08/18 08:31	01/10/18 00:07	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1060457	20	01/08/18 20:22	01/10/18 02:46	ACM

SS2 L961536-02 Solid

Collected by	Collected date/time	Received date/time
Aaron Williamson	01/04/18 13:44	01/06/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1060779	1	01/09/18 12:42	01/09/18 12:53	KDW
Wet Chemistry by Method 300.0	WG1060419	1	01/07/18 11:29	01/07/18 15:01	DR
Volatile Organic Compounds (GC) by Method 8015/8021	WG1060606	1	01/08/18 08:31	01/10/18 00:29	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1060457	1	01/08/18 20:22	01/10/18 21:09	ACM

SS3 L961536-03 Solid

Collected by	Collected date/time	Received date/time
Aaron Williamson	01/04/18 13:47	01/06/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1060792	1	01/09/18 09:37	01/09/18 10:58	JD
Wet Chemistry by Method 300.0	WG1060419	1	01/07/18 11:29	01/07/18 15:09	DR
Volatile Organic Compounds (GC) by Method 8015/8021	WG1060606	1	01/08/18 08:31	01/10/18 00:52	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1060457	1	01/08/18 20:22	01/09/18 20:58	ACM

SS4 L961536-04 Solid

Collected by	Collected date/time	Received date/time
Aaron Williamson	01/04/18 13:50	01/06/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1060792	1	01/09/18 09:37	01/09/18 10:58	JD
Wet Chemistry by Method 300.0	WG1060419	10	01/07/18 11:29	01/07/18 15:18	DR
Volatile Organic Compounds (GC) by Method 8015/8021	WG1060606	200	01/08/18 08:31	01/10/18 01:14	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1060457	1	01/08/18 20:22	01/09/18 21:12	ACM
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1060457	10	01/08/18 20:22	01/10/18 02:32	ACM

SS5 L961536-05 Solid

Collected by	Collected date/time	Received date/time
Aaron Williamson	01/04/18 13:52	01/06/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1060792	1	01/09/18 09:37	01/09/18 10:58	JD
Wet Chemistry by Method 300.0	WG1060419	1	01/07/18 11:29	01/07/18 15:26	DR
Volatile Organic Compounds (GC) by Method 8015/8021	WG1060606	1	01/08/18 08:31	01/10/18 01:36	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1060457	1	01/08/18 20:22	01/10/18 21:23	ACM

SS6 L961536-06 Solid

Collected by	Collected date/time	Received date/time
Aaron Williamson	01/04/18 13:55	01/06/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1060792	1	01/09/18 09:37	01/09/18 10:58	JD
Wet Chemistry by Method 300.0	WG1060419	1	01/07/18 11:29	01/07/18 15:35	DR
Volatile Organic Compounds (GC) by Method 8015/8021	WG1060606	1	01/08/18 08:31	01/10/18 01:58	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1060457	1	01/08/18 20:22	01/09/18 21:41	ACM

SS7 L961536-07 Solid

Collected by	Collected date/time	Received date/time
Aaron Williamson	01/04/18 13:57	01/06/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1060773	1	01/09/18 13:10	01/09/18 13:17	KDW
Wet Chemistry by Method 300.0	WG1060419	1	01/07/18 11:29	01/07/18 15:52	DR
Volatile Organic Compounds (GC) by Method 8015/8021	WG1060606	1	01/08/18 08:31	01/10/18 02:20	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1060457	1	01/08/18 20:22	01/09/18 21:57	ACM

SS8 L961536-08 Solid

Collected by	Collected date/time	Received date/time
Aaron Williamson	01/04/18 13:59	01/06/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1060792	1	01/09/18 09:37	01/09/18 10:58	JD
Wet Chemistry by Method 300.0	WG1060419	1	01/07/18 11:29	01/07/18 16:17	DR
Volatile Organic Compounds (GC) by Method 8015/8021	WG1060606	500	01/08/18 08:31	01/10/18 02:42	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1060457	50	01/08/18 20:22	01/11/18 01:32	ACM

SS9 L961536-09 Solid

Collected by	Collected date/time	Received date/time
Aaron Williamson	01/04/18 14:03	01/06/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1060792	1	01/09/18 09:37	01/09/18 10:58	JD
Wet Chemistry by Method 300.0	WG1060419	1	01/07/18 11:29	01/07/18 16:26	DR
Volatile Organic Compounds (GC) by Method 8015/8021	WG1060606	1	01/08/18 08:31	01/10/18 03:05	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1060457	1	01/08/18 20:22	01/10/18 21:38	ACM

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Technical Service Representative

SS1
Collected date/time: 01/04/18 13:41
L961536

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.5		1	01/09/2018 13:17	WG1060773

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	110		10.8	1	01/09/2018 01:56	WG1060409

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.281	B	0.270	500	01/10/2018 00:07	WG1060606
Toluene	10.8		2.70	500	01/10/2018 00:07	WG1060606
Ethylbenzene	2.96		0.270	500	01/10/2018 00:07	WG1060606
Total Xylene	125		0.811	500	01/10/2018 00:07	WG1060606
TPH (GC/FID) Low Fraction	3140		54.0	500	01/10/2018 00:07	WG1060606
(S) a,a,a-Trifluorotoluene(FID)	*94.4*		*77.0-120*		*01/10/2018 00:07*	WG1060606
(S) a,a,a-Trifluorotoluene(PID)	*101*		*75.0-128*		*01/10/2018 00:07*	WG1060606

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	4960		86.5	20	01/10/2018 02:46	WG1060457
C28-C40 Oil Range	201		86.5	20	01/10/2018 02:46	WG1060457
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*01/10/2018 02:46*	WG1060457

332
Collected date/time: 01/04/18 13:44
L961536

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.8		1	01/09/2018 12:53	WG1060779

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	1010		10.7	1	01/07/2018 15:01	WG1060419

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.000533	1	01/10/2018 00:29	WG1060606
Toluene	ND		0.00533	1	01/10/2018 00:29	WG1060606
Ethylbenzene	ND		0.000533	1	01/10/2018 00:29	WG1060606
Total Xylene	ND		0.00160	1	01/10/2018 00:29	WG1060606
TPH (GC/FID) Low Fraction	ND		0.107	1	01/10/2018 00:29	WG1060606
(S) a,a,a-Trifluorotoluene(FID)	*93.9*		*77.0-120*		*01/10/2018 00:29*	WG1060606
(S) a,a,a-Trifluorotoluene(PID)	*100*		*75.0-128*		*01/10/2018 00:29*	WG1060606

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	23.6		4.27	1	01/10/2018 21:09	WG1060457
C28-C40 Oil Range	8.10		4.27	1	01/10/2018 21:09	WG1060457
(S) o-Terphenyl	*52.5*		*18.0-148*		*01/10/2018 21:09*	WG1060457

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.4		1	01/09/2018 10:58	WG1060792

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	109		10.8	1	01/07/2018 15:09	WG1060419

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.000541	1	01/10/2018 00:52	WG1060606
Toluene	ND		0.00541	1	01/10/2018 00:52	WG1060606
Ethylbenzene	ND		0.000541	1	01/10/2018 00:52	WG1060606
Total Xylene	0.00199		0.00162	1	01/10/2018 00:52	WG1060606
TPH (GC/FID) Low Fraction	ND		0.108	1	01/10/2018 00:52	WG1060606
(S) a,a,a-Trifluorotoluene(FID)	*92.3*		*77.0-120*		*01/10/2018 00:52*	WG1060606
(S) a,a,a-Trifluorotoluene(PID)	*98.6*		*75.0-128*		*01/10/2018 00:52*	WG1060606

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	259		4.33	1	01/09/2018 20:58	WG1060457
C28-C40 Oil Range	43.3		4.33	1	01/09/2018 20:58	WG1060457
(S) o-Terphenyl	*67.4*		*18.0-148*		*01/09/2018 20:58*	WG1060457

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.5		1	01/09/2018 10:58	WG1060792

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	5050		116	10	01/07/2018 15:18	WG1060419

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.268	B	0.116	200	01/10/2018 01:14	WG1060606
Toluene	ND		1.16	200	01/10/2018 01:14	WG1060606
Ethylbenzene	0.481		0.116	200	01/10/2018 01:14	WG1060606
Total Xylene	10.1		0.347	200	01/10/2018 01:14	WG1060606
TPH (GC/FID) Low Fraction	1810		23.1	200	01/10/2018 01:14	WG1060606
(S) a,a,a-Trifluorotoluene(FID)	*91.4*		*77.0-120*		*01/10/2018 01:14*	WG1060606
(S) a,a,a-Trifluorotoluene(PID)	*96.2*		*75.0-128*		*01/10/2018 01:14*	WG1060606

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	3510		46.3	10	01/10/2018 02:32	WG1060457
C28-C40 Oil Range	160		4.63	1	01/09/2018 21:12	WG1060457
(S) o-Terphenyl	*94.8*		*18.0-148*		*01/09/2018 21:12*	WG1060457
(S) o-Terphenyl	*149*	J1	*18.0-148*		*01/10/2018 02:32*	WG1060457

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.0		1	01/09/2018 10:58	WG1060792

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	36.3		10.4	1	01/07/2018 15:26	WG1060419

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.000521	1	01/10/2018 01:36	WG1060606
Toluene	ND		0.00521	1	01/10/2018 01:36	WG1060606
Ethylbenzene	ND		0.000521	1	01/10/2018 01:36	WG1060606
Total Xylene	0.00697		0.00156	1	01/10/2018 01:36	WG1060606
TPH (GC/FID) Low Fraction	ND		0.104	1	01/10/2018 01:36	WG1060606
(S) a,a,a-Trifluorotoluene(FID)	*93.5*		*77.0-120*		*01/10/2018 01:36*	WG1060606
(S) a,a,a-Trifluorotoluene(PID)	*100*		*75.0-128*		*01/10/2018 01:36*	WG1060606

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	ND		4.17	1	01/10/2018 21:23	WG1060457
C28-C40 Oil Range	4.49		4.17	1	01/10/2018 21:23	WG1060457
(S) o-Terphenyl	*78.0*		*18.0-148*		*01/10/2018 21:23*	WG1060457

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.4		1	01/09/2018 10:58	WG1060792

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	408		10.7	1	01/07/2018 15:35	WG1060419

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.000535	1	01/10/2018 01:58	WG1060606
Toluene	ND		0.00535	1	01/10/2018 01:58	WG1060606
Ethylbenzene	ND		0.000535	1	01/10/2018 01:58	WG1060606
Total Xylene	ND		0.00161	1	01/10/2018 01:58	WG1060606
TPH (GC/FID) Low Fraction	ND		0.107	1	01/10/2018 01:58	WG1060606
(S) a,a,a-Trifluorotoluene(FID)	*94.1*		*77.0-120*		*01/10/2018 01:58*	WG1060606
(S) a,a,a-Trifluorotoluene(PID)	*100*		*75.0-128*		*01/10/2018 01:58*	WG1060606

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	ND		4.28	1	01/09/2018 21:41	WG1060457
C28-C40 Oil Range	ND		4.28	1	01/09/2018 21:41	WG1060457
(S) o-Terphenyl	*63.0*		*18.0-148*		*01/09/2018 21:41*	WG1060457

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.1		1	01/09/2018 13:17	WG1060773

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	37.8		10.4	1	01/07/2018 15:52	WG1060419

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000857	B	0.000520	1	01/10/2018 02:20	WG1060606
Toluene	0.00873		0.00520	1	01/10/2018 02:20	WG1060606
Ethylbenzene	0.00178		0.000520	1	01/10/2018 02:20	WG1060606
Total Xylene	0.0186		0.00156	1	01/10/2018 02:20	WG1060606
TPH (GC/FID) Low Fraction	0.236	B	0.104	1	01/10/2018 02:20	WG1060606
(S) a,a,a-Trifluorotoluene(FID)	*89.5*		*77.0-120*		*01/10/2018 02:20*	WG1060606
(S) a,a,a-Trifluorotoluene(PID)	*98.7*		*75.0-128*		*01/10/2018 02:20*	WG1060606

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	19.3		4.16	1	01/09/2018 21:57	WG1060457
C28-C40 Oil Range	10.8		4.16	1	01/09/2018 21:57	WG1060457
(S) o-Terphenyl	*52.1*		*18.0-148*		*01/09/2018 21:57*	WG1060457

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.2		1	01/09/2018 10:58	WG1060792

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	879		11.1	1	01/07/2018 16:17	WG1060419

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.277	500	01/10/2018 02:42	WG1060606
Toluene	15.0		2.77	500	01/10/2018 02:42	WG1060606
Ethylbenzene	3.43		0.277	500	01/10/2018 02:42	WG1060606
Total Xylene	139		0.831	500	01/10/2018 02:42	WG1060606
TPH (GC/FID) Low Fraction	3160		55.4	500	01/10/2018 02:42	WG1060606
(S) a,a,a-Trifluorotoluene(FID)	*94.6*		*77.0-120*		*01/10/2018 02:42*	WG1060606
(S) a,a,a-Trifluorotoluene(PID)	*100*		*75.0-128*		*01/10/2018 02:42*	WG1060606

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	8810		222	50	01/11/2018 01:32	WG1060457
C28-C40 Oil Range	ND		222	50	01/11/2018 01:32	WG1060457
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*01/11/2018 01:32*	WG1060457

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.8		1	01/09/2018 10:58	WG1060792

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	1050		10.8	1	01/07/2018 16:26	WG1060419

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.000539	1	01/10/2018 03:05	WG1060606
Toluene	ND		0.00539	1	01/10/2018 03:05	WG1060606
Ethylbenzene	ND		0.000539	1	01/10/2018 03:05	WG1060606
Total Xylene	ND		0.00162	1	01/10/2018 03:05	WG1060606
TPH (GC/FID) Low Fraction	ND		0.108	1	01/10/2018 03:05	WG1060606
(S) a,a,a-Trifluorotoluene(FID)	*94.0*		*77.0-120*		*01/10/2018 03:05*	WG1060606
(S) a,a,a-Trifluorotoluene(PID)	*100*		*75.0-128*		*01/10/2018 03:05*	WG1060606

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	ND		4.31	1	01/10/2018 21:38	WG1060457
C28-C40 Oil Range	ND		4.31	1	01/10/2018 21:38	WG1060457
(S) o-Terphenyl	*71.1*		*18.0-148*		*01/10/2018 21:38*	WG1060457

Method Blank (MB)

(MB) R3278455-1 01/09/18 13:17

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.002			

L961517-04 Original Sample (OS) • Duplicate (DUP)

(OS) L961517-04 01/09/18 13:17 • (DUP) R3278455-3 01/09/18 13:17

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	94.3	94.3	1	0		5

Laboratory Control Sample (LCS)

(LCS) R3278455-2 01/09/18 13:17

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85-115	

Method Blank (MB)

(MB) R3278447-1 01/09/18 12:53

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.002			

L961532-03 Original Sample (OS) • Duplicate (DUP)

(OS) L961532-03 01/09/18 12:53 • (DUP) R3278447-3 01/09/18 12:53

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	92.1	92.1	1	0		5

Laboratory Control Sample (LCS)

(LCS) R3278447-2 01/09/18 12:53

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85-115	

Method Blank (MB)

(MB) R3278450-1 01/09/18 10:58

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0			

L961536-04 Original Sample (OS) • Duplicate (DUP)

(OS) L961536-04 01/09/18 10:58 • (DUP) R3278450-3 01/09/18 10:58

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	86.5	88.7	1	3		5

Laboratory Control Sample (LCS)

(LCS) R3278450-2 01/09/18 10:58

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85-115	

Method Blank (MB)

(MB) R3278237-1 01/08/18 17:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	3.47	J	0.795	10.0

L961528-09 Original Sample (OS) • Duplicate (DUP)

(OS) L961528-09 01/08/18 23:10 • (DUP) R3278237-4 01/08/18 23:19

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	229	219	1	4.39		20

L961532-09 Original Sample (OS) • Duplicate (DUP)

