NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 07 2016
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
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

nAB1616127076

## OPERATOR

☒ Initial Report ☐ Final Report

| | |
|---|---|
| Name of Company: BOPCO, L.P. 260737 | Contact: Amy Ruth |
| Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220 | Telephone No. 575-887-7329 |
| Facility Name: James Ranch Unit 29 SWD | Facility Type: Exploration and Production |

| | | |
|---|---|---|
| Surface Owner: State | Mineral Owner: State | API No. 30-015-27735 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| K | 36 | 22S | 30E | 1840 | South | 2184 | West | Eddy |

Latitude 32.346457° Longitude -103.835847°

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release: Produced Water | Volume of Release: 775 bbls | Volume Recovered: 760 bbls |
| Source of Release: Produced Water Tanks | Date and Hour of Occurrence: Unknown | Date and Hour of Discovery: 5/27/2016 10 am |
| Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required | If YES, To Whom? Mike Bratcher/Heather Patterson (NMOCD) | |
| By Whom? Amy Ruth | Date and Hour: 5/27/2016 2:58 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.*
Location VSAT (satellite) was damaged and caused SCADA communication to fail. Failure triggered an alarm that was not responded to by the proper personnel. Produced water tanks overflowed into zero perm containment. After filling containment, fluids began overflowing onto location well pad. Satellite was repaired.

Describe Area Affected and Cleanup Action Taken.*
The leak affected 2,212 sq. ft. of location well pad and 688 sq. ft. of pasture west of the caliche pad. Standing fluids were recovered by vacuum trucks.

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: EHS Remediation Specialist
E-mail Address: ACRuth@basspet.com
Date: 6/7/2016 Phone: 432-661-0571

OIL CONSERVATION DIVISION

Signed By Mike Bratcher
Approved by Environmental Specialist:

Approval Date: 6/8/16 Expiration Date: N/A

Conditions of Approval: Attached ☐

**Remediation per O.C.D. Rules & Guidelines**
**SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 7/8/16**

2RP-3726

* Attach Additional Sheets If Necessary

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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 | NAB1616127076 |
| District RP | 2RP-3726 |
| 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-3726 |
| Contact mailing address: 522 W. Mermod, Suite 704 Carlsbad, NM 88220 | |

## Location of Release Source

Latitude 32.346609 Longitude -103.835868
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name James Ranch Unit 29 SWD | Site Type Exploration and Production |
| Date Release Discovered 5/27/2016 | API# *(if applicable)* 30-015-27735 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| K | 36 | 22S | 30E | Eddy |

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

## Nature and Volume of Release

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

| | | |
|---|---|---|
| ☐ Crude Oil | Volume Released (bbls) | Volume Recovered (bbls) |
| ☒ Produced Water | Volume Released (bbls) 775 bbls | Volume Recovered (bbls) 760 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

Location VSTA (satellite) was damaged and caused SCADA communication to fail. Failure triggered an alarm that was not responded to by the proper personnel. Produced water tanks overflowed into zero perm containment, fluids began overflowing onto location well pad. Satellite was repaired.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NAB1616127076 |
| District RP | 2RP-3726 |
| Facility ID | |
| Application ID | |

| | |
|---|---|
| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>☒ Yes ☐ No | If YES, for what reason(s) does the responsible party consider this a major release?<br>Release volume was greater than 25 bbls. |
| If YES, was immediate notice given to the OCD?<br>Yes, immediate notice was given to Mike Bratcher and Heather Patterson of NMOCD by Amy Ruth on 05/27/2016 at 2:58pm | |

## 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 Supervisor

Signature: _____ Date: 4-28-2020

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

**OCD Only**

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NAB1616127076 |
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| Application ID | |

# Site Assessment/Characterization

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

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

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

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

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

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

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NAB1616127076 |
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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: Garrett Green Title: SH&E Coordinator

Signature: Date: 8/22/2022

email: Garrett.Green@exxonmobil.com Telephone: 575-200-0729

**OCD Only**

Received by: Date:

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NAB1616127076 |
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| Facility ID | |
| Application ID | |

# Closure

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

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

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

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

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

☒ Description of remediation activities

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

Printed Name: Garrett Green Title: SH&E Coordinator

Signature:  Date: 8/22/2022

email: Garrett.Green@exxonmobil.com Telephone: 575-200-0729

**OCD Only**

Received by: Date:

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

Closure Approved by: Date:

Printed Name: Title:

A proud member of WSP

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

April 30, 2020

Mr. Bradford Billings
New Mexico Oil Conservation Division
1220 South St. Francis Drive, #3
Santa Fe, New Mexico 87505

**RE: Closure Request**
**James Ranch Unit 29 SWD Tank Battery**
**Remediation Permit Number 2RP-3082, 2RP-3302, 2RP-3726, and 2RP-4040**
**Eddy County, New Mexico**

Dear Mr. Billings:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following Closure Request report detailing site assessment, soil sampling, and excavation activities at the James Ranch Unit (JRU) 29 SWD Tank Battery (Site) in Unit K, Section 36, Township 22 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the site assessment, soil sampling, and excavation activities was to address impacts to soil after multiple historical releases of produced water at the Site.

The releases are included in the Compliance Agreement for Remediation for Historical Releases (Compliance Agreement) between XTO and the New Mexico Oil Conservation Division (NMOCD) effective November 13, 2018. The purpose of the Compliance Agreement is to ensure 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 releases are categorized as Tier IV sites in the Compliance Agreement, meaning the releases occurred prior to August 14, 2018, the effective date of 19.15.29 NMAC; however, remediation was ongoing. Based on the site assessment activities and results of the soil sampling events, XTO is requesting no further action for these release events.

## RELEASE BACKGROUND

Between June 22, 2015 and December 1, 2016, four separate events resulted in the release of 4,499 barrels (bbls) of produced water at the Site. A total of approximately 4,030 bbls of free-standing fluids were recovered using a vacuum truck. The produced water releases impacted the caliche pad and pasture areas to the south and west of the pad. The previous operator reported each release to the NMOCD on a Release Notification and Corrective Action Form C-141. Remediation Permit (RP) Numbers 2RP-3082, 2RP-3302, 2RP-3726, and 2RP-4040 were assigned to the releases. Additional details regarding each release event are provided on the Form C-141s which are included in Attachment 1.