(OS) L961532-09 01/09/18 01:39 • (DUP) R3278237-7 01/09/18 01:47

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	60.4	58.5	1	3.27		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3278237-2 01/08/18 18:05 • (LCSD) R3278237-3 01/08/18 18:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	200	199	200	99.4	100	90-110			0.657	20

L961532-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L961532-01 01/08/18 23:53 • (MS) R3278237-5 01/09/18 00:01 • (MSD) R3278237-6 01/09/18 00:10

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	500	431	1010	986	116	111	1	80-120	E		2.62	20

Method Blank (MB)

(MB) R3278057-1 01/07/18 13:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	2.48	J	0.795	10.0

L961536-06 Original Sample (OS) • Duplicate (DUP)

(OS) L961536-06 01/07/18 15:35 • (DUP) R3278057-4 01/07/18 15:43

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	408	411	1	0.667		20

L961541-04 Original Sample (OS) • Duplicate (DUP)

(OS) L961541-04 01/07/18 17:26 • (DUP) R3278057-7 01/07/18 17:34

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	32.9	35.8	1	8.32		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3278057-2 01/07/18 13:48 • (LCSD) R3278057-3 01/07/18 13:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	200	200	200	99.9	100	90-110			0.085	20

Method Blank (MB)

(MB) R3278375-5 01/08/18 16:49

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000165	J	0.000120	0.000500
Toluene	0.000245	J	0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	0.0255	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*96.1*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*108*			*75.0-128*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3278375-1 01/08/18 14:57 • (LCSD) R3278375-2 01/08/18 15:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0443	0.0442	88.6	88.3	71.0-121			0.338	20
Toluene	0.0500	0.0473	0.0470	94.5	93.9	72.0-120			0.626	20
Ethylbenzene	0.0500	0.0463	0.0460	92.6	92.0	76.0-121			0.594	20
Total Xylene	0.150	0.142	0.141	94.5	93.9	75.0-124			0.637	20
(S) a,a,a-Trifluorotoluene(FID)				*94.3*	*94.5*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*104*	*105*	*75.0-128*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3278375-3 01/08/18 15:42 • (LCSD) R3278375-4 01/08/18 16:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.87	4.74	88.5	86.2	70.0-136			2.57	20
(S) a,a,a-Trifluorotoluene(FID)				*111*	*111*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*122*	*122*	*75.0-128*				

Method Blank (MB)

(MB) R3278395-1 01/09/18 19:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*54.5*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3278395-2 01/09/18 19:17 • (LCSD) R3278395-3 01/09/18 19:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	60.0	33.4	35.5	55.7	59.2	50.0-150			6.18	20
(S) o-Terphenyl				*60.2*	*62.0*	*18.0-148*				

L961541-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L961541-01 01/10/18 01:49 • (MS) R3278395-4 01/10/18 02:03 • (MSD) R3278395-5 01/10/18 02:17

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	66.6	1510	1750	1820	364	477	5	50.0-150	V	V	4.18	20
(S) o-Terphenyl					*16.9*	*16.0*		*18.0-148*	J2	J2		

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

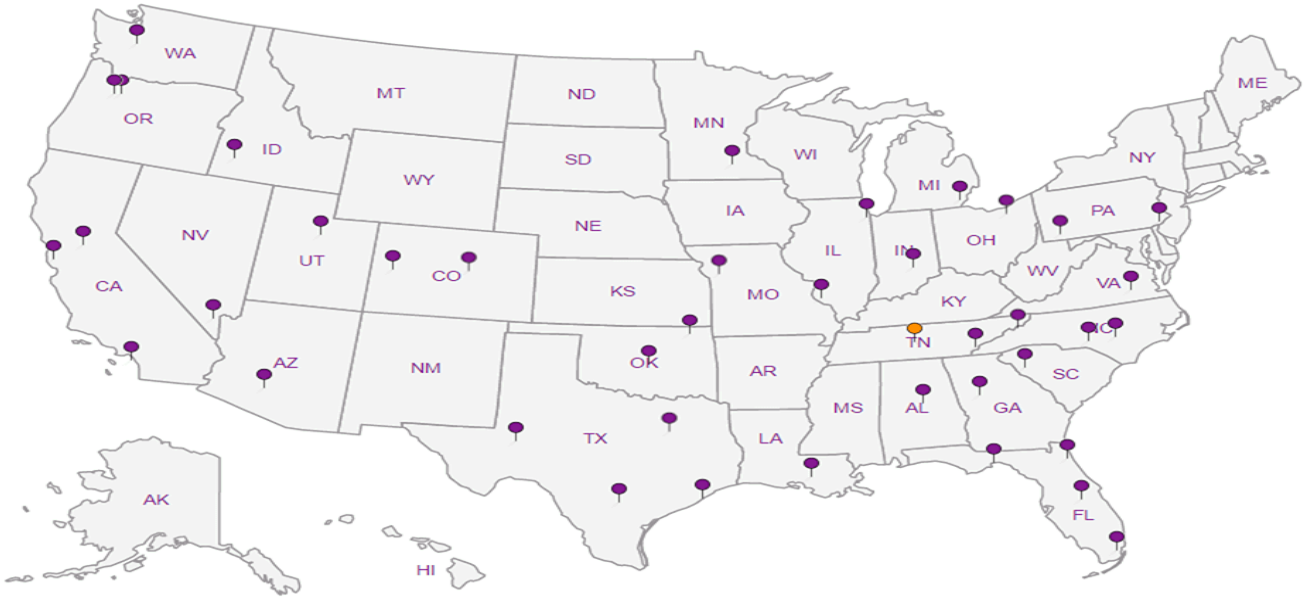
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1.] Drinking Water [2.] Underground Storage Tanks [3.] Aquatic Toxicity [4.] Chemical/Microbiological [5.] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



ACCOUNT:	PROJECT:	SDG:	DATE/TIME:	PAGE:
XTO Energy- Delaware Division	30-015-23075	L961536	01/12/18 10:13	23 of 24

LTE

Billing Information: XTO

Pres Chk

Report to: Kyle Littrell

Email To: kyle_Littrell@XTOenergy.com, Abaker@LTenv.com

Project Description: Confirmation Soil Samples

City/State Collected: NM

Phone: Fax: 1-970-317-1867

Client Project # 30-015-23075

Lab Project #

Collected by (print): Aaron Williamson

Site/Facility ID # JRU-10 (2RP-3179)

P.O. # 012918003

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ✓ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX EPA Method 8021	TPH EPA Method 8015	Chloride EPA Method 300.1	Remarks	Sample # (lab only)
SS1	Grab	SS	6"	1-4-18	13:41	1	✓	✓	✓		-01
SS2	Grab	SS	6"	1-4-18	13:44	1	✓	✓	✓		-02
SS3	Grab	SS	6"	1-4-18	13:47	1	✓	✓	✓		-03
SS4	Grab	SS	6"	1-4-18	13:50	1	✓	✓	✓		-04
SS5	Grab	SS	6"	1-4-18	13:52	1	✓	✓	✓		-05
SS6	Grab	SS	6"	1-4-18	13:55	1	✓	✓	✓		-06
SS7	Grab	SS	6"	1-4-18	13:57	1	✓	✓	✓		-07
SS8	Grab	SS	6"	1-4-18	13:59	1	✓	✓	✓		-08
SS9	Grab	SS	6"	1-4-18	14:03	1	✓	✓	✓		-09
NFE ARW			~~6"~~ ARW								

Chain of Custody Page 1 of 1

ESC LABORATORIES

YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 961536

G091

Acctnum: XTOMTX

Template:

Prelogin:

TSR:

PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: ✓ UPS ___ FedEx ___ Courier ___

Tracking # 782711061610

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: ✓ Y N
Bottles arrive intact: ✓ Y N
Correct bottles used: ✓ Y N
Sufficient volume sent: ✓ Y N
If Applicable
VOA Zero Headspace: ___ Y ___ N
Preservation Correct/Checked: ___ Y ___ N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	1-5-18	10:00	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	1-5-18	12:30	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 1.1 °C Bottles Received: 9

Date: 01-06-18 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Analytical Report 616897

for

LT Environmental, Inc.

Project Manager: Adrian Baker

JRU 10

08-MAR-19

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)

08-MAR-19

Project Manager: **Adrian Baker**
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, CO 80003

Reference: XENCO Report No(s): **616897**
JRU 10
Project Address: Delaware Basin

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 616897. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 616897 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW01	S	03-06-19 11:50	1 - 4 ft	616897-001
SW02	S	03-06-19 11:00	1 - 4 ft	616897-002
SW03	S	03-06-19 11:10	1 - 4 ft	616897-003
SW04	S	03-06-19 11:30	1 - 4 ft	616897-004
SW05	S	03-06-19 11:30	1 - 4 ft	616897-005

CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: JRU 10

Project ID:
Work Order Number(s): *616897*

Report Date: *08-MAR-19*
Date Received: *03/07/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3081570 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 616897

LT Environmental, Inc., Arvada, CO

Project Name: JRU 10

Project Id:
Contact: Adrian Baker
Project Location: Delaware Basin

Date Received in Lab: Thu Mar-07-19 11:36 am
Report Date: 08-MAR-19
Project Manager: Jessica Kramer

Analysis Requested																	
	Lab Id:	616897-001		616897-002		616897-003		616897-004		616897-005							
	Field Id:	SW01		SW02		SW03		SW04		SW05							
	Depth:	1-4 ft		1-4 ft		1-4 ft		1-4 ft		1-4 ft							
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL							
	Sampled:	Mar-06-19 11:50		Mar-06-19 11:00		Mar-06-19 11:10		Mar-06-19 11:30		Mar-06-19 11:30							
BTEX by EPA 8021B	***Extracted:***	Mar-07-19 12:00		Mar-07-19 12:00		Mar-07-19 12:00		Mar-07-19 12:00		Mar-07-19 12:00							
	Analyzed:	Mar-08-19 02:33		Mar-08-19 02:52		Mar-08-19 03:11		Mar-08-19 03:30		Mar-08-19 03:49							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Benzene		<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199						
Toluene		<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199						
Ethylbenzene		<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199						
m,p-Xylenes		<0.00401	0.00401	<0.00402	0.00402	<0.00400	0.00400	<0.00401	0.00401	<0.00398	0.00398						
o-Xylene		<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	0.00846	0.00199						
Total Xylenes		<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	0.00846	0.00199						
Total BTEX		<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	0.00846	0.00199						
Inorganic Anions by EPA 300	***Extracted:***	Mar-07-19 14:00		Mar-07-19 14:00		Mar-07-19 14:00		Mar-07-19 14:00		Mar-07-19 14:00							
	Analyzed:	Mar-08-19 01:35		Mar-08-19 01:46		Mar-08-19 02:18		Mar-08-19 10:39		Mar-08-19 10:50							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Chloride		112	4.96	200	4.99	568	4.98	1330	4.98	283	5.00						
TPH by SW8015 Mod	***Extracted:***	Mar-07-19 17:00		Mar-07-19 17:00		Mar-07-19 17:00		Mar-07-19 17:00		Mar-07-19 17:00							
	Analyzed:	Mar-08-19 06:44		Mar-07-19 22:54		Mar-07-19 23:14		Mar-07-19 23:34		Mar-07-19 23:53							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	20.5	15.0						
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	316	15.0						
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0						
Total TPH		<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	337	15.0						

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer
Project Assistant

Final 1.000

Certificate of Analytical Results 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id:	**SW01**	Matrix:	Soil	Date Received:	03.07.19 11.36
Lab Sample Id:	616897-001	Date Collected:	03.06.19 11.50	Sample Depth:	1 - 4 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.07.19 14.00	Basis:	Wet Weight
Seq Number:	3081522				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**112**	4.96	mg/kg	03.08.19 01.35		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.07.19 17.00	Basis:	Wet Weight
Seq Number:	3081581				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.08.19 06.44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.08.19 06.44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.08.19 06.44	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.08.19 06.44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	03.08.19 06.44	
o-Terphenyl	84-15-1	96	%	70-135	03.08.19 06.44	

Certificate of Analytical Results 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id:	**SW01**	Matrix:	Soil	Date Received:	03.07.19 11.36
Lab Sample Id:	616897-001	Date Collected:	03.06.19 11.50	Sample Depth:	1 - 4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.07.19 12.00	Basis:	Wet Weight
Seq Number:	3081570				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.08.19 02.33	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.08.19 02.33	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.08.19 02.33	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.08.19 02.33	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.08.19 02.33	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.08.19 02.33	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.08.19 02.33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	106	%	70-130	03.08.19 02.33	
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.08.19 02.33	

Certificate of Analytical Results 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id:	**SW02**	Matrix:	Soil	Date Received:	03.07.19 11.36
Lab Sample Id:	616897-002	Date Collected:	03.06.19 11.00	Sample Depth:	1 - 4 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.07.19 14.00	Basis:	Wet Weight
Seq Number:	3081522				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**200**	4.99	mg/kg	03.08.19 01.46		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.07.19 17.00	Basis:	Wet Weight
Seq Number:	3081581				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.07.19 22.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.07.19 22.54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.07.19 22.54	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.07.19 22.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	03.07.19 22.54	
o-Terphenyl	84-15-1	97	%	70-135	03.07.19 22.54	

Certificate of Analytical Results 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id:	**SW02**	Matrix:	Soil	Date Received:	03.07.19 11.36
Lab Sample Id:	616897-002	Date Collected:	03.06.19 11.00	Sample Depth:	1 - 4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.07.19 12.00	Basis:	Wet Weight
Seq Number:	3081570				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.08.19 02.52	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.08.19 02.52	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.08.19 02.52	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.08.19 02.52	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.08.19 02.52	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.08.19 02.52	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.08.19 02.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.08.19 02.52	
4-Bromofluorobenzene	460-00-4	111	%	70-130	03.08.19 02.52	

Certificate of Analytical Results 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id:	**SW03**	Matrix:	Soil	Date Received:	03.07.19 11.36
Lab Sample Id:	616897-003	Date Collected:	03.06.19 11.10	Sample Depth:	1 - 4 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.07.19 14.00	Basis:	Wet Weight
Seq Number:	3081522				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**568**	4.98	mg/kg	03.08.19 02.18		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.07.19 17.00	Basis:	Wet Weight
Seq Number:	3081581				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.07.19 23.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	03.07.19 23.14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	03.07.19 23.14	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.07.19 23.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	03.07.19 23.14	
o-Terphenyl	84-15-1	99	%	70-135	03.07.19 23.14	

Certificate of Analytical Results 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id:	**SW03**	Matrix:	Soil	Date Received:	03.07.19 11.36
Lab Sample Id:	616897-003	Date Collected:	03.06.19 11.10	Sample Depth:	1 - 4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.07.19 12.00	Basis:	Wet Weight
Seq Number:	3081570				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.08.19 03.11	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.08.19 03.11	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.08.19 03.11	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.08.19 03.11	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.08.19 03.11	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.08.19 03.11	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.08.19 03.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	109	%	70-130	03.08.19 03.11	
1,4-Difluorobenzene	540-36-3	112	%	70-130	03.08.19 03.11	

Certificate of Analytical Results 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id:	**SW04**	Matrix:	Soil	Date Received:	03.07.19 11.36
Lab Sample Id:	616897-004	Date Collected:	03.06.19 11.30	Sample Depth:	1 - 4 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.07.19 14.00	Basis:	Wet Weight
Seq Number:	3081522				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1330**	4.98	mg/kg	03.08.19 10.39		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.07.19 17.00	Basis:	Wet Weight
Seq Number:	3081581				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.07.19 23.34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.07.19 23.34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.07.19 23.34	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.07.19 23.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	03.07.19 23.34	
o-Terphenyl	84-15-1	100	%	70-135	03.07.19 23.34	

Certificate of Analytical Results 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id:	**SW04**	Matrix:	Soil	Date Received:	03.07.19 11.36
Lab Sample Id:	616897-004	Date Collected:	03.06.19 11.30	Sample Depth:	1 - 4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.07.19 12.00	Basis:	Wet Weight
Seq Number:	3081570				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.08.19 03.30	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.08.19 03.30	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.08.19 03.30	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.08.19 03.30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.08.19 03.30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.08.19 03.30	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.08.19 03.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	112	%	70-130	03.08.19 03.30	
1,4-Difluorobenzene	540-36-3	112	%	70-130	03.08.19 03.30	

Certificate of Analytical Results 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id:	**SW05**	Matrix:	Soil	Date Received:	03.07.19 11.36
Lab Sample Id:	616897-005	Date Collected:	03.06.19 11.30	Sample Depth:	1 - 4 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.07.19 14.00	Basis:	Wet Weight
Seq Number:	3081522				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**283**	5.00	mg/kg	03.08.19 10.50		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.07.19 17.00	Basis:	Wet Weight
Seq Number:	3081581				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**20.5**	15.0	mg/kg	03.07.19 23.53		1
Diesel Range Organics (DRO)	C10C28DRO	**316**	15.0	mg/kg	03.07.19 23.53		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.07.19 23.53	U	1
Total TPH	PHC635	**337**	15.0	mg/kg	03.07.19 23.53		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	03.07.19 23.53	
o-Terphenyl	84-15-1	95	%	70-135	03.07.19 23.53	

Certificate of Analytical Results 616897

LT Environmental, Inc., Arvada, CO

JRU 10

Sample Id:	**SW05**	Matrix:	Soil	Date Received:	03.07.19 11.36
Lab Sample Id:	616897-005	Date Collected:	03.06.19 11.30	Sample Depth:	1 - 4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.07.19 12.00	Basis:	Wet Weight
Seq Number:	3081570				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.08.19 03.49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.08.19 03.49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.08.19 03.49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.08.19 03.49	U	1
o-Xylene	95-47-6	**0.00846**	0.00199	mg/kg	03.08.19 03.49		1
Total Xylenes	1330-20-7	**0.00846**	0.00199	mg/kg	03.08.19 03.49		1
Total BTEX		**0.00846**	0.00199	mg/kg	03.08.19 03.49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	03.08.19 03.49	
4-Bromofluorobenzene	460-00-4	108	%	70-130	03.08.19 03.49	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

QC Summary 616897

LT Environmental, Inc.

JRU 10

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3081522 Matrix: Solid Date Prep: 03.07.19
MB Sample Id: 7673144-1-BLK LCS Sample Id: 7673144-1-BKS LCSD Sample Id: 7673144-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	267	107	266	106	90-110	0	20	mg/kg	03.07.19 22:55	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3081522 Matrix: Soil Date Prep: 03.07.19
Parent Sample Id: 616897-002 MS Sample Id: 616897-002 S MSD Sample Id: 616897-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	200	250	454	102	456	102	90-110	0	20	mg/kg	03.08.19 01:56	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3081522 Matrix: Soil Date Prep: 03.07.19
Parent Sample Id: 616899-002 MS Sample Id: 616899-002 S MSD Sample Id: 616899-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1.54	250	286	114	264	105	90-110	8	20	mg/kg	03.07.19 23:27	X

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3081581 Matrix: Solid Date Prep: 03.07.19
MB Sample Id: 7673224-1-BLK LCS Sample Id: 7673224-1-BKS LCSD Sample Id: 7673224-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	978	98	967	97	70-135	1	20	mg/kg	03.07.19 21:15	
Diesel Range Organics (DRO)	<8.13	1000	1000	100	970	97	70-135	3	20	mg/kg	03.07.19 21:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		126		125		70-135	%	03.07.19 21:15
o-Terphenyl	94		118		120		70-135	%	03.07.19 21:15

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 616897

LT Environmental, Inc.

JRU 10

Analytical Method: TPH by SW8015 Mod | Prep Method: TX1005P
Seq Number: 3081581 | Matrix: Soil | Date Prep: 03.07.19
Parent Sample Id: 616897-001 | MS Sample Id: 616897-001 S | MSD Sample Id: 616897-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<7.99	999	941	94	944	95	70-135	0	20	mg/kg	03.07.19 22:15	
Diesel Range Organics (DRO)	9.72	999	956	95	949	94	70-135	1	20	mg/kg	03.07.19 22:15	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	122		120		70-135	%	03.07.19 22:15
o-Terphenyl	112		110		70-135	%	03.07.19 22:15

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3081570 | Matrix: Solid | Date Prep: 03.07.19
MB Sample Id: 7673226-1-BLK | LCS Sample Id: 7673226-1-BKS | LCSD Sample Id: 7673226-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.0907	90	0.0932	93	70-130	3	35	mg/kg	03.08.19 00:41	
Toluene	<0.000458	0.101	0.0817	81	0.0847	85	70-130	4	35	mg/kg	03.08.19 00:41	
Ethylbenzene	<0.000568	0.101	0.0795	79	0.0828	83	70-130	4	35	mg/kg	03.08.19 00:41	
m,p-Xylenes	<0.00102	0.201	0.161	80	0.167	84	70-130	4	35	mg/kg	03.08.19 00:41	
o-Xylene	<0.000346	0.101	0.0800	79	0.0834	83	70-130	4	35	mg/kg	03.08.19 00:41	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		105		105		70-130	%	03.08.19 00:41
4-Bromofluorobenzene	100		96		98		70-130	%	03.08.19 00:41

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3081570 | Matrix: Soil | Date Prep: 03.07.19
Parent Sample Id: 616897-001 | MS Sample Id: 616897-001 S | MSD Sample Id: 616897-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000383	0.0994	0.0984	99	0.0991	99	70-130	1	35	mg/kg	03.08.19 01:19	
Toluene	<0.00199	0.0994	0.0869	87	0.0884	89	70-130	2	35	mg/kg	03.08.19 01:19	
Ethylbenzene	<0.000561	0.0994	0.0817	82	0.0835	84	70-130	2	35	mg/kg	03.08.19 01:19	
m,p-Xylenes	<0.00101	0.199	0.164	82	0.168	84	70-130	2	35	mg/kg	03.08.19 01:19	
o-Xylene	<0.000342	0.0994	0.0811	82	0.0833	83	70-130	3	35	mg/kg	03.08.19 01:19	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		107		70-130	%	03.08.19 01:19
4-Bromofluorobenzene	100		101		70-130	%	03.08.19 01:19

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Final 1.000

Chain of Custody

Work Order No: 611689?

XENCO LABORATORIES
Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)
www.xenco.com

Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	432.704.5178	Email:	Ggreen@LTenv.com/Abaker@LTenv.com

Work Order Comments

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

Project Name:	JRU 10	Turn Around	
Project Number:		Routine ☐	
P.O. Number:	2RP3179	Rush: 3/8/19	
Sampler's Name:	Garrett Green	Due Date: 3/8/19	

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No	
Temperature (°C):	0.3/0.2	Thermometer ID:		
Received Intact:	(Yes) No			
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.1	
Sample Custody Seals:	Yes (No) N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)
SW01	S	3/6/19	1150	1'-4'	1	X	X	X
SW02	S	3/6/19	1100	1'-4'	1	X	X	X
SW03	S	3/6/19	1110	1'-4'	1	X	X	X
SW04	S	3/6/19	1130	1'-4'	1	X	X	X
SW05	S	3/6/19	1130	1'-4'	1	X	X	X

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

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 SiO2 Na Sr Tl Sn U V Zn

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

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			3/6/18 14:00	2		3/7/19 1136
3				4		
5				6		

Revised Date 051418 Rev. 2018.1

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 03/07/2019 11:36:00 AM

Work Order #: 616897

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**Yes**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 03/07/2019

Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 03/07/2019

Jessica Kramer

Analytical Report 617315

for

LT Environmental, Inc.

Project Manager: Adrian Baker

JRU-10

25-MAR-19

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)

25-MAR-19

Project Manager: **Adrian Baker**
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, CO 80003

Reference: XENCO Report No(s): **617315**
JRU-10
Project Address: ---

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 617315. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 617315 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 617315

LT Environmental, Inc., Arvada, CO

JRU-10

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH01	S	03-05-19 12:45	6 ft	617315-001
PH01A	S	03-07-19 10:40	25 ft	617315-002
PH02	S	03-07-19 12:05	20 ft	617315-003
PH02A	S	03-08-19 15:00	42 ft	617315-004

CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: JRU-10

Project ID: ---
Work Order Number(s): *617315*

Report Date: *25-MAR-19*
Date Received: *03/12/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3081985 TPH by SW8015 Mod
Surrogate 1-Chlorooctane recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 617315-004,617315-003.

Batch: LBA-3082547 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.
Samples affected are: 617315-002.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3082772 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.
Samples affected are: 617315-004.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 617315

LT Environmental, Inc., Arvada, CO

Project Name: JRU-10

Project Id: ---
Contact: Adrian Baker
Project Location: ---

Date Received in Lab: Tue Mar-12-19 12:05 pm
Report Date: 25-MAR-19
Project Manager: Kalei Stout

Analysis Requested													
	Lab Id:	617315-001		617315-002		617315-003		617315-004					
	Field Id:	PH01		PH01A		PH02		PH02A					
	Depth:	6- ft		25- ft		20- ft		42- ft					
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Mar-05-19 12:45		Mar-07-19 10:40		Mar-07-19 12:05		Mar-08-19 15:00					
BTEX by EPA 8021B	***Extracted:***	Mar-18-19 16:00		Mar-18-19 16:00		Mar-18-19 16:00		Mar-20-19 13:30					
	Analyzed:	Mar-19-19 18:06		Mar-19-19 15:15		Mar-19-19 17:28		Mar-21-19 00:01					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.502	0.502	<0.00200	0.00200	<0.200	0.200	<0.402	0.402				
Toluene		4.34	0.502	<0.00200	0.00200	9.81	0.200	4.19	0.402				
Ethylbenzene		5.28	0.502	<0.00200	0.00200	11.8	0.200	12.2	0.402				
m,p-Xylenes		78.5	1.00	<0.00400	0.00400	66.8	0.401	60.9	0.803				
o-Xylene		0.766	0.502	<0.00200	0.00200	17.7	0.200	15.0	0.402				
Total Xylenes		79.3	0.502	<0.00200	0.00200	84.5	0.200	75.9	0.402				
Total BTEX		88.9	0.502	<0.00200	0.00200	106	0.200	92.3	0.402				
Inorganic Anions by EPA 300	***Extracted:***	Mar-13-19 08:30		Mar-13-19 08:30		Mar-13-19 08:30		Mar-13-19 08:30					
	Analyzed:	Mar-13-19 17:28		Mar-13-19 17:34		Mar-13-19 17:41		Mar-13-19 17:47					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		908	4.98	264	4.98	241	4.98	474	4.98				
TPH by SW8015 Mod	***Extracted:***	Mar-12-19 14:00		Mar-12-19 14:00		Mar-12-19 14:00		Mar-12-19 14:00					
	Analyzed:	Mar-13-19 01:32		Mar-13-19 02:33		Mar-13-19 02:53		Mar-13-19 03:13					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		3110	15.0	<14.9	14.9	4140	14.9	3400	15.0				
Diesel Range Organics (DRO)		2090	15.0	35.0	14.9	3180	14.9	2720	15.0				
Motor Oil Range Hydrocarbons (MRO)		17.9	15.0	<14.9	14.9	21.7	14.9	18.1	15.0				
Total TPH		5220	15.0	35.0	14.9	7340	14.9	6140	15.0				

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer
Project Assistant

Final 1.000

Certificate of Analytical Results 617315

LT Environmental, Inc., Arvada, CO

JRU-10

Sample Id:	**PH01**	Matrix:	Soil	Date Received:	03.12.19 12.05
Lab Sample Id:	617315-001	Date Collected:	03.05.19 12.45	Sample Depth:	6 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.13.19 08.30	Basis:	Wet Weight
Seq Number:	3082023				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**908**	4.98	mg/kg	03.13.19 17.28		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.12.19 14.00	Basis:	Wet Weight
Seq Number:	3081985				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**3110**	15.0	mg/kg	03.13.19 01.32		1
Diesel Range Organics (DRO)	C10C28DRO	**2090**	15.0	mg/kg	03.13.19 01.32		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**17.9**	15.0	mg/kg	03.13.19 01.32		1
Total TPH	PHC635	**5220**	15.0	mg/kg	03.13.19 01.32		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-135	03.13.19 01.32	
o-Terphenyl	84-15-1	104	%	70-135	03.13.19 01.32	

Certificate of Analytical Results 617315

LT Environmental, Inc., Arvada, CO

JRU-10

Sample Id:	**PH01**	Matrix:	Soil	Date Received:	03.12.19 12.05
Lab Sample Id:	617315-001	Date Collected:	03.05.19 12.45	Sample Depth:	6 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.18.19 16.00	Basis:	Wet Weight
Seq Number:	3082547				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.502	0.502	mg/kg	03.19.19 18.06	U	250
Toluene	108-88-3	**4.34**	0.502	mg/kg	03.19.19 18.06		250
Ethylbenzene	100-41-4	**5.28**	0.502	mg/kg	03.19.19 18.06		250
m,p-Xylenes	179601-23-1	**78.5**	1.00	mg/kg	03.19.19 18.06		250
o-Xylene	95-47-6	**0.766**	0.502	mg/kg	03.19.19 18.06		250
Total Xylenes	1330-20-7	**79.3**	0.502	mg/kg	03.19.19 18.06		250
Total BTEX		**88.9**	0.502	mg/kg	03.19.19 18.06		250

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	03.19.19 18.06	
4-Bromofluorobenzene	460-00-4	135	%	70-130	03.19.19 18.06	**

Certificate of Analytical Results 617315

LT Environmental, Inc., Arvada, CO

JRU-10

Sample Id:	**PH01A**	Matrix:	Soil	Date Received:	03.12.19 12.05
Lab Sample Id:	617315-002	Date Collected:	03.07.19 10.40	Sample Depth:	25 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.13.19 08.30	Basis:	Wet Weight
Seq Number:	3082023				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**264**	4.98	mg/kg	03.13.19 17.34		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.12.19 14.00	Basis:	Wet Weight
Seq Number:	3081985				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.13.19 02.33	U	1
Diesel Range Organics (DRO)	C10C28DRO	**35.0**	14.9	mg/kg	03.13.19 02.33		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	03.13.19 02.33	U	1
Total TPH	PHC635	**35.0**	14.9	mg/kg	03.13.19 02.33		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	03.13.19 02.33	
o-Terphenyl	84-15-1	94	%	70-135	03.13.19 02.33	

Certificate of Analytical Results 617315

LT Environmental, Inc., Arvada, CO

JRU-10

Sample Id:	**PH01A**	Matrix:	Soil	Date Received:	03.12.19 12.05
Lab Sample Id:	617315-002	Date Collected:	03.07.19 10.40	Sample Depth:	25 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.18.19 16.00	Basis:	Wet Weight
Seq Number:	3082547				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.19.19 15.15	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.19.19 15.15	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.19.19 15.15	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.19.19 15.15	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.19.19 15.15	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.19.19 15.15	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.19.19 15.15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	109	%	70-130	03.19.19 15.15	
4-Bromofluorobenzene	460-00-4	134	%	70-130	03.19.19 15.15	**

Certificate of Analytical Results 617315

LT Environmental, Inc., Arvada, CO

JRU-10

Sample Id:	**PH02**	Matrix:	Soil	Date Received:	03.12.19 12.05
Lab Sample Id:	617315-003	Date Collected:	03.07.19 12.05	Sample Depth:	20 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.13.19 08.30	Basis:	Wet Weight
Seq Number:	3082023				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**241**	4.98	mg/kg	03.13.19 17.41		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.12.19 14.00	Basis:	Wet Weight
Seq Number:	3081985				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**4140**	14.9	mg/kg	03.13.19 02.53		1
Diesel Range Organics (DRO)	C10C28DRO	**3180**	14.9	mg/kg	03.13.19 02.53		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**21.7**	14.9	mg/kg	03.13.19 02.53		1
Total TPH	PHC635	**7340**	14.9	mg/kg	03.13.19 02.53		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	158	%	70-135	03.13.19 02.53	**
o-Terphenyl	84-15-1	107	%	70-135	03.13.19 02.53	