A Closure Request for the on-pad impacts was submitted in April 2019 under RP Numbers 2RP-2726 and 2RP-4833. This Closure Request is addressing the release areas in the pasture south and west of the pad associated with RP Numbers 2RP-3082, 2RP-3302, 2RP-3726, and 2RP-4040.

## SITE CHARACTERIZATION

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of 19.15.29.12 of the 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 321946103492001, located approximately 6,641 feet southeast of the Site. The water well has a depth to groundwater of 144 feet and a total depth of 180 feet. Ground surface elevation at the water well location is 3,305 feet above mean sea level (AMSL), which is approximately 8 feet lower in elevation than the Site. The closest continuously flowing water or significant watercourse to the Site is an intermittent stream located approximately 5,300 feet southwest of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is located in a medium-potential karst area.

During January 2020, a soil boring was advanced at the Site to a depth of 110 feet bgs via truck-mounted sonic drill rig to confirm depth to water in the area. An LTE geologist logged and described soils continuously. The borehole lithologic/soil sampling log is included in Attachment 4. The borehole was left open for over 72 hours to allow for potential slow infill of groundwater. After the 72-hour waiting period without observing groundwater, it was confirmed that groundwater beneath the Site is greater than 110 feet. The borehole was properly abandoned with hydrated bentonite chips.

## CLOSURE CRITERIA

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

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

A closure criteria of 600 mg/kg chloride was applied to the top 4 feet the pasture area that was impacted by the release, per NMAC 19.15.29.13.D (1) for the top 4 feet of areas that will be reclaimed following remediation.

## HISTORICAL REMEDIATION ACTIVITIES

During September 2017, Basin Environmental Service Technologies (Basin), completed preliminary site assessment activities at the Site. Test trenches were advanced via trackhoe at seven locations (SP-1 through SP-7) within the release areas to delineate impacted soil resulting from the historical produced water releases. On December 17, 2017, Basin submitted a Corrective Action Plan (CAP) to the NMOCD to propose remediation actions based on the results of the preliminary assessment activities. The CAP proposed the following remediation actions:

- Continued vertical delineation of chloride to below 600 mg/kg at test trench locations SP-4 and SP-7 (vertical delineation of chloride to below 600 mg/kg was achieved at all other test trench locations).
- Excavation of impacted pasture soils to a depth of four feet bgs and installation of a 20-mil impermeable liner over the in-situ soil.
- A liner from a prior remediation effort was identified at test trench SP-4. The existing liner in this area will be removed and replaced with a new liner.
- Excavation of impacted soil on the pad to a depth of approximately one-foot bgs.
    - As indicated above, the on-pad release areas were addressed in a separate Closure Request submitted in April 2019 under RP Numbers 2RP-2726 and 2RP-4833 (test trenches SP-1, SP-2, and SP-3 were completed on-pad and are not discussed further in this report).

NMOCD approved the CAP via email on March 9, 2018 with the following conditions:

- The vertical delineation sampling at SP-4 and SP7 must be completed at 1-foot intervals and analyzed for BTEX, TPH, and chloride.
- Complete an additional sampling point between existing test trench SP-5 and SP-7 and if practicable, directly south of the battery.

Basin completed the following remediation activities during March and April 2018:

- Removed the existing liner at test trench SP-4 and completed vertical delineation of chlorides to below 600 mg/kg at test trench SP-4.
- Attempted vertical delineation of chlorides at test trench SP-7. Chloride concentrations exceeded 600 mg/kg at 23 feet bgs (maximum reach of the trackhoe).
- Completed additional test trenches SP-8 and SP-9 and achieved vertical delineation of chlorides to below 600 mg/kg.

- Replaced the liner in the area around test trench SP-4.
- Excavated pasture soils to a depth of 4 feet bgs.
- Collected confirmation soil samples from the sidewalls of the excavation from a depth of 2 feet bgs.

Excavation of the impacted soil was conducted prior to the Compliance Agreement and prior to the implementation of the August 14, 2018, NMOCD modification to 19.15.29. Excavation confirmation samples were collected as discrete samples instead of composite samples. The sampling protocol complied with Guidance on Choosing a Sampling Design for Environmental Data Collection for Use in Developing a Quality Assurance Project Plan, EPA QA/G-5S, December 2002. The excavation extent and excavation soil sample locations are depicted on Figure 2.

Basin is no longer in operation and the remaining remediation activities were not completed. The available documentation from Basin is provided in Attachment 2. Documentation includes the CAP, correspondence with NMOCD, site maps, and soil sample laboratory analytical results.

## ADDITIONAL SITE ASSESSMENT AND EXCAVATION ACTIVITIES

During January 2020, LTE personnel was at the Site to complete the remaining remediation activities. A truck-mounted sonic drill rig was used to complete the NMOCD required vertical delineation at test trench SP-7. Soil samples SP-11/SP-11A/SP-11B/SP-11C were collected at 1-foot intervals from 23 feet to 26 feet bgs at the SP-7 test trench location. Additionally, per NMOCD request, an additional sampling point (SP-12) was selected between test trench SP-5 and SP-7. Soil samples were collected at 1-foot intervals from SP-12 from depths ranging from 4 feet to 14 feet bgs. The NMOCD request to add a sampling point south of the tank battery could not be completed to due multiple pipelines in this area. Soil from the boreholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Field screening results and observations for the boreholes were logged on lithologic/soil sampling logs, which are included in Attachment 4. The delineation soil sample locations are depicted on Figure 3.

The CAP and initial remediation activities were completed prior to the August 14, 2018 modification to 19.15.29 of the NMAC. LTE evaluated the remaining remediation activities required, based on the implementation of the modification and associated NMOCD Table 1 Closure Criteria.

Two test trench delineation soil samples exceeded the Closure Criteria for GRO/DRO:

- The sample collected from 3 feet bgs from test trench SP-4 exceeded the Closure Criteria for GRO/DRO. The 3-foot sample was collected from above the liner and was subsequently excavated.