Certificate of Analytical Results 617315

LT Environmental, Inc., Arvada, CO

JRU-10

Sample Id:	**PH02**	Matrix:	Soil	Date Received:	03.12.19 12.05
Lab Sample Id:	617315-003	Date Collected:	03.07.19 12.05	Sample Depth:	20 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.18.19 16.00	Basis:	Wet Weight
Seq Number:	3082547				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.200	0.200	mg/kg	03.19.19 17.28	U	100
Toluene	108-88-3	**9.81**	0.200	mg/kg	03.19.19 17.28		100
Ethylbenzene	100-41-4	**11.8**	0.200	mg/kg	03.19.19 17.28		100
m,p-Xylenes	179601-23-1	**66.8**	0.401	mg/kg	03.19.19 17.28		100
o-Xylene	95-47-6	**17.7**	0.200	mg/kg	03.19.19 17.28		100
Total Xylenes	1330-20-7	**84.5**	0.200	mg/kg	03.19.19 17.28		100
Total BTEX		**106**	0.200	mg/kg	03.19.19 17.28		100

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	260	%	70-130	03.19.19 17.28	**
1,4-Difluorobenzene	540-36-3	114	%	70-130	03.19.19 17.28	

Certificate of Analytical Results 617315

LT Environmental, Inc., Arvada, CO

JRU-10

Sample Id:	**PH02A**	Matrix:	Soil	Date Received:	03.12.19 12.05
Lab Sample Id:	617315-004	Date Collected:	03.08.19 15.00	Sample Depth:	42 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	03.13.19 08.30	Basis:	Wet Weight
Seq Number:	3082023				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**474**	4.98	mg/kg	03.13.19 17.47		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.12.19 14.00	Basis:	Wet Weight
Seq Number:	3081985				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**3400**	15.0	mg/kg	03.13.19 03.13		1
Diesel Range Organics (DRO)	C10C28DRO	**2720**	15.0	mg/kg	03.13.19 03.13		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**18.1**	15.0	mg/kg	03.13.19 03.13		1
Total TPH	PHC635	**6140**	15.0	mg/kg	03.13.19 03.13		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	223	%	70-135	03.13.19 03.13	**
o-Terphenyl	84-15-1	105	%	70-135	03.13.19 03.13	

Certificate of Analytical Results 617315

LT Environmental, Inc., Arvada, CO

JRU-10

Sample Id:	**PH02A**	Matrix:	Soil	Date Received:	03.12.19 12.05
Lab Sample Id:	617315-004	Date Collected:	03.08.19 15.00	Sample Depth:	42 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.19 13.30	Basis:	Wet Weight
Seq Number:	3082772				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.402	0.402	mg/kg	03.21.19 00.01	U	200
Toluene	108-88-3	**4.19**	0.402	mg/kg	03.21.19 00.01		200
Ethylbenzene	100-41-4	**12.2**	0.402	mg/kg	03.21.19 00.01		200
m,p-Xylenes	179601-23-1	**60.9**	0.803	mg/kg	03.21.19 00.01		200
o-Xylene	95-47-6	**15.0**	0.402	mg/kg	03.21.19 00.01		200
Total Xylenes	1330-20-7	**75.9**	0.402	mg/kg	03.21.19 00.01		200
Total BTEX		**92.3**	0.402	mg/kg	03.21.19 00.01		200

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	161	%	70-130	03.21.19 00.01	**
1,4-Difluorobenzene	540-36-3	105	%	70-130	03.21.19 00.01	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

QC Summary 617315

LT Environmental, Inc.

JRU-10

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3082023 Matrix: Solid Date Prep: 03.13.19
MB Sample Id: 7673457-1-BLK LCS Sample Id: 7673457-1-BKS LCSD Sample Id: 7673457-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1.10	250	270	108	257	103	90-110	5	20	mg/kg	03.13.19 14:57	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3082023 Matrix: Soil Date Prep: 03.13.19
Parent Sample Id: 617103-014 MS Sample Id: 617103-014 S MSD Sample Id: 617103-014 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	4.33	252	272	106	271	106	90-110	0	20	mg/kg	03.13.19 16:48	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3082023 Matrix: Soil Date Prep: 03.13.19
Parent Sample Id: 617402-001 MS Sample Id: 617402-001 S MSD Sample Id: 617402-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	16.0	250	274	103	281	106	90-110	3	20	mg/kg	03.13.19 15:17	

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3081985 Matrix: Solid Date Prep: 03.12.19
MB Sample Id: 7673483-1-BLK LCS Sample Id: 7673483-1-BKS LCSD Sample Id: 7673483-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1080	108	1020	102	70-135	6	20	mg/kg	03.12.19 21:12	
Diesel Range Organics (DRO)	<8.13	1000	1090	109	1040	104	70-135	5	20	mg/kg	03.12.19 21:12	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		123		119		70-135	%	03.12.19 21:12
o-Terphenyl	105		111		106		70-135	%	03.12.19 21:12

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 617315

LT Environmental, Inc.

JRU-10

Analytical Method: TPH by SW8015 Mod | Prep Method: TX1005P
Seq Number: 3081985 | Matrix: Soil | Date Prep: 03.12.19
Parent Sample Id: 617310-001 | MS Sample Id: 617310-001 S | MSD Sample Id: 617310-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<7.99	999	1040	104	1030	103	70-135	1	20	mg/kg	03.12.19 22:12	
Diesel Range Organics (DRO)	<8.12	999	1070	107	1070	107	70-135	0	20	mg/kg	03.12.19 22:12	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	125		124		70-135	%	03.12.19 22:12
o-Terphenyl	100		95		70-135	%	03.12.19 22:12

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3082547 | Matrix: Solid | Date Prep: 03.18.19
MB Sample Id: 7673824-1-BLK | LCS Sample Id: 7673824-1-BKS | LCSD Sample Id: 7673824-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000386	0.100	0.107	107	0.103	104	70-130	4	35	mg/kg	03.19.19 06:12	
Toluene	<0.000457	0.100	0.113	113	0.110	111	70-130	3	35	mg/kg	03.19.19 06:12	
Ethylbenzene	<0.000567	0.100	0.104	104	0.101	102	70-130	3	35	mg/kg	03.19.19 06:12	
m,p-Xylenes	<0.00102	0.201	0.200	100	0.194	97	70-130	3	35	mg/kg	03.19.19 06:12	
o-Xylene	<0.000346	0.100	0.102	102	0.100	101	70-130	2	35	mg/kg	03.19.19 06:12	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		100		102		70-130	%	03.19.19 06:12
4-Bromofluorobenzene	108		104		106		70-130	%	03.19.19 06:12

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3082772 | Matrix: Solid | Date Prep: 03.20.19
MB Sample Id: 7673968-1-BLK | LCS Sample Id: 7673968-1-BKS | LCSD Sample Id: 7673968-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.113	113	0.117	117	70-130	3	35	mg/kg	03.20.19 14:50	
Toluene	<0.00200	0.100	0.114	114	0.118	118	70-130	3	35	mg/kg	03.20.19 14:50	
Ethylbenzene	<0.000565	0.100	0.101	101	0.103	103	70-130	2	35	mg/kg	03.20.19 14:50	
m,p-Xylenes	<0.00101	0.200	0.198	99	0.203	101	70-130	2	35	mg/kg	03.20.19 14:50	
o-Xylene	<0.00200	0.100	0.0992	99	0.102	102	70-130	3	35	mg/kg	03.20.19 14:50	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	117		108		109		70-130	%	03.20.19 14:50
4-Bromofluorobenzene	114		105		108		70-130	%	03.20.19 14:50

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Final 1.000

QC Summary 617315

LT Environmental, Inc.

JRU-10

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3082547 Matrix: Soil Date Prep: 03.18.19

Parent Sample Id: 617912-001 MS Sample Id: 617912-001 S MSD Sample Id: 617912-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000383	0.0996	0.0641	64	0.0686	68	70-130	7	35	mg/kg	03.19.19 06:50	X
Toluene	<0.000454	0.0996	0.0751	75	0.0785	78	70-130	4	35	mg/kg	03.19.19 06:50	
Ethylbenzene	<0.000563	0.0996	0.0920	92	0.0942	93	70-130	2	35	mg/kg	03.19.19 06:50	
m,p-Xylenes	<0.00101	0.199	0.179	90	0.182	90	70-130	2	35	mg/kg	03.19.19 06:50	
o-Xylene	<0.000343	0.0996	0.0886	89	0.0898	89	70-130	1	35	mg/kg	03.19.19 06:50	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		102		70-130	%	03.19.19 06:50
4-Bromofluorobenzene	110		111		70-130	%	03.19.19 06:50

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3082772 Matrix: Soil Date Prep: 03.20.19

Parent Sample Id: 618088-010 MS Sample Id: 618088-010 S MSD Sample Id: 618088-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.104	105	0.107	107	70-130	3	35	mg/kg	03.20.19 15:32	
Toluene	0.000601	0.0994	0.107	107	0.109	108	70-130	2	35	mg/kg	03.20.19 15:32	
Ethylbenzene	<0.000561	0.0994	0.0960	97	0.0944	94	70-130	2	35	mg/kg	03.20.19 15:32	
m,p-Xylenes	<0.00101	0.199	0.189	95	0.186	93	70-130	2	35	mg/kg	03.20.19 15:32	
o-Xylene	0.000391	0.0994	0.0955	96	0.0931	93	70-130	3	35	mg/kg	03.20.19 15:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		110		70-130	%	03.20.19 15:32
4-Bromofluorobenzene	113		111		70-130	%	03.20.19 15:32

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike

Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added

LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

XENCO LABORATORIES

Chain of Custody

Work Order No: 617315

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

www.xenco.com Page 1 of 1

Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Littrel
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO - Energy
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad NM
Phone:	432.704.5178	Email:	

Work Order Comments

Program: UST/PST ☐ RP ☐ Brownfields ☐ RC ☐ Superfund ☐

State of Project:

Reporting: Level II ☐ Level III ☐ ST/UST ☐ RP ☐ Level IV ☐

Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	JRU-10	Turn Around	
Project Number:		Routine	☑
P.O. Number:	2RP-3464 2RP-3179	Rush:	
Sampler's Name:	Garrette G Robert M.	Due Date:	

SAMPLE RECEIPT

Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	0.3/0.2	Thermometer ID	R8
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.1
Sample Custody Seals:	Yes (No) N/A	Total Containers:	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)	Sample Comments
PH01	S	03/05/19	1245	6'	1	X	X	X	discrete
PH01A	↓	03/07/19	1040	25'	↓	X	X	X	↓
PH02	↓	03/07/19	1205	20'	↓	X	X	X	↓
PH02A	↓	03/08/19	1500	42'	↓	X	X	X	↓

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

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 SiO2 Na Sr Tl Sn U V Zn

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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 [signature]	[signature]	03/08/19@1140	2 [signature]	[signature]	3/12/19 1205
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 03/12/2019 12:05:00 PM

Work Order #: 617315

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 03/12/2019

Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 03/12/2019

Jessica Kramer

Analytical Report 620474

for

LT Environmental, Inc.

Project Manager: Adrian Baker

JRU 10 TB

2RP-3179,2RP-3464, 2RP-5243

10-APR-19

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)

10-APR-19

Project Manager: **Adrian Baker**
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, CO 80003

Reference: XENCO Report No(s): **620474**
JRU 10 TB
Project Address: Delaware Basin

Adrian Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 620474. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 620474 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kalei Stout
Midland Laboratory Director

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH01F	S	04-03-19 10:10	35 ft	620474-001
BH010	S	04-04-19 11:00	80 ft	620474-002
BH02B	S	04-04-19 14:30	15 ft	620474-003
BH020	S	04-05-19 08:30	80 ft	620474-004
BH03	S	04-05-19 09:00	5 ft	620474-005
BH03A	S	04-05-19 09:10	10 ft	620474-006
BH04D	S	04-05-19 10:15	25 ft	620474-007
BH04I	S	04-05-19 11:45	50 ft	620474-008
BH04C	S	04-05-19 12:45	20 ft	620474-009
BH05E	S	04-05-19 13:00	30 ft	620474-010
BH06	S	04-05-19 13:15	5 ft	620474-011
BH06E	S	04-05-19 13:55	30 ft	620474-012

CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: JRU 10 TB

Project ID: *2RP-3179,2RP-3464, 2RP*
Work Order Number(s): *620474*

Report Date: *10-APR-19*
Date Received: *04/09/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3085165 Inorganic Anions by EPA 300
Lab Sample ID 620474-011 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 620474-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3085184 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.
Samples affected are: 620474-001,620474-005,620474-004,620474-003.

Certificate of Analysis Summary 620474

LT Environmental, Inc., Arvada, CO

Project Name: JRU 10 TB

Project Id: 2RP-3179,2RP-3464, 2RP-5243
Contact: Adrian Baker
Project Location: Delaware Basin

Date Received in Lab: Tue Apr-09-19 12:09 pm
Report Date: 10-APR-19
Project Manager: Kalei Stout

Analysis Requested													
	Lab Id:	620474-001		620474-002		620474-003		620474-004		620474-005		620474-006	
	Field Id:	BH01F		BH010		BH02B		BH020		BH03		BH03A	
	Depth:	35- ft		80- ft		15- ft		80- ft		5- ft		10- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-03-19 10:10		Apr-04-19 11:00		Apr-04-19 14:30		Apr-05-19 08:30		Apr-05-19 09:00		Apr-05-19 09:10	
BTEX by EPA 8021B	*Extracted:*	Apr-09-19 13:30		Apr-09-19 13:30		Apr-09-19 13:30		Apr-09-19 13:30		Apr-09-19 13:30		Apr-09-19 13:30	
	Analyzed:	Apr-10-19 10:21		Apr-10-19 10:02		Apr-10-19 11:35		Apr-10-19 11:54		Apr-10-19 12:13		Apr-10-19 12:32	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.499	0.499	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Toluene		9.90	0.499	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Ethylbenzene		11.6	0.499	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
m,p-Xylenes		56.5	0.998	<0.00399	0.00399	<0.00400	0.00400	<0.00400	0.00400	<0.00402	0.00402	<0.00401	0.00401
o-Xylene		15.1	0.499	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Total Xylenes		71.6	0.499	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Total BTEX		93.1	0.499	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Inorganic Anions by EPA 300 SUB: T104704219-19-19	*Extracted:*	Apr-10-19 09:15		Apr-10-19 09:15		Apr-10-19 09:15		Apr-10-19 09:15		Apr-10-19 09:15		Apr-10-19 09:15	
	Analyzed:	Apr-10-19 10:23		Apr-10-19 10:50		Apr-10-19 10:57		Apr-10-19 11:04		Apr-10-19 11:11		Apr-10-19 11:18	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		2090 D	125	<25.0	25.0	69.9	25.0	<25.0	25.0	1000	125	833	250
TPH by SW8015 Mod	*Extracted:*	Apr-09-19 17:00		Apr-09-19 17:00		Apr-09-19 17:00		Apr-09-19 17:00		Apr-09-19 17:00		Apr-09-19 17:00	
	Analyzed:	Apr-10-19 05:57		Apr-10-19 00:35		Apr-10-19 01:31		Apr-10-19 01:50		Apr-10-19 02:09		Apr-10-19 02:28	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		6030	74.7	<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0
Diesel Range Organics (DRO)		3500	74.7	<15.0	15.0	<15.0	15.0	50.9	15.0	<14.9	14.9	<15.0	15.0
Motor Oil Range Hydrocarbons (MRO)		<74.7	74.7	<15.0	15.0	<15.0	15.0	16.8	15.0	<14.9	14.9	<15.0	15.0
Total TPH		9530	74.7	<15.0	15.0	<15.0	15.0	67.7	15.0	<14.9	14.9	<15.0	15.0
Total GRO-DRO		9530	74.7	<15.0	15.0	<15.0	15.0	50.9	15.0	<14.9	14.9	<15.0	15.0

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Kalei Stout
Midland Laboratory Director

Final 1.000

Certificate of Analysis Summary 620474

LT Environmental, Inc., Arvada, CO

Project Name: JRU 10 TB

Project Id: 2RP-3179,2RP-3464, 2RP-5243
Contact: Adrian Baker
Project Location: Delaware Basin

Date Received in Lab: Tue Apr-09-19 12:09 pm
Report Date: 10-APR-19
Project Manager: Kalei Stout

Analysis Requested													
	Lab Id:	620474-007		620474-008		620474-009		620474-010		620474-011		620474-012	
	Field Id:	BH04D		BH04I		BH04C		BH05E		BH06		BH06E	
	Depth:	25- ft		50- ft		20- ft		30- ft		5- ft		30- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-05-19 10:15		Apr-05-19 11:45		Apr-05-19 12:45		Apr-05-19 13:00		Apr-05-19 13:15		Apr-05-19 13:55	
BTEX by EPA 8021B	***Extracted:***	Apr-09-19 13:30		Apr-09-19 13:30		Apr-09-19 13:30		Apr-09-19 13:30		Apr-09-19 13:30		Apr-09-19 13:30	
	Analyzed:	Apr-10-19 12:51		Apr-10-19 13:10		Apr-10-19 13:29		Apr-10-19 13:49		Apr-10-19 14:08		Apr-10-19 14:27	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00201	0.00201	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Toluene		<0.00201	0.00201	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Ethylbenzene		<0.00201	0.00201	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00402	0.00402	<0.00398	0.00398	<0.00398	0.00398	<0.00398	0.00398	<0.00400	0.00400	<0.00399	0.00399
o-Xylene		<0.00201	0.00201	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00201	0.00201	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		<0.00201	0.00201	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Inorganic Anions by EPA 300 SUB: T104704219-19-19	***Extracted:***	Apr-10-19 09:15		Apr-10-19 09:15		Apr-10-19 09:15		Apr-10-19 09:15		Apr-10-19 09:15		Apr-10-19 09:15	
	Analyzed:	Apr-10-19 11:25		Apr-10-19 11:32		Apr-10-19 11:39		Apr-10-19 11:53		Apr-10-19 12:00		Apr-10-19 12:27	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		90.6	50.0	93.8	25.0	240	25.0	81.2	25.0	385	25.0	101	25.0
TPH by SW8015 Mod	***Extracted:***	Apr-09-19 17:00		Apr-09-19 17:00		Apr-09-19 17:00		Apr-09-19 17:00		Apr-09-19 17:00		Apr-09-19 17:00	
	Analyzed:	Apr-10-19 02:46		Apr-10-19 03:05		Apr-10-19 03:24		Apr-10-19 03:43		Apr-10-19 04:02		Apr-10-19 04:21	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		<15.0	15.0	26.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Total TPH		<15.0	15.0	26.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Total GRO-DRO		<15.0	15.0	26.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0

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Kalei Stout
Midland Laboratory Director

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Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH01F**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-001	Date Collected:	04.03.19 10.10	Sample Depth:	35 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	RNL			% Moisture:	
Analyst:	RNL	Date Prep:	04.10.19 09.15	Basis:	Wet Weight
Seq Number:	3085165			SUB:	T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2090**	125	mg/kg	04.10.19 10.30	D	5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	04.09.19 17.00	Basis:	Wet Weight
Seq Number:	3085150				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**6030**	74.7	mg/kg	04.10.19 05.57		5
Diesel Range Organics (DRO)	C10C28DRO	**3500**	74.7	mg/kg	04.10.19 05.57		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<74.7	74.7	mg/kg	04.10.19 05.57	U	5
Total TPH	PHC635	**9530**	74.7	mg/kg	04.10.19 05.57		5
Total GRO-DRO	PHC628	**9530**	74.7	mg/kg	04.10.19 05.57		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	04.10.19 05.57	
o-Terphenyl	84-15-1	103	%	70-135	04.10.19 05.57	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH01F**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-001	Date Collected:	04.03.19 10.10	Sample Depth:	35 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.499	0.499	mg/kg	04.10.19 10.21	U	250
Toluene	108-88-3	**9.90**	0.499	mg/kg	04.10.19 10.21		250
Ethylbenzene	100-41-4	**11.6**	0.499	mg/kg	04.10.19 10.21		250
m,p-Xylenes	179601-23-1	**56.5**	0.998	mg/kg	04.10.19 10.21		250
o-Xylene	95-47-6	**15.1**	0.499	mg/kg	04.10.19 10.21		250
Total Xylenes	1330-20-7	**71.6**	0.499	mg/kg	04.10.19 10.21		250
Total BTEX		**93.1**	0.499	mg/kg	04.10.19 10.21		250

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	109	%	70-130	04.10.19 10.21	
4-Bromofluorobenzene	460-00-4	138	%	70-130	04.10.19 10.21	**

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id: **BH010** Matrix: Soil Date Received:04.09.19 12.09

Lab Sample Id: 620474-002 Date Collected: 04.04.19 11.00 Sample Depth: 80 ft

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: RNL % Moisture:

Analyst: RNL Date Prep: 04.10.19 09.15 Basis: Wet Weight

Seq Number: 3085165 SUB: T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<25.0	25.0	mg/kg	04.10.19 10.50	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 04.09.19 17.00 Basis: Wet Weight

Seq Number: 3085150

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.10.19 00.35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.10.19 00.35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.10.19 00.35	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.10.19 00.35	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.10.19 00.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.10.19 00.35	
o-Terphenyl	84-15-1	95	%	70-135	04.10.19 00.35	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH010**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-002	Date Collected:	04.04.19 11.00	Sample Depth:	80 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.10.19 10.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.10.19 10.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.10.19 10.02	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.10.19 10.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.10.19 10.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.10.19 10.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.10.19 10.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	04.10.19 10.02	
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.10.19 10.02	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH02B**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-003	Date Collected:	04.04.19 14.30	Sample Depth:	15 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	RNL			% Moisture:	
Analyst:	RNL	Date Prep:	04.10.19 09.15	Basis:	Wet Weight
Seq Number:	3085165			SUB:	T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**69.9**	25.0	mg/kg	04.10.19 10.57		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	04.09.19 17.00	Basis:	Wet Weight
Seq Number:	3085150				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.10.19 01.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.10.19 01.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.10.19 01.31	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.10.19 01.31	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.10.19 01.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.10.19 01.31	
o-Terphenyl	84-15-1	93	%	70-135	04.10.19 01.31	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH02B**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-003	Date Collected:	04.04.19 14.30	Sample Depth:	15 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.10.19 11.35	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.10.19 11.35	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.10.19 11.35	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.10.19 11.35	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.10.19 11.35	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.10.19 11.35	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.10.19 11.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	135	%	70-130	04.10.19 11.35	**
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.10.19 11.35	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH020**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-004	Date Collected:	04.05.19 08.30	Sample Depth:	80 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	RNL			% Moisture:	
Analyst:	RNL	Date Prep:	04.10.19 09.15	Basis:	Wet Weight
Seq Number:	3085165			SUB:	T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<25.0	25.0	mg/kg	04.10.19 11.04	U	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	04.09.19 17.00	Basis:	Wet Weight
Seq Number:	3085150				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.10.19 01.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	**50.9**	15.0	mg/kg	04.10.19 01.50		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**16.8**	15.0	mg/kg	04.10.19 01.50		1
Total TPH	PHC635	**67.7**	15.0	mg/kg	04.10.19 01.50		1
Total GRO-DRO	PHC628	**50.9**	15.0	mg/kg	04.10.19 01.50		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.10.19 01.50	
o-Terphenyl	84-15-1	86	%	70-135	04.10.19 01.50	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH020**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-004	Date Collected:	04.05.19 08.30	Sample Depth:	80 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.10.19 11.54	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.10.19 11.54	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.10.19 11.54	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.10.19 11.54	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.10.19 11.54	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.10.19 11.54	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.10.19 11.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	04.10.19 11.54	
4-Bromofluorobenzene	460-00-4	152	%	70-130	04.10.19 11.54	**

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH03**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-005	Date Collected:	04.05.19 09.00	Sample Depth:	5 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	RNL			% Moisture:	
Analyst:	RNL	Date Prep:	04.10.19 09.15	Basis:	Wet Weight
Seq Number:	3085165			SUB:	T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1000**	125	mg/kg	04.10.19 11.11		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	04.09.19 17.00	Basis:	Wet Weight
Seq Number:	3085150				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.10.19 02.09	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.10.19 02.09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.10.19 02.09	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.10.19 02.09	U	1
Total GRO-DRO	PHC628	<14.9	14.9	mg/kg	04.10.19 02.09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	04.10.19 02.09	
o-Terphenyl	84-15-1	95	%	70-135	04.10.19 02.09	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH03**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-005	Date Collected:	04.05.19 09.00	Sample Depth:	5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.10.19 12.13	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.10.19 12.13	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.10.19 12.13	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.10.19 12.13	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.10.19 12.13	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.10.19 12.13	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.10.19 12.13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	137	%	70-130	04.10.19 12.13	**
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.10.19 12.13	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id: **BH03A** Matrix: Soil Date Received:04.09.19 12.09

Lab Sample Id: 620474-006 Date Collected: 04.05.19 09.10 Sample Depth: 10 ft

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: RNL % Moisture:

Analyst: RNL Date Prep: 04.10.19 09.15 Basis: Wet Weight

Seq Number: 3085165 SUB: T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**833**	250	mg/kg	04.10.19 11.18		10

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 04.09.19 17.00 Basis: Wet Weight

Seq Number: 3085150

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.10.19 02.28	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.10.19 02.28	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.10.19 02.28	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.10.19 02.28	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.10.19 02.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	04.10.19 02.28	
o-Terphenyl	84-15-1	95	%	70-135	04.10.19 02.28	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH03A**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-006	Date Collected:	04.05.19 09.10	Sample Depth:	10 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.10.19 12.32	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.10.19 12.32	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.10.19 12.32	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.10.19 12.32	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.10.19 12.32	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.10.19 12.32	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.10.19 12.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	121	%	70-130	04.10.19 12.32	
1,4-Difluorobenzene	540-36-3	105	%	70-130	04.10.19 12.32	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id: **BH04D** Matrix: Soil Date Received:04.09.19 12.09

Lab Sample Id: 620474-007 Date Collected: 04.05.19 10.15 Sample Depth: 25 ft

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: RNL % Moisture:

Analyst: RNL Date Prep: 04.10.19 09.15 Basis: Wet Weight

Seq Number: 3085165 SUB: T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**90.6**	50.0	mg/kg	04.10.19 11.25		2

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 04.09.19 17.00 Basis: Wet Weight

Seq Number: 3085150

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.10.19 02.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.10.19 02.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.10.19 02.46	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.10.19 02.46	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.10.19 02.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	04.10.19 02.46	
o-Terphenyl	84-15-1	93	%	70-135	04.10.19 02.46	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH04D**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-007	Date Collected:	04.05.19 10.15	Sample Depth:	25 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.10.19 12.51	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.10.19 12.51	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.10.19 12.51	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.10.19 12.51	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.10.19 12.51	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.10.19 12.51	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.10.19 12.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.10.19 12.51	
4-Bromofluorobenzene	460-00-4	118	%	70-130	04.10.19 12.51	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH04I**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-008	Date Collected:	04.05.19 11.45	Sample Depth:	50 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	RNL			% Moisture:	
Analyst:	RNL	Date Prep:	04.10.19 09.15	Basis:	Wet Weight
Seq Number:	3085165			SUB:	T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**93.8**	25.0	mg/kg	04.10.19 11.32		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	04.09.19 17.00	Basis:	Wet Weight
Seq Number:	3085150				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.10.19 03.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	**26.0**	15.0	mg/kg	04.10.19 03.05		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.10.19 03.05	U	1
Total TPH	PHC635	**26.0**	15.0	mg/kg	04.10.19 03.05		1
Total GRO-DRO	PHC628	**26.0**	15.0	mg/kg	04.10.19 03.05		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.10.19 03.05	
o-Terphenyl	84-15-1	90	%	70-135	04.10.19 03.05	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH04I**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-008	Date Collected:	04.05.19 11.45	Sample Depth:	50 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.10.19 13.10	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.10.19 13.10	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.10.19 13.10	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.10.19 13.10	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.10.19 13.10	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.10.19 13.10	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.10.19 13.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	116	%	70-130	04.10.19 13.10	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.10.19 13.10	

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LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH04C**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-009	Date Collected:	04.05.19 12.45	Sample Depth:	20 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	RNL			% Moisture:	
Analyst:	RNL	Date Prep:	04.10.19 09.15	Basis:	Wet Weight
Seq Number:	3085165			SUB:	T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**240**	25.0	mg/kg	04.10.19 11.39		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	04.09.19 17.00	Basis:	Wet Weight
Seq Number:	3085150				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.10.19 03.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.10.19 03.24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.10.19 03.24	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.10.19 03.24	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.10.19 03.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.10.19 03.24	
o-Terphenyl	84-15-1	94	%	70-135	04.10.19 03.24	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH04C**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-009	Date Collected:	04.05.19 12.45	Sample Depth:	20 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.10.19 13.29	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.10.19 13.29	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.10.19 13.29	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.10.19 13.29	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.10.19 13.29	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.10.19 13.29	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.10.19 13.29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	113	%	70-130	04.10.19 13.29	
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.10.19 13.29	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH05E**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-010	Date Collected:	04.05.19 13.00	Sample Depth:	30 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	RNL			% Moisture:	
Analyst:	RNL	Date Prep:	04.10.19 09.15	Basis:	Wet Weight
Seq Number:	3085165			SUB:	T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**81.2**	25.0	mg/kg	04.10.19 11.53		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	04.09.19 17.00	Basis:	Wet Weight
Seq Number:	3085150				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.10.19 03.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.10.19 03.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.10.19 03.43	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.10.19 03.43	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.10.19 03.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.10.19 03.43	
o-Terphenyl	84-15-1	94	%	70-135	04.10.19 03.43	

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LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH05E**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-010	Date Collected:	04.05.19 13.00	Sample Depth:	30 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.10.19 13.49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.10.19 13.49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.10.19 13.49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.10.19 13.49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.10.19 13.49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.10.19 13.49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.10.19 13.49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	04.10.19 13.49	
4-Bromofluorobenzene	460-00-4	122	%	70-130	04.10.19 13.49	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH06**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-011	Date Collected:	04.05.19 13.15	Sample Depth:	5 ft

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	RNL			% Moisture:	
Analyst:	RNL	Date Prep:	04.10.19 09.15	Basis:	Wet Weight
Seq Number:	3085165			SUB:	T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**385**	25.0	mg/kg	04.10.19 12.00		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	04.09.19 17.00	Basis:	Wet Weight
Seq Number:	3085150				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.10.19 04.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.10.19 04.02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.10.19 04.02	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.10.19 04.02	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.10.19 04.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	04.10.19 04.02	
o-Terphenyl	84-15-1	104	%	70-135	04.10.19 04.02	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH06**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-011	Date Collected:	04.05.19 13.15	Sample Depth:	5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.10.19 14.08	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.10.19 14.08	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.10.19 14.08	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.10.19 14.08	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.10.19 14.08	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.10.19 14.08	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.10.19 14.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	116	%	70-130	04.10.19 14.08	
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.10.19 14.08	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id: **BH06E** Matrix: Soil Date Received:04.09.19 12.09

Lab Sample Id: 620474-012 Date Collected: 04.05.19 13.55 Sample Depth: 30 ft

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: RNL % Moisture:

Analyst: RNL Date Prep: 04.10.19 09.15 Basis: Wet Weight

Seq Number: 3085165 SUB: T104704219-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**101**	25.0	mg/kg	04.10.19 12.27		1

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 04.09.19 17.00 Basis: Wet Weight

Seq Number: 3085150

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.10.19 04.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.10.19 04.21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.10.19 04.21	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.10.19 04.21	U	1
Total GRO-DRO	PHC628	<15.0	15.0	mg/kg	04.10.19 04.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.10.19 04.21	
o-Terphenyl	84-15-1	93	%	70-135	04.10.19 04.21	

Certificate of Analytical Results 620474

LT Environmental, Inc., Arvada, CO

JRU 10 TB

Sample Id:	**BH06E**	Matrix:	Soil	Date Received:	04.09.19 12.09
Lab Sample Id:	620474-012	Date Collected:	04.05.19 13.55	Sample Depth:	30 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	04.09.19 13.30	Basis:	Wet Weight
Seq Number:	3085184				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.10.19 14.27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.10.19 14.27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.10.19 14.27	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.10.19 14.27	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.10.19 14.27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.10.19 14.27	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.10.19 14.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	134	%	70-130	04.10.19 14.27	**
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.10.19 14.27	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

QC Summary 620474

LT Environmental, Inc.