- The sample collected from 5 feet bgs from test trench SP-7 exceeded the Closure Criteria for GRO/DRO; the subsequent 6-foot bgs from test trench SP-7 was compliant. Soil was excavated in the area around SP-7 to a depth of 5.5 feet bgs. Following removal of impacted soil, LTE collected a 5-point composite soil sample (FS01) from the floor of the excavation from a depth of 5.5 feet bgs. The excavation extent and excavation soil sample location are depicted on Figure 2.

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

Based on depth to groundwater greater than 100 feet bgs and laboratory analytical results below the Closure Criteria in all remaining delineation and excavation soil samples, liner installation was not warranted in the excavation area south of the pad. Impacted soil was excavated to a depth of four feet bgs from the entire pasture release area and vertical delineation of chlorides to below 600 mg/kg was completed at every test trench/delineation sample point.

The excavation measured approximately 33,300 square feet in area and was completed to a depth of 4 feet bgs. A total of approximately 5,000 cubic yards of impacted soil were removed from the excavation. Photographic documentation was conducted during the Site visits. Photographs are included in Attachment 4.

## ANALYTICAL RESULTS

Laboratory analytical results for the delineation soil samples, collected from sample points SP-4 through SP-12 indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria except for two samples (SP-4 at 3 feet bgs and SP-7 at 5 feet bgs) that exceeded for GRO/DRO, and were subsequently excavated. Laboratory analytical results for the delineation soil samples are summarized in Table 1.

Laboratory analytical results for the excavation soil samples indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria and chloride concentrations were below 600 mg/kg in sidewall samples collected from the pasture excavation from the top 4 feet of the subsurface. Laboratory analytical results for the excavation soil samples are summarized in Table 2. The complete laboratory analytical reports are included as Attachment 5.

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## CLOSURE REQUEST

Site assessment and excavation activities were conducted at the Site to address the historical releases of produced water in the pasture areas south and west of the well pad. Delineation soil sampling was completed in and around the release extents to define the lateral and vertical extent of impacted soil. Impacted soil was excavated from the pasture release areas to a depth of 4 feet bgs. Laboratory analytical results for excavation soil samples, collected from the final excavation extent, indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Additionally, chloride concentrations were below 600 mg/kg in excavation soil samples collected in the pasture from the top four feet of the subsurface. Laboratory analytical results for the final delineation soil samples, collected from sample points SP-4 through SP-12 indicated that BTEX, GRO/DRO, TPH, and chloride concentrations were compliant with the Closure Criteria at depths below 4 feet bgs and no further excavation was required. A historical liner was identified in the area around sample point SP-4. The liner in this area was replaced per the CAP to be protective of historical remediation activities at the Site.

Initial response efforts, natural attenuation, and excavation of impacted soil have mitigated impacts at this Site. XTO requests no further action for RP Numbers 2RP-3082, 2RP-3302, 2RP-3726, and 2RP-4040. XTO backfilled the excavation with material purchased locally and recontoured the Site to match pre-existing site conditions. An updated NMOCD Form C-141 for each release event is included in Attachment 1.

If you have any questions or comments, please do not hesitate to contact Ms. Ashley Ager at (970) 385-1096.

Sincerely,

LT ENVIRONMENTAL, INC.

Aimee Cole
Project Environmental Scientist

Ashley L. Ager, P.G.
Senior Geologist

cc: Kyle Littrell, XTO
Ryan Mann, State Land Office
Mike Bratcher, NMOCD

Attachments:

| | |
|---|---|
| Figure 1 | Site Location Map |
| Figure 2 | Excavation Soil Sample Locations |
| Figure 3 | Delineation Soil Sample Locations |
| Table 1 | Delineation Soil Sample Analytical Results |
| Table 2 | Excavation Soil Sample Analytical Results |
| Attachment 1 | Initial/Final NMOCD Form C-141 (2RP-3082, 2RP-3302, 2RP-3726, and 2RP-4040) |
| Attachment 2 | Historical Documentation |
| Attachment 3 | Lithologic / Soil Sample Logs |
| Attachment 4 | Photographic Log |
| Attachment 5 | Laboratory Analytical Reports |

FIGURES


**LEGEND**

SITE LOCATION

IMAGE COURTESY OF ESRI/USGS

0 2,000 4,000

Feet

N

NEW MEXICO

NOTE: REMEDIATION PERMIT NUMBERS 2RP-2726, 2RP-3082, 2RP-3302, 2RP-3726, 2RP-4040, & 2RP-4833

FIGURE 1
SITE LOCATION MAP
JAMES RANCH UNIT 29 SWD
UNIT K SEC 36 T22S R30E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