JRU 10 TB

Analytical Method: Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3085165 — Matrix: Solid — Date Prep: 04.10.19
MB Sample Id: 7675410-1-BLK — LCS Sample Id: 7675410-1-BKS — LCSD Sample Id: 7675410-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<25.0	250	257	103	255	102	90-110	1	20	mg/kg	04.10.19 10:09	

Analytical Method: Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3085165 — Matrix: Soil — Date Prep: 04.10.19
Parent Sample Id: 620474-001 — MS Sample Id: 620474-001 S — MSD Sample Id: 620474-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1580	250	2310	292	2310	292	80-120	0	20	mg/kg	04.10.19 10:37	X

Analytical Method: Inorganic Anions by EPA 300 — Prep Method: E300P
Seq Number: 3085165 — Matrix: Soil — Date Prep: 04.10.19
Parent Sample Id: 620474-011 — MS Sample Id: 620474-011 S — MSD Sample Id: 620474-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	385	250	702	127	701	126	80-120	0	20	mg/kg	04.10.19 12:13	X

Analytical Method: TPH by SW8015 Mod — Prep Method: TX1005P
Seq Number: 3085150 — Matrix: Solid — Date Prep: 04.09.19
MB Sample Id: 7675424-1-BLK — LCS Sample Id: 7675424-1-BKS — LCSD Sample Id: 7675424-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1170	117	1100	110	70-135	6	20	mg/kg	04.09.19 20:31	
Diesel Range Organics (DRO)	<8.13	1000	1180	118	1090	109	70-135	8	20	mg/kg	04.09.19 20:31	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	105		133		117		70-135	%	04.09.19 20:31
o-Terphenyl	107		125		109		70-135	%	04.09.19 20:31

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 620474

LT Environmental, Inc.

JRU 10 TB

Analytical Method: TPH by SW8015 Mod | Prep Method: TX1005P
Seq Number: 3085150 | Matrix: Soil | Date Prep: 04.09.19
Parent Sample Id: 620421-001 | MS Sample Id: 620421-001 S | MSD Sample Id: 620421-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1020	102	1040	104	70-135	2	20	mg/kg	04.09.19 21:28	
Diesel Range Organics (DRO)	<8.13	1000	1000	100	1020	102	70-135	2	20	mg/kg	04.09.19 21:28	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		113		70-135	%	04.09.19 21:28
o-Terphenyl	97		98		70-135	%	04.09.19 21:28

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3085184 | Matrix: Solid | Date Prep: 04.09.19
MB Sample Id: 7675459-1-BLK | LCS Sample Id: 7675459-1-BKS | LCSD Sample Id: 7675459-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0765	77	0.0731	74	70-130	5	35	mg/kg	04.09.19 23:18	
Toluene	<0.00200	0.100	0.0782	78	0.0751	76	70-130	4	35	mg/kg	04.09.19 23:18	
Ethylbenzene	<0.00200	0.100	0.0787	79	0.0755	76	70-130	4	35	mg/kg	04.09.19 23:18	
m,p-Xylenes	<0.00400	0.200	0.157	79	0.151	76	70-130	4	35	mg/kg	04.09.19 23:18	
o-Xylene	<0.00200	0.100	0.0817	82	0.0793	80	70-130	3	35	mg/kg	04.09.19 23:18	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		99		99		70-130	%	04.09.19 23:18
4-Bromofluorobenzene	107		102		102		70-130	%	04.09.19 23:18

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3085184 | Matrix: Soil | Date Prep: 04.09.19
Parent Sample Id: 620421-001 | MS Sample Id: 620421-001 S | MSD Sample Id: 620421-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0648	64	0.0491	49	70-130	28	35	mg/kg	04.09.19 23:56	X
Toluene	<0.00202	0.101	0.0620	61	0.0588	59	70-130	5	35	mg/kg	04.09.19 23:56	X
Ethylbenzene	<0.00202	0.101	0.0568	56	0.0559	56	70-130	2	35	mg/kg	04.09.19 23:56	X
m,p-Xylenes	0.00112	0.202	0.120	59	0.123	62	70-130	2	35	mg/kg	04.09.19 23:56	X
o-Xylene	<0.00202	0.101	0.0680	67	0.0703	71	70-130	3	35	mg/kg	04.09.19 23:56	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		92		70-130	%	04.09.19 23:56
4-Bromofluorobenzene	106		120		70-130	%	04.09.19 23:56

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Final 1.000

XENCO LABORATORIES

Chain of Custody

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

Work Order No: 620474

www.xenco.com Page 1 of 2

Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.704.5178	Email:	bbelill@ltenv.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RC ☐ uperfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	JRU 10 TB.	**Turn Around**	
Project Number:	2RP-3179, 2RP-3464, 2RP-5243	Routine ☐	
P.O. Number:		Rush:	24hr
Sampler's Name:	Benjamin Belill	Due Date:	4/9/19

SAMPLE RECEIPT

Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	0.5/0.4	Thermometer ID	R8
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.1
Sample Custody Seals:	Yes (No) N/A	Total Containers:	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)	Sample Comments
BH01F	S	4/3/19	10:10	35'	1	X	X	X	
BH01O	↓	4/4/19	11:00	80'	↓	X	X	X	
BH02B	↓	4/4/19	14:30	15'	↓	X	X	X	
BH02O	↓	4/5/19	08:30	80'	↓	X	X	X	
BH03	↓	↓	09:00	5'	↓	X	X	X	
BH03A	↓	↓	09:10	10'	↓	X	X	X	
BH04D	↓	↓	10:15	25'	↓	X	X	X	
BH04I	↓	↓	11:45	50'	↓	X	X	X	
BH05C	↓	↓	12:45	20'	↓	X	X	X	
BH05E	↓	↓	1300	30'	↓	X	X	X	

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

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 SiO2 Na Sr Tl Sn U V Zn

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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time		Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	[signature]	[signature]	4-5-19 @ 1650	2	[signature]	[signature]	4/9/19 1009
3				4			
5				6			

Revised Date 051418 Rev. 2018.1

Chain of Custody

Work Order No: 620474

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

www.xenco.com Page 2 of 2

Project Manager:	Adrian Baker	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.704.5178	Email:	bbelill@ltenv.com

Work Order Comments

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

Project Name:	DRU 10 TB	Turn Around	
Project Number:	2RP-3179; 2RP-3164, 2RP-5243	Routine ☐	
P.O. Number:		Rush: 24 hr	
Sampler's Name:	Benjamin Belill	Due Date: 4/9/19	

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No	
Temperature (°C):	0.3/0.4	Thermometer ID		
Received Intact:	(Yes) No			
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.1	
Sample Custody Seals:	Yes No (N/A)	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)
BH06	S	4/5/19	1315	5'	1	X	X	X
BH06E	S	4/5/19	1355	30'	1	X	X	X

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

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 SiO2 Na Sr Tl Sn U V Zn

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

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			4-5-19 @ 16:50	2		4/9/19 1209
3				4		
5				6		

Revised Date 051418 Rev. 2018.1

After printing this label:
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Inter-Office Shipment

IOS Number **126219**

Date/Time: 04/09/19 13:03
Lab# From: **Midland**
Lab# To: **Lubbock**

Created by: Brianna Teel
Delivery Priority:
Air Bill No.: FED 774927932079

Please send report to: Kalei Stout
Address: 1211 W. Florida Ave
E-Mail: kalei.stout@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
620474-001	S	BH01F	04/03/19 10:10	E300	Inorganic Anions by EPA 300	04/10/19	05/01/19	KLS	CL	
620474-002	S	BH010	04/04/19 11:00	E300	Inorganic Anions by EPA 300	04/10/19	05/02/19	KLS	CL	
620474-003	S	BH02B	04/04/19 14:30	E300	Inorganic Anions by EPA 300	04/10/19	05/02/19	KLS	CL	
620474-004	S	BH020	04/05/19 08:30	E300	Inorganic Anions by EPA 300	04/10/19	05/03/19	KLS	CL	
620474-005	S	BH03	04/05/19 09:00	E300	Inorganic Anions by EPA 300	04/10/19	05/03/19	KLS	CL	
620474-006	S	BH03A	04/05/19 09:10	E300	Inorganic Anions by EPA 300	04/10/19	05/03/19	KLS	CL	
620474-007	S	BH04D	04/05/19 10:15	E300	Inorganic Anions by EPA 300	04/10/19	05/03/19	KLS	CL	
620474-008	S	BH04I	04/05/19 11:45	E300	Inorganic Anions by EPA 300	04/10/19	05/03/19	KLS	CL	
620474-009	S	BH04C	04/05/19 12:45	E300	Inorganic Anions by EPA 300	04/10/19	05/03/19	KLS	CL	
620474-010	S	BH05E	04/05/19 13:00	E300	Inorganic Anions by EPA 300	04/10/19	05/03/19	KLS	CL	
620474-011	S	BH06	04/05/19 13:15	E300	Inorganic Anions by EPA 300	04/10/19	05/03/19	KLS	CL	
620474-012	S	BH06E	04/05/19 13:55	E300	Inorganic Anions by EPA 300	04/10/19	05/03/19	KLS	CL	

Inter Office Shipment or Sample Comments:

Relinquished By: Brianna Teel
Brianna Teel

Date Relinquished: 04/09/2019

Received By:
Ashley Derstine

Date Received: 04/10/2019 09:15

Cooler Temperature: 2.7

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Lubbock

IOS #: 126219

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : R3

Sent By: Brianna Teel **Date Sent:** 04/09/2019 01:03 PM

Received By: Ashley Derstine **Date Received:** 04/10/2019 09:15 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	2.7	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 *Custody Seals Signed and dated for Containers/coolers	**Yes**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ **Contacted by :** _____ **Date:** _____

Checklist reviewed by: _____ Date: 04/10/2019

Ashley Derstine

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 04/09/2019 12:09:00 PM

Work Order #: 620474

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.4
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 04/09/2019

Brianna Teel

Checklist reviewed by: Kalei Stout Date: 04/09/2019

Kalei Stout

ATTACHMENT 3: SOIL SAMPLING LOGS

LT Environmental, Inc.
508 West Stevens Street
Carlsbad, New Mexico 88220
Compliance · Engineering · Remediation

Identifier: PH01	Date: 3/5/19 - 3/7/19		
Project Name: JRU 10	RP Number: 3179		
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: GG	Method: TH	
Lat/Long:	Field Screening: TPH/CHL	Hole Diameter:	Total Depth: 20

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D		1705	N	1	0	6'		caliche/sand - bright brown, ~~low~~ no plasticity
D		907	N	2	1	8'		caliche/sand, light brown, ~~low~~ no plasticity
D		920	N	3	2	10'		caliche/sand, tan, no plasticity
D		1550	N	4	3	12'		sandy w/gravel, Red, no plasticity large 2-4cm rocks
D		1530	N	5	4	14'		sandy w/gravel, Red, no plasticity
D		1570		6	5	16'		sandy w/gravel, Red, no plasticity
P		1544		7	6	18		Sandy clay w/gravel, dark brown red low plasticity
D	2105	1530		8	7	20		Sandy clay w/gravel dark red/brown low plasticity
D		1440		9	8	22		clay, dark red low-med plasticity
D		580		10	9	24		clay, dark red, med plasticity
1040 D		~~484~~		11	10	25'		clay, dark red/brown, med plasticity
					11			
					12			

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Identifier:	Date:
PH02	3/7/2019
Project Name:	**RP Number:**
JRU10	3179
Logged By: GG	**Method:** TH
Hole Diameter:	**Total Depth:**
Field Screening: TPH/CHL	

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long:

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D		1683	N	1	0	6		Tan/brown, low plasticity caliche/fine grained
D		1570	N	2	1	8		reddish brown w/some gravel/sandy loam low plasticity
D		1619	N	3	2	10		Sandy loam w/gravel, reddish brown No plasticity
D		1560	N	4	3	12		Dark red/brown, clay w/some sand Noplasticity
D		1487	N	5	4	14		Dark red/brown, clay w/some sand noplasticity
D		1480	N	6	7	16		Dark red/brown sand w/some clay/some gravel noplasticity
D		1460	N	7	8	18		Dark red/brown sandy clay, some gravel noplasticity
D		1820		8	7	20		Dark red/brown, sandy clay, noplasticity
D		1484		9	8	22		Dark red, clay, med plasticity
D		1590		10	9	24		Dark red clay, med plasticity
D		1690		11	10	26		Dark red, clay, med plasticity
D		1880		12	11	28		Dark red clay, med plasticity
D		1510		13	12	30		Dark red clay, med plasticity
						32		Dark red clay, m

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Identifier: PH02 | Date: 03/08/19
Project Name: JRU-10 | RP Number:
Logged By: | Method: Pot hole
Lat/Long: | Field Screening: | Hole Diameter: 2.5ft | Total Depth:
Comments:

LITHOLOGIC / SOIL SAMPLING LOG

	Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
0930	dry	380	2168	N		0	35'	S	Clay Red PG odor
0950	dry	380	2008	N		2	37'	S	Clay Red PG odor
1030	dry	380	1974	N		4	38'	S	Clay Red PG odor
1320	dry	380	1654	N		5	40'	S	Clay Red PG odor
1545	dry	452	1805	N		6	41'	S	Clay Red PG odor
1420	dry	380	1736	N		7	41.5'	S	Clay Red PG odor
1500	dry	380	1841	N		8	42'	S	Clay Red PG odor
						9			
						10			
						11			
						12			

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Identifier: BH01	Date: 4/3/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243
Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Hole Diameter: 8"	Total Depth: 80'

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long: 32.33552, -103.82751
Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.

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
					0–4		PALICHE FILL	CALICHE, dry, tan, poorly consolidated, no odor, fill
M	1,260	1,547	Y	BH01	5–8	5'	CALICHE	CALICHE, moist, light brown – tan, moderately consolidated, strong H/C odor
D	1,116	1,759	Y	BH01A	9–12	10'	SP-SC	clayey SAND, dry, brown – red, poorly graded, trace tan well consolidated caliche, strong H/C odor.