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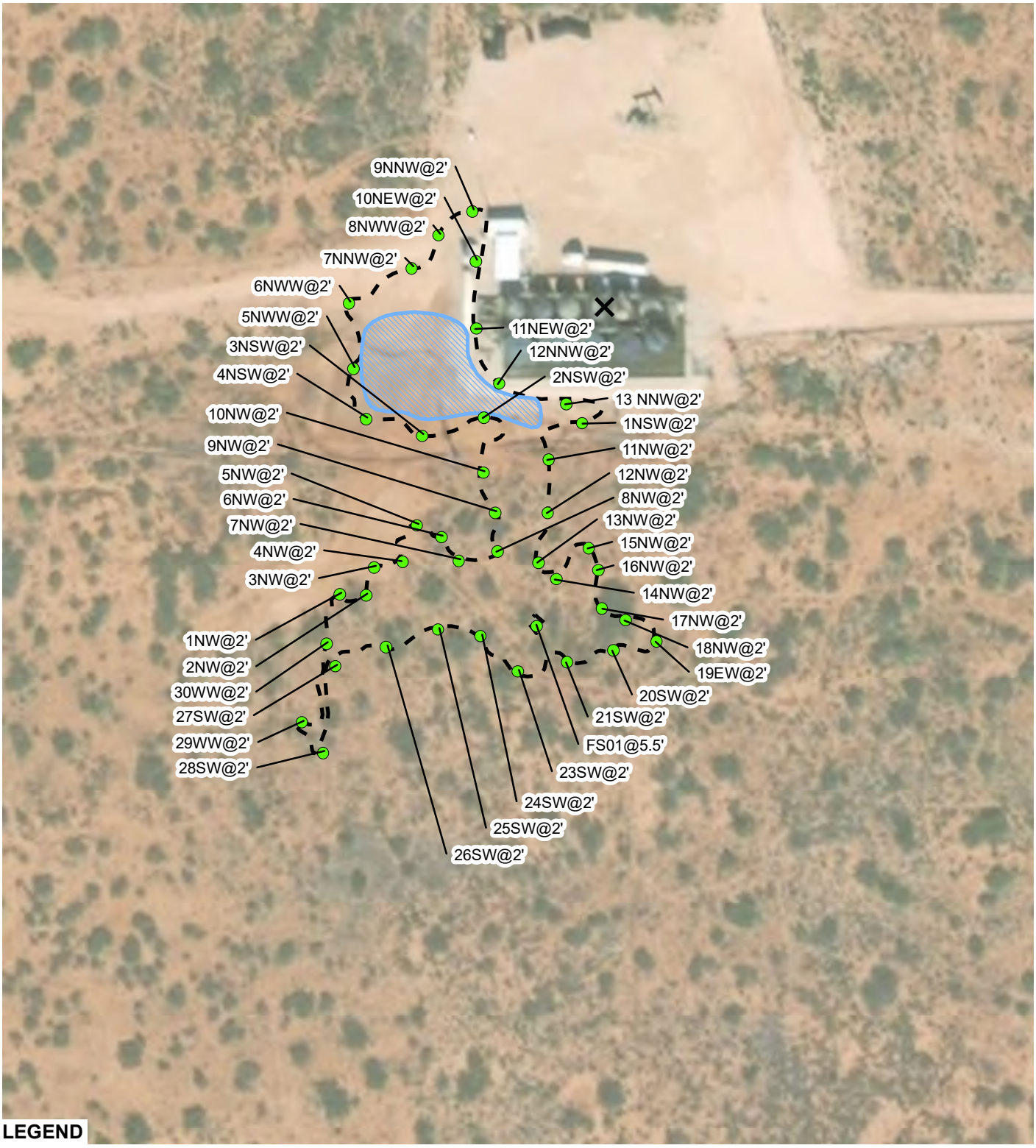


**LEGEND**

- RELEASE LOCATION
- EXCAVATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA
- EXCAVATION EXTENT (4 FEET)
- APPROXIMATE LINER EXTENT

NOTE: REMEDIATION PERMIT NUMBERS
2RP-2726, 2RP-3082, 2RP-3302, 2RP-3726,
2RP-4040, & 2RP-4833
SAMPLE ID@DEPTH BELOW GROUND SURFACE (FEET)

IMAGE COURTESY OF ESRI

0 100 200
Feet

N

FIGURE 2
EXCAVATION SOIL SAMPLE LOCATIONS
JAMES RANCH UNIT 29 SWD
UNIT K SEC 36 T22S R30E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

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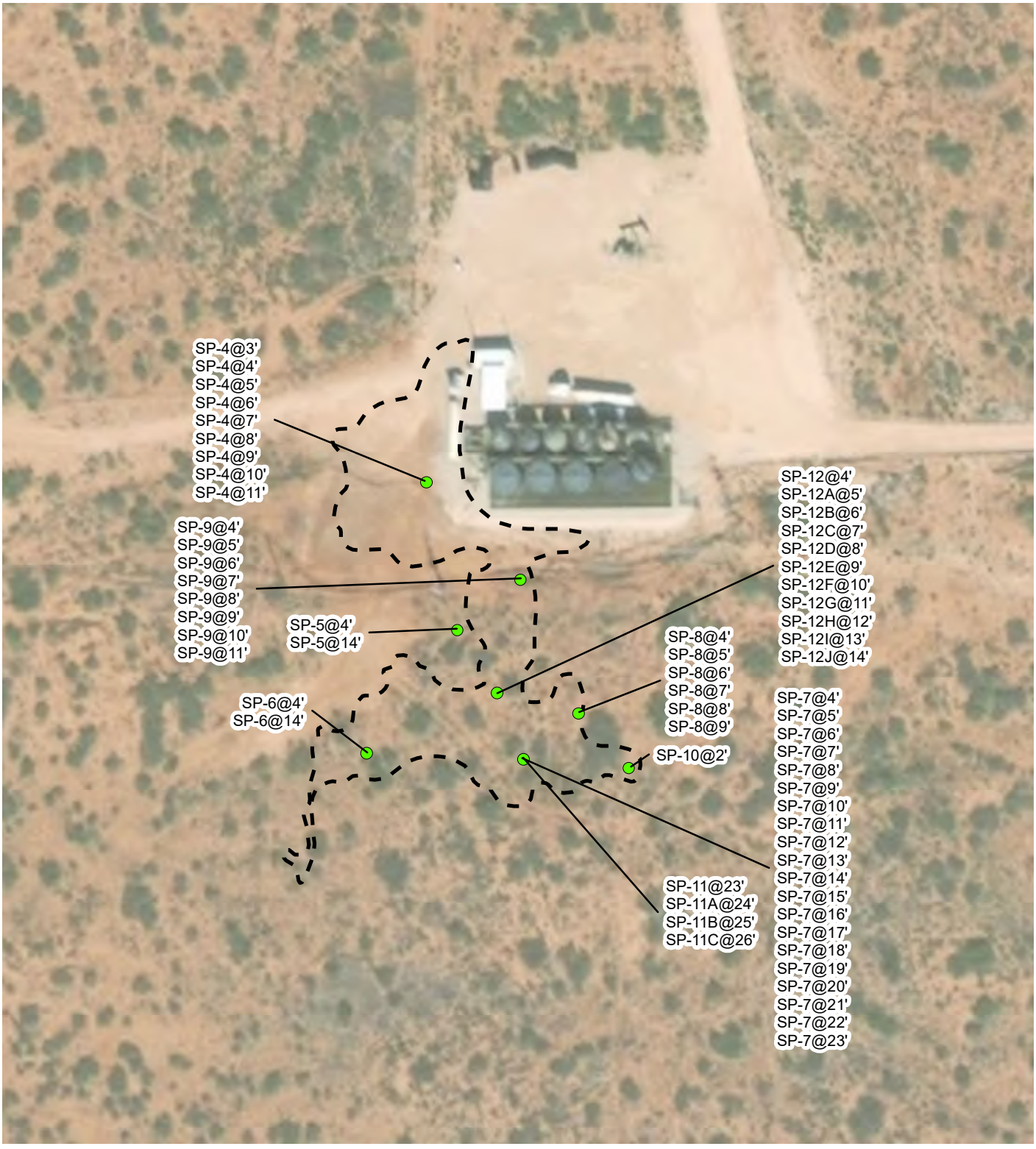


**LEGEND**

DELINEATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA

EXCAVATION EXTENT (4 FEET)

IMAGE COURTESY OF ESRI

0 100 200

Feet

N

NOTE: REMEDIATION PERMIT NUMBERS
2RP-2726, 2RP-3082, 2RP-3302, 2RP-3726,
2RP-4040, & 2RP-4833
SAMPLE ID@DEPTH BELOW GROUND SURFACE (FEET)

FIGURE 3
DELINEATION SOIL SAMPLE LOCATIONS
JAMES RANCH UNIT 29 SWD
UNIT K SEC 36 T22S R30E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

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# TABLES

**TABLE 1**
**SOIL ANALYTICAL RESULTS**
**JRU 29 SWD TANK BATTERY**
**REMEDIATION PERMIT NUMBER 2RP-3082, 2RP-3302, 2RP-3726, 2RP-4040**
**EDDY COUNTY, NEW MEXICO**
**XTO ENERGY, INC.**

| Sample Name | Sample Depth (feet bgs) | Sample Date | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | GRO (mg/kg) | DRO (mg/kg) | ORO (mg/kg) | Total GRO+DRO (mg/kg) | TPH (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SP-4 | 3 | 09/11/2017 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | 2,130 | 489 | **2,130** | 2,130 | **2,720** |
| SP-4 | 4 | 04/16/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | 13.3 | <10.0 | 13.3 | 4,800 |
| SP-4 | 5 | 04/16/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | 1,600 |
| SP-4 | 6 | 04/16/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | 1,410 |
| SP-4 | 7 | 04/16/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | 1,440 |
| SP-4 | 8 | 04/16/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | 1,040 |
| SP-4 | 9 | 04/16/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | 1,800 |
| SP-4 | 10 | 04/16/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | 608 |
| SP-4 | 11 | 04/16/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | 528 |
| SP-5 | 4 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | 288 |
| SP-5 | 14 | 09/11/2017 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 240 |
| SP-6 | 4 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | 529 |
| SP-6 | 14 | 09/11/2017 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 64.0 |
| SP-7 | 4 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | 469 | 130 | 469 | 599 | 10,400 |
| SP-7 | 5 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | 1,140 | 248 | **1,140** | 1,388 | 10,800 |
| SP-7 | 6 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 8,130 |
| SP-7 | 7 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 14,400 |
| SP-7 | 8 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 15,600 |
| SP-7 | 9 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 10,700 |
| SP-7 | 10 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 3,440 |
| SP-7 | 11 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 3,520 |
| SP-7 | 12 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 656 |
| SP-7 | 13 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 1,200 |
| SP-7 | 14 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 1,120 |
| SP-7 | 14 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 1,760 |
| SP-7 | 15 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 304 |
| SP-7 | 16 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 880 |
| SP-7 | 17 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 816 |
| SP-7 | 18 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 1,360 |
| SP-7 | 19 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 2,360 |
| SP-7 | 20 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 1,600 |
| SP-7 | 21 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 1,440 |
| SP-7 | 22 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 4,880 |
| SP-7 | 23 | 03/29/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 2,360 |
| SP-11 | 23 | 01/21/2020 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 32.9 |
| SP-11A | 24 | 01/21/2020 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <49.8 | <49.8 | <49.8 | <49.8 | <49.8 | 157 |
| SP-11B | 25 | 01/21/2020 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 289 |
| SP-11C | 26 | 01/21/2020 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 216 |
| **NMOCD Table 1 Closure Criteria** | | | **10** | NE | NE | NE | **50** | NE | NE | NE | **1,000** | **2,500** | **20,000** |

**TABLE 1**
**SOIL ANALYTICAL RESULTS**
**JRU 29 SWD TANK BATTERY**
**REMEDIATION PERMIT NUMBER 2RP-3082, 2RP-3302, 2RP-3726, 2RP-4040**
**EDDY COUNTY, NEW MEXICO**
**XTO ENERGY, INC.**

| Sample Name | Sample Depth (feet bgs) | Sample Date | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | GRO (mg/kg) | DRO (mg/kg) | ORO (mg/kg) | Total GRO+DRO (mg/kg) | TPH (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SP-8 | 4 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 3,760 |
| SP-8 | 5 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 9,060 |
| SP-8 | 6 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 1,520 |
| SP-8 | 7 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 11,800 |
| SP-8 | 8 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 1,010 |
| SP-8 | 9 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 272 |
| SP-9 | 4 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 6,400 |
| SP-9 | 5 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 6,800 |
| SP-9 | 6 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 5,040 |
| SP-9 | 7 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 3,360 |
| SP-9 | 8 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 14,400 |
| SP-9 | 9 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 384 |
| SP-9 | 10 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 560 |
| SP-9 | 11 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 480 |
| SP-10 | 2 | 04/02/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 144 |
| SP-12 | 4 | 01/21/2020 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 1940 |
| SP-12A | 5 | 01/21/2020 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <49.8 | <49.8 | <49.8 | <49.8 | <49.8 | 2010 |
| SP-12B | 6 | 01/21/2020 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | 1760 |
| SP-12C | 7 | 01/21/2020 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 1580 |
| SP-12D | 8 | 01/21/2020 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <49.8 | <49.8 | <49.8 | <49.8 | <49.8 | 1110 |
| SP-12E | 9 | 01/21/2020 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 383 |
| SP-12F | 10 | 01/21/2020 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | 537 |
| SP-12G | 11 | 01/21/2020 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | 418 |
| SP-12H | 12 | 01/21/2020 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 698 |
| SP-12I | 13 | 01/21/2020 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <50.0 | <50.0 | <50.0 | <50.0 | <50.0 | 947 |
| SP-12J | 14 | 01/21/2020 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <49.9 | <49.9 | <49.9 | <49.9 | <49.9 | 561 |
| **NMOCD Table 1 Closure Criteria** | | | **10** | NE | NE | NE | **50** | NE | NE | NE | **1,000** | **2,500** | **20,000** |