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Identifier: BH01	Date: 4/3/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33552, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 80'

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
					12			
					13		CL	Sandy Clay, dry, red - dark red, low plasticity, trace tan well consolidated caliche, strong H/C odor.
					14			
D	1,004	1,756	Y	BH01B	15	15'	CL	SAA (Same As Above)
					16			
					17			
					18			
					19			
D	928	1,678	Y	BH01C	20	20'	CL	SAA
					21			
					22			
					23			
					24			

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Identifier: BH01	Date: 4/3/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33552, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 80'

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
					24			
M	1,260	1,620	Y	BH01D	25	25'	ML	clayey SILT, moist, red-dark red, low plasticity, trace red f. sand, strong H/C odor.
					26			
					27			
					28			
					29			
M	2,105	1,772	Y	BH01E	30	30'	ML	SAA (Same As Above)
					31			
					32			
					33			
					34			
M	2,438	2,147	Y	BH01F	35	35'	ML	SAA
					36			

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Identifier: BH01	Date: 4/3/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243
LITHOLOGIC / SOIL BORING LOG	Logged By: BEN BELILL / Method: HOLLOW STEM AUGER
Lat/Long: 32.33552, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO. / Hole Diameter: 8" / Total Depth: 80'

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
					36			
					37			
					38			
					39			
M	556	1,947	Y	BH01G	40	40'	ML	clayey SILT, moist, red-dark red, low plasticity, trace fed f. sand, strong H/C odor.
					41			
					42			
					43			
					44			
M	403	2,218	Y	BH01H	45	45'	ML	SAA (Same As Above)
					46			
					47			
					48			

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Identifier: BH01	Date: 4/3/19	
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243	
LITHOLOGIC / SOIL BORING LOG	Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33552, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter: 8" / Total Depth: 80'

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
					48			
					49			
M	403	1,701	Y	BH01I	50	50'	ML	clayey SILT, moist, red-dark red, low plasticity, trace red f. sand, strong H/C odor.
					51			
					52			
					53			
					54			
							ML	SILT, moist, red-dark red, low plasticity, trace red clay, moderate H/C odor.
M	665	844.5	Y	BH01J	55	55'		
					56			
					57			
					58			
					59			
M	320	1205	Y	BH01K	60	60'	ML	SAA (Same As Above)

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Identifier: BH01	Date: 4/3/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33552, -103.82751 Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter: 8" Total Depth: 80'

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
M	320	625	Y	BH01L	60 61 62 63 64 65 66 67 68 69	65'	ML	SILT, moist, red-dark red, low plasticity, trace red clay, moderate H/C odor.
D	<112	135.5	N	BH01M	70 71 72	70'	ML	Sandy SILT, dry, light brown-red, low plasticity, some light brown well consolidated caliche, low H/C odor.

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Identifier: BH01	Date: 4/3/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33552, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 80'

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
					72			
					73			
					74			
D	556	282.5	Y	BH01N	75	75'	CL	silty CLAY, dry, red-brown, low plasticity, low H/C odor.
					76			
					77			
					78			
					79			silty CLAY, dry, red-brown, low plasticity, trace red f.-m. sand, no H/C odor.
D	<112	48.0	N	BH01O	80	80'	CL	
								↑ E.O.B @ 80'
					81			
					82			
					83			
					84			

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Identifier: BH02	Date: 4/4/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL SAMPLING LOG

Lat/Long: 32.33536, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
		Hole Diameter: 8"	Total Depth: 80'

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		SP	SAND, dry, brown - light brown, f.-m., poorly graded, trace roots, no odor.
					1			
					2			
					3			
					4		CALICHE	CALICHE, dry, light brown - tan, poorly consolidated, some brown m. sand, no odor.
D	<112	7.8	N	BH02	5	5'		
					6			
					7			
					8			
					9		ML	Sandy SILT, dry, light brown - red, non plastic, no odor.
D	275	3.1	N	BH02A	10	10'	ML	
					11			
					12			

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Identifier: BH02	Date: 4/4/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33536, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 80'

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
					12		ML	Sandy SILT, dry, red - light brown, non plastic, trace red clay, no odor.
					13			
					14			
D	320	2.7	N	BH02B	15	15'	ML	SAA (Same As Above)
					16			
					17			
					18			
					19			
D	198	3.1	N	BH02C	20	20'	ML	SAA
					21			
					22			
					23			
					24			

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Identifier: BH02	Date: 4/4/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33536, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 80'

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
					24			
D	<112	2.6	N	BH02D	25	25' ↓ Air Rotary 25'-80'	ML	Clayey SILT, dry, red-brown, low plasticity, no H/C odor. ↓ Air Rotary Begins
					26			
					27			
					28			
					29			
D	<112	1.0	N	BH02E	30	30'	ML	SAA (Same As Above)
					31			
					32			
					33			
					34			
D	<112	1.3	N	BH02F	35	35'	ML	SAA
					36			

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Identifier: BH02	Date: 4/4/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33536, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 80'

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
					36			
					37			
					38			
					39			
D	<112	0.9	N	BH02G	40	40'	ML	Clayey SILT, dry, red-brown, low plasticity, no odor.
					41			
					42			
					43			
					44			
D	<112	0.6	N	BH02H	45	45'	ML	SAA (Same As Above)
					46			
					47			
					48			

LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH02	Date: 4/4/19
		Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243
LITHOLOGIC / SOIL BORING LOG		Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33536, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter: 8"	Total Depth: 80'
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
					48			
					49			
D	<112	0.4	N	BH02I	50	50'	ML	Clayey SILT, dry, red-brown, low plasticity, no odor.
					51			
					52			
					53			
					54			
D	<112	1.7	N	BH02J	55	55'	ML	SILT, dry, red-light brown, nonplastic, trace red clay, no odor.
					56			
					57			
					58			
					59			
D	<112	1.8	N	BH02K	60	60'	ML	SAA (Same As Above)

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Identifier: BH02	Date: 4/4/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Lat/Long: 32.33536, -103.82751	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
		Hole Diameter: 8"	Total Depth: 80'

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
					60			
					61			
					62			
					63			
					64			
D	<112	1.0	N	BH02L	65	65'	ML	SILT, dry, red-light brown, nonplastic, trace red clay, no odor
					66			
					67			
					68			
					69			
D	<112	0.2	N	BH02M	70	70'	ML	clayey SILT, dry, red-brown, low plasticity, trace m. red sand, no odor.
					71			
					72			

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Identifier: BH02	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33536, -103.82751 Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter: 8" Total Depth: 80'

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
					72			
					73			
					74		CL	Silty CLAY, dry, red-brown, low plasticity, trace brown m. Sand, no odor.
D	<112	0.2	N	BH02N	75	75'	CL	
					76			
					77			
					78			
					79			
D	<112	0.2	N	BH02O	80	80'	CL	SAA (Same As Above)
								↑ E.O.B. @ 80'
					81			
					82			
					83			
					84			

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Identifier: BH03	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER		
Lat/Long: 32.33552, -103.82732	Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 8"	Total Depth: 10'

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		SP	SAND, dry, brown - light brown, poorly graded, trace roots, no odor
					1			
					2			
					3			
					4		CALICHE	CALICHE, dry, light brown - tan, poorly consolidated, some brown m. sand, no odor.
D	1260	1.0	N	BH03	5	5'		
					6			
					7			
					8			
					9			sandy SILT, dry, light brown - red, nonplastic, no odor
D	723.2	3.8	N	BH03A	10	10'	ML	
					11			↑ E.O.B. @ 10'
					12			

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Identifier: BH04	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER		
Lat/Long: 32.33552, -103.82725	Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 8"	Total Depth: 50'

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		SP	SAND, dry, brown - light brown, poorly graded, trace roots, no odor
					1			
					2			
					3			
					4		CALICHE	CALICHE, dry, light brown - tan, poorly consolidated, some brown m. sand, no odor.
D	<112	2.0	N	BH04	5	5'		
					6			
					7			
					8			
					9			Sandy SILT, dry, light brown - red, non plastic, no odor
D	198.4	2.8	N	BH04A	10	10'	ML	
					11			
					12			

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Identifier: BH04	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33552, -103.82725	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 50'

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
					12			
					13		ML	Sandy SILT, dry, red - brown, non plastic, trace red clay, no odor.
					14			
D	320	2.8	N	BH04B	15	15'	ML	SAA (Same As Above)
					16			
					17			
					18			
					19			
D	275.2	4.1	N	BH04C	20	20'	ML	SAA
					21			
					22			
					23			
					24			

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Identifier: BH04	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33552, -103.82725 Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter: 8" Total Depth: 50'

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
					24			
D	499.2	3.6	N	BH04D	25	25' ↓ Air Rotary 25'-50'	ML	clayey SILT, dry, red-brown, low plasticity, no odor. ↓ Air Rotary Begins
					26			
					27			
					28			
					29		ML	clayey SILT, moist, red-brown, low plasticity, no odor.
M	403	1.8	N	BH04E	30	30'		
					31			
					32			
					33			
					34			
M	276.2	1.4	N	BH04F	35	35'	ML	SAA (Same As Above)
					36			

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Identifier: BH04	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER		
Lat/Long: 32.33552, -103.82725	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.	Hole Diameter: 8"	Total Depth: 50'

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
M	<112	2.7	N	BH04G	40	40'	ML	clayey SILT, moist, red-brown, low plasticity, no odor.
D	<112	4.7	N	BH04H	45	45'	ML	clayey SILT, dry, red-brown, low plasticity, trace brown m. sand, no odor.

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Identifier: BH04	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33552, -103.82725	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 50'

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	13.7	N	BH04I	50	50'	ML	clayey SILT, dry, red-brown, low plasticity, trace brown m. sand, no odor.
								E.O.B.@ 50'

48 49 50 51 52 53 54 55 56 57 58 59 60

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Identifier: BH05	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER		
Lat/Long: 32.33566, -103.82750	Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 8"	Total Depth: 30'

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		CALICHE fill	CALICHE, dry, light brown, unconsolidated, trace brown f. Sand, no odor, fill.
					1			
					2		SP	SAND, dry, brown - light brown, poorly graded, trace roots, no odor.
					3			
					4		CALICHE	CALICHE, moist, light brown - tan, moderately consolidated, some light brown m. Sand, no odor.
M	<112	1.7	N	BH05	5	5'		
					6			
					7			
					8			
					9		CALICHE	CALICHE, moist, tan - light brown, moderately well consolidated, trace brown f. Sand, no odor.
M	<112	1.8	N	BH05A	10	10'		
					11			
					12			

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Identifier: BH05	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33566, -103.82750	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 30'

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
					12			
					13			
					14		SP	silty SAND, red-brown, moist, poorly graded, m.-f., no odor
M	275	2.9	N	BH05B	15	15'	SP	
					16			
					17			
					18			
					19		ML	clayey SILT, dry, red-brown, nonplastic, no odor
D	320	1.2	N	BH05C	20	20'	ML	
					21			
					22			
					23			
					24			

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Identifier: BH05	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33566, -103.82750	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 30'

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	1.9	N	BH05D	25	25'	ML	Clayey SILT, dry, red-brown, nonplastic, no odor.
D	<112	2.9	N	BH05E	30	30'	ML	SAA (Same As Above) ↑ E.O.B @ 30'

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Identifier: BH06	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER		
Lat/Long: 32.33554, -103.82771	Field Screening: CHLORIDES, TPH, BTEX, GRO, DRO, and MRO.	Hole Diameter: 8"	Total Depth: 30'

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		CALICHE	CALICHE, dry, light brown, unconsolidated, trace brown f. sand, no odor, fill.
					1			
					2		SP	SAND, dry, brown - light brown, poorly graded, trace roots, no odor.
					3			
					4		CALICHE	CALICHE, dry, light brown, poorly consolidated, trace light brown m. sand, no odor.
D	556.8	2.0	N	BH06	5	5'		
					6			
					7			
					8			
					9		ML	Sandy SILT, dry, light brown - red, nonplasticity, no odor.
D	358	1.9	N	BH06A	10	10'	ML	
					11			
					12			

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Identifier: BH06	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243

LITHOLOGIC / SOIL BORING LOG

Logged By: BEN BELILL	Method: HOLLOW STEM AUGER
Lat/Long: 32.33554, -103.82771	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO.
Hole Diameter: 8"	Total Depth: 30'

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
					12			
					13		SP	silty SAND, dry, red-brown, poorly graded, f.-m., no odor.
					14			
D	320	3.9	N	BH06B	15	15'	SP	SAA (Same As Above)
					16			
					17			
					18			
					19			silty SAND, dry, light brown-red, poorly graded, f.-m., no odor.
D	454.4	2.5	N	BH06C	20	20'	SP	
					21			
					22			
					23			
					24			

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Identifier: BH06	Date: 4/5/19
Project Name: JRU 10	RP Number: 2RP-3179, 2RP-3464, 2RP-5243
LITHOLOGIC / SOIL BORING LOG	Logged By: BEN BELILL / Method: HOLLOW STEM AUGER
Lat/Long: 32.33554, -103.82771	Field Screening: CHLORIDES, TPH, BTEX, GRO, MRO, and DRO. / Hole Diameter: 8" / Total Depth: 30'

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	275.2	4.7	N	BH06D	24 25 26 27 28 29	25'	SP	Silty SAND, dry, light brown-red, poorly graded, f.-m., no odor.
D	236.8	5.2	N	BH06E	30 31 32 33 34 35 36	30'	SP	SAA (Same As Above) E.O.B. @ 30'

ATTACHMENT 4: PHOTOGRAPHIC LOG

View of the open excavation.

Project: 012918003	XTO Energy, Inc. James Ranch Unit #10 Battery	LTE Advancing Opportunity
April 9, 2019	Photographic Log	

View of the open excavation.

Project: 012918003	XTO Energy, Inc. James Ranch Unit #10 Battery	LTE Advancing Opportunity
April 9, 2019	Photographic Log	

Bratcher, Mike, EMNRD

From: Hamlet, Robert, EMNRD
Sent: Wednesday, April 24, 2019 9:22 AM
To: Adrian Baker
Cc: Ashley Ager; Littrell, Kyle; Bratcher, Mike, EMNRD; Venegas, Victoria, EMNRD; caweaver@blm.gov; jamos@blm.gov; Billings, Bradford, EMNRD; 'jamos@blm.gov'; McKinney, Deborah
Subject: RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Adrian,

I'm glad that you removed the tank battery. The depth of contamination on this site is significant. A couple of things need to be addressed. First, the OCD needs soil samples taken on the boreholes at 5 ft increments to a depth the organics are under the limit. We need a clearer picture of the whole interval, not just at 20 and 42 ft. Essentially, the site hasn't been fully delineated if the bottom sample is still "hot". Second, the depth of the contamination on this site might require close inspection of the tanks to verify their durability.

Please let me know if you have any questions.

Thanks,

Robert J Hamlet
State of New Mexico
Energy, Minerals, and Natural Resources
Oil Conservation Division
811 S. First St., Artesia NM 88210
(575) 840-5963
Robert.Hamlet@state.nm.us

From: Adrian Baker <abaker@ltenv.com>
Sent: Friday, April 12, 2019 3:25 PM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; caweaver@blm.gov; jamos@blm.gov
Cc: Ashley Ager <aager@ltenv.com>; Littrell, Kyle <Kyle_Littrell@xtoenergy.com>
Subject: [EXT] Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243
Importance: High

All,

Attached is a Work Plan for a recent release and two historical releases at JRU 10/2RP-3179, 2RP-3464, and 2RP-5243. XTO removed the tank battery and needs to replace the tanks as soon as possible for production purposes. Can you please review as quickly as possible?

Thank you

Adrian Baker
Project Geologist/Office Manager
432.894.5641 *cell*
432.704.5178 *direct*
3300 N "A" Street, Building 1, Unit 103, Midland, TX 79705
www.ltenv.com

Bratcher, Mike, EMNRD

From: Weaver, Crystal <caweaver@blm.gov>
Sent: Friday, April 26, 2019 1:45 PM
To: adrian_baker@xtoenergy.com
Cc: Bratcher, Mike, EMNRD; Hamlet, Robert, EMNRD; Venegas, Victoria, EMNRD; jamos@blm.gov; Ashley Ager; Littrell, Kyle
Subject: [EXT] Re: [EXTERNAL] Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Hello all,

BLM concurs with OCD that prior to any further authorizations that additional delineation and more concise intervals of data would be required.

Why was delineation stopped at PH02A at a depth of 42' when lab results showed 92.3mg/kg for total BTEX and 6140mg/kg for total TPH? The work plan documents LTE's site characterization assessment and states that due to site specific factors a full delineation of the most stringent level is required for this project (documented as referencing OCD's Table 1 from their spill rule under the category of <50 feet ground water).

Also I cross checked the depth to ground water data myself. For this area it was found that while the work plan did mention depth to groundwater data for well C-2492-POD2 being depth to water (dtw) of 125 ft bgs, however, the work plan failed to mention well C-2492 which is closer to the spill site (but not very far from C-2492-POD2) had recorded depth to water at 85 ft bgs and the difference in elevation of surface from the location of the spill and the location of that well is something approx. to 10ft. according to what Google Earth states (accuracy on elevation is debatable). Installation of triangulated placement of monitoring wells may need to be considered here if for no other reason then to at least rule out the possibility that groundwater impact occurred.