**Notes:**

bgs - below ground surface
BTEX - benzene, toluene, ethylbenzene, and total xylene
DRO - diesel range organics
GRO - gasoline range organics
mg/kg - milligrams per kilogram
ORO - motor oil range organics
NMAC - New Mexico Administrative Code
NMOCD - New Mexico Oil Conservation Division
NE - not established
TPH - total petroleum hydrocarbons

**Bold** - indicates result exceeds the applicable regulatory standard
< - indicates result is below laboratory reporting limits
Table 1 - closure criteria for soils impacted by a release per NMAC 19.15.29 August 2018
Greyed data represents samples that were excavated

**TABLE 2**
**SOIL ANALYTICAL RESULTS**
**JRU 29 SWD TANK BATTERY**
**REMEDIATION PERMIT NUMBER 2RP-3082, 2RP-3302, 2RP-3726, 2RP-4040**
**EDDY COUNTY, NEW MEXICO**
**XTO ENERGY, INC.**

| Sample Name | Sample Depth (feet bgs) | Sample Date | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | GRO (mg/kg) | DRO (mg/kg) | ORO (mg/kg) | Total GRO+DRO (mg/kg) | TPH (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 112* |
| 2 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 64* |
| 3 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 80* |
| 4 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 48* |
| 5 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 80* |
| 6 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 32* |
| 7 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 256* |
| 8 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 64* |
| 9 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | <16.0* |
| 10 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | <16.0* |
| 11 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | <16.0* |
| 12 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 272* |
| 13 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 96* |
| 14 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 64* |
| 15 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 48* |
| 16 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 128* |
| 17 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 48* |
| 18 NW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 32* |
| 19 EW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 16* |
| 20 SW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 32* |
| 21 SW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | 51.3 | 18.2 | 51.3 | 69.5 | <16.0* |
| 23 SW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 48* |
| 24 SW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 16* |
| 25 SW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 32* |
| 26 SW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 80* |
| 27 SW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 64* |
| 28 SW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 16* |
| **NMOCD Table 1 Closure Criteria** | | | **10** | NE | NE | NE | **50** | NE | NE | NE | **1,000** | **2,500** | **20,000** |

**TABLE 2**
**SOIL ANALYTICAL RESULTS**
**JRU 29 SWD TANK BATTERY**
**REMEDIATION PERMIT NUMBER 2RP-3082, 2RP-3302, 2RP-3726, 2RP-4040**
**EDDY COUNTY, NEW MEXICO**
**XTO ENERGY, INC.**

| Sample Name | Sample Depth (feet bgs) | Sample Date | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | GRO (mg/kg) | DRO (mg/kg) | ORO (mg/kg) | Total GRO+DRO (mg/kg) | TPH (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 WW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 112* |
| 30 WW | 2 | 04/06/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 272* |
| 1 NSW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 160* |
| 2 NSW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 112* |
| 3 NSW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 80* |
| 4 NSW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 592* |
| 5 NWW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 528* |
| 6 NWW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 96* |
| 7 NNW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 32* |
| 8 NWW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 176* |
| 9 NNW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 144* |
| 10 NEW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 2,080 |
| 11 NEW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 6,000 |
| 12 NNW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 672 |
| 13 NNW | 2 | 05/25/2018 | <0.050 | <0.050 | <0.050 | <0.150 | <0.300 | <10.0 | <10.0 | <10.0 | <10.0 | <30.0 | 1,380 |
| FS01 | 5.5 | 03/09/2020 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <49.8 | <49.8 | <49.8 | <49.8 | <49.8 | 2,200 |
| **NMOCD Table 1 Closure Criteria** | | | **10** | NE | NE | NE | **50** | NE | NE | NE | **1,000** | **2,500** | **20,000** |

**Notes:**

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

ATTACHMENT 1: HISTORICAL DOCUMENTATION

PO Box 301 | Lovington , NM 88260 | Phone 575.396.2378

**December 15, 2017**

**Attn. Mike Bratcher**
NMOCD, District 2
811 South First Street
Artesia, NM 88210

RE: **Corrective Action Plan**
**XTO Energy**
**JRU 29 SWD**
**UL/K SEC. 36 T22S R30E**
**32.346432, -103.835934**
**2RP-2726; 2RP-3082; 2RP-3302; 2RP-3726 and 2RP-4040**

Mr. Bratcher:

XTO Energy (XTO) has retained Basin Environmental Service Technologies (Basin) to address potential environmental concerns at the above-referenced site.

**Background and Previous Work**

The JRU 29 SWD site is located approximately 1980 feet from the North/South Line South and 2310 feet from the East/West Line West 2310 at Unit Letter K of Section 36, Township 22 South, Range 30 East in Eddy County, New Mexico. This site is located in an area where groundwater is anticipated to be greater than 200 +/- feet below ground surface (bgs) as determined by consulting a Regional Groundwater Trend map. A liner from a previous remediation effort is buried beneath a portion of the currently impacted soil. The community of Loving, New Mexico is approximately 13 miles west-southwest of the site.

Five leak events have occurred at the JRU 29 SWD and are summarized below.

The initial spill occurred on December 25, 2014. XTO discovered a release of approximately ninety-seven (97) barrels (bbls) of produced water. It is suspected that an unknown truck dumped the fluid or left the “truck load valve” open, causing the spill. Time of the release is unknown. The spill was discovered on December 25, 2014 at 5:30 AM. An estimated three (3) bbls of fluids were recovered. Approximately fourteen thousand five hundred (14,500) square feet ($ft^2$) of tank battery/well pad were impacted. New Mexico Oil Conservation Division (NMOCD) was notified of the release on December 25, 2014, and an initial C-141 was submitted to NMOCD on January 6, 2015 for approval. The NMOCD granted approval of the C-141 on January 12, 2015. Tracking number 2RP 2726 was assigned to the spill.

A second spill event occurred on June 22, 2015. XTO discovered a release of approximately one-hundred ten (110) bbls of produced water when a pipe fitting on the 4 inch saltwater disposal (SWD) discharge line failed. Time of the release is unknown. The spill was discovered on June 22, 2015 at 6:36 PM. An estimated forty (40) bbls of fluids were recovered [twenty (20) bbl from the zero permeability containment and twenty (20) bbl from the ground]. The spill impacted approximately five thousand (5,000) $ft^2$ of pasture area. NMOCD was notified on June 26, 2015. The NMOCD granted approval of the C-141 on June 30, 2015. Tracking number 2RP 3082 was assigned to the spill.

The third spill event occurred September 18, 2015. XTO discovered a release of approximately two-hundred ninety (290) bbls of produced water when flange bolts on the south water transfer pump failed. The spill was discovered September 18, 2015 at approximately 7:00 PM. Most of the fluids were released to the zero permeability containment. Approximately two-hundred forty bbls of fluids were recovered. Produced water released to the ground impacted approximately four thousand two-hundred thirty five (4235) $ft^2$ of pasture area. NMOCD was notified September 24, 2015. NMOCD granted approval of the C-141 report on September 24, 2015. Tracking number RP-3302 was assigned to the spill.

The forth spill event occurred in May of 2016. XTO discovered a release of approximately seven hundred seventy five (775) bbls of produced water when a VSAT (satellite) antenna was damaged and caused the SCADA communication device to fail. This failure triggered an alarm that was not properly responded to. The produced water tanks overflowed into the zero permeability containment. The containment filled and overflowed onto the well pad. The date and time of the spill is unknown. The spill was discovered approximately 10:00 AM on May 27, 2016. About seven-hundred sixty (760) bbls of fluids were recovered. The spill affected two thousand two-hundred twelve 2212 $ft^2$ of well pad and six-hundred eighty eight (688) $ft^2$ of pasture. NMOCD was notified June 7, 2016. NMOCD granted approval of the C-141 report on June 8, 2016. Tracking number 2RP-3726 was assigned to the spill.

The fifth spill event occurred in December of 2016. XTO discovered a release of approximately three thousand three-hundred thirty two (3324) bbls of produced water due to a transfer pump failure. The pump failure caused damage to a fiberglass line. Fluids overflowed the containment. The date and time of the spill is unknown. The spill was discovered approximately 9:00 AM on December 1, 2016. Approximately two thousand nine-hundred ninety (2,990) bbls of fluids were recovered. The spill affected about twenty two thousand one-hundred five (22,105) $ft^2$ of well pad and thirty three thousand nine-hundred thirty eight (33,938) $ft^2$ of pasture for a total of 56,043 $ft^2$ impacted. NMOCD was notified December 1, 2016 at 4:52 PM. NMOCD granted approval of the C-141 report on December 16, 2016. Tracking number 2RP 4040 was assigned to the spill.

On September 11, 2017, Basin Environmental personnel arrived on the JRU 29 SWD site to perform initial test trench (tt or tts) sampling for delineation of the subject spills. A back hoe was utilized to excavate seven tts within the release area for collection of delineation samples. The tts were labeled SP-1, SP-2, SP-3, SP-4, SP-5, SP-6, and SP-7. Each sample was field tested for chlorides using HACH Chloride test strips. Confirmatory samples were submitted to a

NMOCD approved and certified laboratory. Results of field and laboratory testing are provided in Table 1. Select laboratory data is provided on the sample points location map (Figure 2).

To summarize lab results for trench SP-1, the laboratory test for chlorides yielded 272 mg/kg at 4 feet below ground surface (bgs). Benzene, toluene, ethyl benzene and xylene (BTEX) concentrations are below the method detection limit for the laboratory. Gas range organics (GRO), diesel range organics (DRO), and extended diesel range organics (EXT DRO) are well below the Recommended Remediation Action Level (RRAL) guideline of 100 mg/kg.

For trench SP-2, the laboratory test for chlorides yielded 64 mg/kg at 5 feet bgs. BTEX showed concentrations are below the method detection limit for the laboratory. GRO, DRO, and EXT DRO are well below the RRAL guideline of 100 mg/kg.

For trench SP-3, the laboratory test for chlorides yielded 432 mg/kg at 6 feet below ground surface. Laboratory tests for BTEX showed concentrations are below the method detection limit for the laboratory. GRO, DRO, and EXT DRO are well below the RRAL guideline of 100 mg/kg.

For trench SP-4, the laboratory test for chlorides yielded 2720 mg/kg at 3 feet bgs. Preservation of a previously installed liner prevented attempts to sample deeper at this location. This liner will be removed as part of the CAP and confirmation sampling will be performed to delineate the extent of chlorides beneath the liner using remediation excavation equipment. If the depth to cleanup of chlorides cannot be reached using the remediation equipment, a PVC conduit pipe will be set through the liner and an environmental test drill will be brought to the site to complete the delineation for chlorides. Laboratory tests for BTEX showed concentrations are below the method detection limit for the laboratory. GRO is well below the RRAL guideline of 100 mg/kg. DRO and EXT DRO are 2130 mg/kg and 489 mg/kg respectively and are above the RRAL guideline of 100 mg/kg.

For trench SP-5, the laboratory test for chlorides yielded 240 mg/kg at 14 feet bgs. BTEX showed concentrations are below the method detection limit for the laboratory. GRO, DRO, and EXT DRO are well below the RRAL guideline of 100 mg/kg.

At trench SP-6, the laboratory test for chlorides yielded 64 mg/kg at 14 feet bgs. BTEX showed concentrations are below the method detection limit for the laboratory. GRO, DRO, and EXT DRO were well below the RRAL guideline of 100 mg/kg.

For trench SP-7, the laboratory test for chlorides yielded 1760 mg/kg at 14 feet. Further delineation for chlorides at this site will be performed during execution of the CAP using excavation equipment. If the depth to cleanup of chlorides cannot be reached using the remediation excavation equipment, a PVC conduit pipe will be set through the liner and an environmental test drill will be brought to the site to complete the delineation for chlorides. However, laboratory tests for BTEX showed concentrations are below the method detection limit for the laboratory. GRO, DRO, and EXT DRO are well below the RRAL guideline of 100 mg/kg.

**Corrective Action Plan (CAP)**

Approximately 72,870 $ft^2$ of caliche pad and pasture are impacted at the JRU 29 SWD site. Of that total, approximately 32,300 $ft^2$ is caliche pad and approximately 40,570 is pasture land. Remediation of the impacted pasture soils and pad materials will be accomplished per the methods described below. A New Mexico State Land Office permit will be necessary to access the site.