BLM interpreted that the review of this work plan was urgent due to the tank battery currently being removed. However, BLM also interprets that since the tank battery has been removed that XTO should take advantage of the opportunity to further investigate the area both vertically and horizontally where the tanks once were since it can be derived from the data that residual fluid loss over time may have likely been a concern here regarding how much contaminants are present at the depths shown. Replacement of the battery in this same exact spot on the pad will most likely not be something that BLM would authorize anytime soon. Therefore, relocation of this battery appears to be appropriate to discuss if there is urgency to put things back into production currently while the battery's original location receives further attention.

In addition regarding further investigation concerns, BLM would like to request that more representative investigation efforts regarding delineation and sampling be made around the area demarked by the black X (on the provided site map) that indicates the approx. origination of the other two points of release for the older releases. SS1 showed high TPH 8300mg/kg and total BTEX 139mg/kg at the 0.5' increment and then no data around that area was further provided.

Finally, although delineation is still not complete, currently as things stand, the remediation solution prescribed for this release does not seem adequate in regards to being the most effective for mitigating this site. Additional or alternate proposed efforts will need to be provided.

If further questions or concerns are needing to be addressed with the BLM please contact myself or Jim Amos.

Thank you,

Crystal Weaver
Environmental Protection Specialist
BLM - Carlsbad, NM
Desk: 575-234-5943
Cell: 575-200-0426
caweaver@blm.gov

BLM Carlsbad Field Office
620 E. Greene Street
Carlsbad NM 88220

"3 percent of the water on this planet is considered freshwater. Of that 3 percent only 1 percent is considered accessible, meaning the majority of the remaining 2 percent is trapped in glaciers or snowfields." - National Geographic

The **BLM acceptance/approval does not** relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that may pose a threat to groundwater, surface water, human health or the environment or if the location fails to reclaim properly. In such an event that the location does not re-vegetate, or future issues with contaminants are encountered, the operator will be asked to address the issues until the contaminant issues are fully mitigated and the location is successfully reclaimed. In addition, BLM approval does not relieve the operator of responsibility for compliance with any other federal, state or local laws/regulations.

On Fri, Apr 12, 2019 at 3:27 PM Adrian Baker <abaker@ltenv.com> wrote:

> All,
>
> Attached is a Work Plan for a recent release and two historical releases at JRU 10/2RP-3179, 2RP-3464, and 2RP-5243. XTO removed the tank battery and needs to replace the tanks as soon as possible for production purposes. Can you please review as quickly as possible?
>
> Thank you

LT Environmental, Inc.
Advancing Opportunity

Adrian Baker

Project Geologist/Office Manager

432.894.5641 *cell*

432.704.5178 *direct*

3300 N “A” Street, Building 1, Unit 103, Midland, TX 79705

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Bratcher, Mike, EMNRD

From: Ashley Ager <aager@ltenv.com>
Sent: Friday, April 26, 2019 3:00 PM
To: Hamlet, Robert, EMNRD; Baker, Adrian
Cc: Littrell, Kyle; Bratcher, Mike, EMNRD; Venegas, Victoria, EMNRD; caweaver@blm.gov; jamos@blm.gov; Billings, Bradford, EMNRD; 'jamos@blm.gov'; McKinney, Deborah
Subject: [EXT] RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

All,

I've pulled both Crystal's and Robert's responses into one email so that we could address each comment in one effort. Please see the text in blue below. Although I attempted to respond to each comment, would it be prudent to set up a meeting to work through the issues given the number of comments and concern expressed by the regulators? We'd like to better understand the expectations. Discussing potential options for moving forward is probably easier than emailing back and forth. Would NMOCD and BLM be available for a meeting in the next two weeks?

Thank You,
Ashley

Ashley Ager
Vice President of Regional Offices

(970) 385-1096 office
(970) 946-1093 mobile

From: Weaver, Crystal <caweaver@blm.gov>
Sent: Friday, April 26, 2019 1:45 PM
To: adrian_baker@xtoenergy.com
Cc: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; jamos@blm.gov; Ashley Ager <aager@ltenv.com>; Littrell, Kyle <Kyle_Littrell@xtoenergy.com>
Subject: Re: [EXTERNAL] Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Hello all,

BLM concurs with OCD that prior to any further authorizations that additional delineation and more concise intervals of data would be required.

Why was delineation stopped at PH02A at a depth of 42' when lab results showed 92.3mg/kg for total BTEX and 6140mg/kg for total TPH? The work plan documents LTE's site characterization assessment and states that due to site specific factors a full delineation of the most stringent level is required for this project (documented as referencing OCD's Table 1 from their spill rule under the category of <50 feet ground water).
PH02 is not the vertical delineation point. PH02 was advanced with a track hoe to the maximum depth possible with the available equipment on site. When total depth of the impacted soil could not be identified, LTE had to abandon the pothole and utilize a drill rig to go deeper. BH01 was drilled with a hollow stem auger rig and is the vertical delineation point in the center of the impacted area. It was drilled to 80 feet bgs, sampled and field screened every 5 feet, and 2 samples were submitted for laboratory analysis – the soil with the highest field screening result at 35 feet bgs and the bottom of the borehole at 80 feet bgs. The sample collected at 80 feet bgs was clean and represents vertical delineation at the Site.

Also I cross checked the depth to ground water data myself. For this area it was found that while the work plan did mention depth to groundwater data for well C-2492-POD2 being depth to water (dtw) of 125 ft bgs, however, the work plan failed to mention well C-2492 which is closer to the spill site (but not very far from C-2492-POD2) had recorded depth to water at 85 ft bgs and the difference in elevation of surface from the location of the spill and the location of that well is something approx. to 10ft. according to what Google Earth states (accuracy on elevation is debatable). Installation of triangulated placement of monitoring wells may need to be considered here if for no other reason then to at least rule out the possibility that groundwater impact occurred.
BH01 was drilled to 80 feet bgs on site and no saturated sediments representative of the presence of groundwater was encountered. The borehole was left open for more than 24 hours and no groundwater filled in.

BLM interpreted that the review of this work plan was urgent due to the tank battery currently being removed. However, BLM also interprets that since the tank battery has been removed that XTO should take advantage of the opportunity to further investigate the area both vertically and horizontally where the tanks once were since it can be derived from the data that residual fluid loss over time may have likely been a concern here regarding how much contaminants are present at the depths shown. Replacement of the battery in this same exact spot on the pad will most likely not be something that BLM would authorize anytime soon. Therefore, relocation of this battery appears to be appropriate to discuss if there is urgency to put things back into production currently while the battery's original location receives further attention.
LTE and XTO believe vertical and lateral delineation has been achieved with boreholes BH01 – BH06.

In addition regarding further investigation concerns, BLM would like to request that more representative investigation efforts regarding delineation and sampling be made around the area demarked by the black X (on the provided site map) that indicates the approx. origination of the other two points of release for the older releases. SS1 showed high TPH 8300mg/kg and total BTEX 139mg/kg at the 0.5' increment and then no data around that area was further provided.
All soil represented by soil sample SS1 has been excavated. Soil within the black dashed line has been removed to 4 feet bgs. Subsurface samples near the black X include PH01 at 6’ bgs approximately 20 feet to the southwest, BH01, BH05, and BH06 approximately 30 feet to the southeast, northeast, and west respectively. Samples were collected every 5 feet in each of those boreholes for field screening and two samples from each were submitted for laboratory analysis. In addition, excavation sidewall samples nearest the black X, SW02 and SW04, were collected after removing the top four feet of soil and laboratory analytical results of those samples were clean.

Finally, although delineation is still not complete, currently as things stand, the remediation solution prescribed for this release does not seem adequate in regards to being the most effective for mitigating this site. Additional or alternate proposed efforts will need to be provided.
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Crystal Weaver
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Sent: Wednesday, April 24, 2019 9:22 AM
To: Adrian Baker <abaker@ltenv.com>
Cc: Ashley Ager <aager@ltenv.com>; Littrell, Kyle <Kyle_Littrell@xtoenergy.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; caweaver@blm.gov; jamos@blm.gov; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; 'jamos@blm.gov' <jamos@blm.gov>; McKinney, Deborah <dmckinne@blm.gov>
Subject: RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

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LT Environmental, Inc.
Advancing Opportunity
25 YEARS

Adrian Baker
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Attachments: image004.png; image003.png; image005.jpg; image001.png; image002.png

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LTE and XTO believe vertical and lateral delineation has been achieved with boreholes BH01 – BH06.

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The **BLM acceptance/approval does not** relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that may pose a threat to groundwater, surface water, human health or the environment or if the location fails to reclaim properly. In such an event that the location does not re-vegetate, or future issues with contaminants are encountered, the operator will be asked to address the issues until the contaminant issues are fully mitigated and the location is successfully reclaimed. In addition, BLM approval does not relieve the operator of responsibility for compliance with any other federal, state or local laws/regulations.

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State of New Mexico

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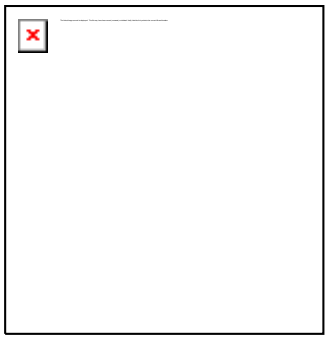

Adrian Baker

Project Geologist/Office Manager

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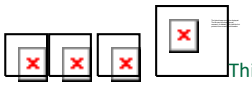

Bratcher, Mike, EMNRD

From: Bratcher, Mike, EMNRD
Sent: Monday, April 29, 2019 8:23 AM
To: Ashley Ager (aager@ltenv.com); caweaver@blm.gov
Cc: Hamlet, Robert, EMNRD; adrian_baker@xtoenergy.com; Littrell, Kyle; Venegas, Victoria, EMNRD; Billings, Bradford, EMNRD; jamos@blm.gov; McKinney, Deborah
Subject: RE: [EXT] Re: [EXTERNAL] RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Good Morning,

A meeting to discuss this site may be appropriate at some point, however, it may be problematic to get it scheduled. I will attempt to provide an outline of what minimally, OCD is going to require at this site. If BLM is in agreement, this may allow XTO to have some idea of a path forward, and continue the work and/or scheduling as required.

- Actual depth to groundwater will need to be established, by installation of a monitor well. I would suggest completing it in a manner that will allow for potential long term monitoring. There may some data available that establishes gradient. If not, this will need to be established by the installation of other water well borings as necessary to establish gradient. The completed water well needs to be installed down gradient, and in very close proximity to the impacted battery site.
- A more complete delineation of impact needs to be performed. OCD would request a minimum of two borings be installed in the battery area, in what would be the more highly impacted areas. Samples are to be obtained at five feet intervals throughout the delineation. The purpose is to have a more precise idea of the levels and volume of hydrocarbon impact that exist. Sampling for chloride will be required as well.
- Based on data already obtained, a four feet excavation and liner installation will not be an acceptable remedial proposal for this site. A deeper excavation will likely be required, along with a proposed method for mitigating the deeper impact that may not be practicable to excavate. Of particular concern, is the lighter end hydrocarbons that have been determined to exist at significant depths.
- I would expect this to potentially be a long term project, so if XTO needs to return the well to production, the battery will need to be rebuilt in a different area of the well pad. Allow for potential deep excavations and monitoring at the impacted site when deciding on position of a new battery, if that is what XTO chooses to do. BLM will need to be consulted if additional surface disturbance is required.

If you have any questions or concerns, please let me know, but hopefully this will allow work to continue on this project. Please coordinate with OCD and BLM moving forward. If XTO still believes a meeting is required prior to moving forward, please advise and we will attempt to accommodate as soon as possible.

Thank you,

Mike Bratcher
NMOCD District 2
811 South First Street
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575-748-1283 Ext 108

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Carlsbad NM 88220

"3 percent of the water on this planet is considered freshwater. Of that 3 percent only 1 percent is considered accessible, meaning the majority of the remaining 2 percent is trapped in glaciers or snowfields." - National Geographic

The **BLM acceptance/approval does not** relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that may pose a threat to groundwater, surface water, human health or the environment or if the location fails to reclaim properly. In such an event that the location does not re-vegetate, or future issues with contaminants are encountered, the operator will be asked to address the issues until the contaminant issues are fully mitigated and the location is successfully reclaimed. In addition, BLM approval does not relieve the operator of responsibility for compliance with any other federal, state or local laws/regulations.

From: Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>
Sent: Wednesday, April 24, 2019 9:22 AM
To: Adrian Baker <abaker@ltenv.com>
Cc: Ashley Ager <aager@ltenv.com>; Littrell, Kyle <Kyle_Littrell@xtoenergy.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; caweaver@blm.gov; jamos@blm.gov; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; 'jamos@blm.gov' <jamos@blm.gov>; McKinney, Deborah <dmckinne@blm.gov>
Subject: RE: Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243

Adrian,

I'm glad that you removed the tank battery. The depth of contamination on this site is significant. A couple of things need to be addressed. First, the OCD needs soil samples taken on the boreholes at 5 ft increments to a depth the organics are under the limit. We need a clearer picture of the whole interval, not just at 20 and 42 ft. Essentially, the site hasn't been fully delineated if the bottom sample is still "hot". Second, the depth of the contamination on this site might require close inspection of the tanks to verify their durability.

We agree that data from the potholes did not delineate the impacted soil, so we utilized a drill rig to delineate. BH01, drilled at the center of the release footprint, documented vertical delineation with a clean sample obtained from 80 feet bgs. A borehole log for BH01 is included in the report and field screening with the laboratory analytical data indicate the soil is impacted from just below 4' bgs to approximately 75' bgs. All boreholes (BH01 through BH06) were sampled every 5 feet, described, and field screened. We conducted laboratory analysis on the samples collected from the intervals with the highest field screening result and from the bottom of each borehole. Lateral delineation was achieved with boreholes BH02 through BH06. The initial potholing data is only presented to document all work conducted on site and to supplement borehole data within the impacted area.

Regarding the comment about tank inspection, are you asking that we provide construction information about the new tanks that will be set above the impacted area?

XTO intends to replace the problematic water tank and all other tanks will be integrity tested prior to reinstallation.

Please let me know if you have any questions.

Thanks,

Robert J Hamlet

State of New Mexico

Energy, Minerals, and Natural Resources

Oil Conservation Division

811 S. First St., Artesia NM 88210

(575) 840-5963

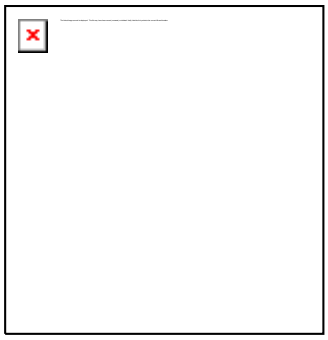
Robert.Hamlet@state.nm.us

From: Adrian Baker <abaker@ltenv.com>
Sent: Friday, April 12, 2019 3:25 PM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; caweaver@blm.gov; jamos@blm.gov
Cc: Ashley Ager <aager@ltenv.com>; Littrell, Kyle <Kyle_Littrell@xtoenergy.com>
Subject: [EXT] Urgent - Work Plan - JRU 10/2RP-3179, 2RP-3464, and 2RP-5243
Importance: High

All,

Attached is a Work Plan for a recent release and two historical releases at JRU 10/2RP-3179, 2RP-3464, and 2RP-5243. XTO removed the tank battery and needs to replace the tanks as soon as possible for production purposes. Can you please review as quickly as possible?

Thank you



Adrian Baker

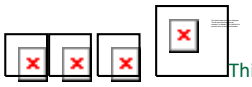
Project Geologist/Office Manager

432.894.5641 *cell*

432.704.5178 *direct*

3300 N “A” Street, Building 1, Unit 103, Midland, TX 79705

www.ltenv.com



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

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

CONDITIONS

Action 383224

CONDITIONS

Operator: BOPCO, L.P. 6401 Holiday Hill Rd Midland, TX 79707	OGRID: 260737
	Action Number: 383224
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