A liner from a prior remediation effort will be removed. Location of the previously existing liner is shown in Figure 2. At sample tt locations SP-4 and SP-7 (reference Figure 2) excavation equipment will be utilized to collect deeper delineation samples for testing with field methods. Excavation and sampling will continue until results of field testing show chlorides are at or below the NMOCD target of 600 mg/kg. If a satisfactory delineation at or below the NMOCD target is obtained, the sample trenches will be backfilled and the soil material will be compacted.

The impacted pasture soils will then be excavated to a depth of four feet bgs. This excavated soil will be transported to Lea Land (NMOCD Permit # WM01) for disposal. If required, a six-inch cushion layer of sand may be installed over the entire excavation site. A 20 mil impermeable liner will then be installed over in-situ soil (or a backfill of 6 to 12-inch layer of cushioning sand, if required) to the limits of the excavation. A 6 to 12-inch sand layer will placed on top of the liner over the entire excavation in order to protect the integrity of the liner during backfilling operations. Locally procured soil materials will be used to backfill the excavated area in one to two foot lifts. The lifts will be compacted with excavation equipment. The fill area will be graded to blend with the contours of the surrounding topography. At the completion of backfilling and at a time conductive for germination, Basin will loosen the suface of the backfilled soils with a disc, rake or harrow. Basin will then seed the extent of the remediated pasture area at JRU 29 SWD with a blend of native, non-noxious vegetation approved by the New Mexico State Land Office. The seed will be applied with either a drill or a broadcast method to ensure complete coverage of the affected area.

In the event that delineation of chlorides at locations SP-4 and SP-7 cannot be achieved to levels below the NMODC target of 600 mg/kg when using remediation excavation equipment to facilitate sampling, PVC conduit (referenced above) will be set and sealed to the liner material prior to backfilling to grade. An environmental test drilling rig will be brought to the site and the strata at depth will be sampled until delineation at or below 600 mg/kg chlorides is achieved. The resultant soil boring will be backfilled with bentonite chips in lifts and hydrated per manufacturer's recommendations. Each borehole will be filled to the surface of the ground.

In addition to the pasture area, approximately 32,300 $ft^2$ of caliche pad at JRU 29 SWD is impacted. The impacted pad area will be excavated to an area approximately one foot in depth. This excavated caliche will be transported to Lea Land (NMOCD Permit # WM01) for disposal. The excavated area will then be backfilled with clean, non-impacted caliche. The clean caliche will be spread in thin layers (three to six-inches thick). Each layer will be watered and roll compacted to dryness and watered again. Another layer of caliche will be added on top of the previous layer until the fill area is brought up to grade.

The supporting documentation for this Corrective Action Plan is attached.

Basin appreciates the opportunity to work with you on this project. Please contact me if you have any questions or wish to discuss the site.

Sincerely,

John P. Farrell P.G.
Project Manager
Basin Environmental Service Technologies
(575) 393-2378

Attachments:

Figure 1 – Site Location Map
Figure 2 – Sample Locations and Select Analytical Sampling Data
Table 1 – 2017 Sample Concentrations of BTEX, TPH and Chloride
Appendix A – Laboratory Analysis
Appendix B – C-141 Forms

# ATTACHMENTS

# TABLE

**TABLE 1**
**2017 CONCENTRATIONS OF FIELD CHLORIDE**
**XTO**
**JRU 29 SWD**
**EDDY COUNTY, NEW MEXICO**
**NMOCD REFERENCE #'S: 2RP-2726, 2RP-3082, 2RP-3302, 2RP-3726 and 2RP-4040**

| SAMPLE LOCATION | SAMPLE DEPTH (BGS) | SAMPLE DATE | SOIL STATUS | METHOD: 8015B | | | TPH $C_6$-$C_{35}$ (mg/Kg) | FIELD | 4500 CL-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | GRO $C_6$-$C_{12}$ (mg/Kg) | DRO $C_{12}$-$C_{28}$ (mg/Kg) | EXT DRO $C_{28}$-$C_{36}$ (mg/Kg) | | CHLORIDE (mg/Kg) | CHLORIDE (mg/Kg) |
| TT-1 | SUR | 9/11/2017 | In-Situ | NA | NA | NA | NA | >2456 | NA |
| TT-1 | 1' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 560 | NA |
| TT-1 | 2' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 344 | NA |
| TT-1 | 3' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 272 | NA |
| TT-1 | 4' | 9/11/2017 | In-Situ | <10.0 | <10.0 | <10.0 | <30.0 | 180 | 272 |
| | | | | | | | | | |
| TT-2 | SUR | 9/11/2017 | In-Situ | NA | NA | NA | NA | > 2604 | NA |
| TT-2 | 1' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 2060 | NA |
| TT-2 | 2' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 1528 | NA |
| TT-2 | 3' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 1136 | NA |
| TT-2 | 4' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 264 | NA |
| TT-2 | 5' | 9/11/2017 | In-Situ | <10.0 | <10.0 | <10.0 | <30.0 | < 112 | 64 |
| | | | | | | | | | |
| TT-3 | SUR | 9/11/2017 | In-Situ | NA | NA | NA | NA | > 2604 | NA |
| TT-3 | 1' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 476 | NA |
| TT-3 | 2' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 360 | NA |
| TT-3 | 3' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 476 | NA |
| TT-3 | 4' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 520 | NA |
| TT-3 | 5' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 328 | NA |
| TT-3 | 6' | 9/11/2017 | In-Situ | <10.0 | <10.0 | <10.0 | <30.0 | 236 | 432 |
| | | | | | | | | | |
| TT-4 | SUR | 9/11/2017 | In-Situ | NA | NA | NA | NA | > 2604 | NA |
| TT-4 | 1' | 9/11/2017 | In-Situ | NA | NA | NA | NA | > 2604 | NA |
| TT-4 | 2' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 1,974 | NA |
| TT-4 | 3' | 9/11/2017 | In-Situ | <10.0 | 2130 | 489 | 2619 | 1,224 | 2720 |
| | | | | | | | | | |

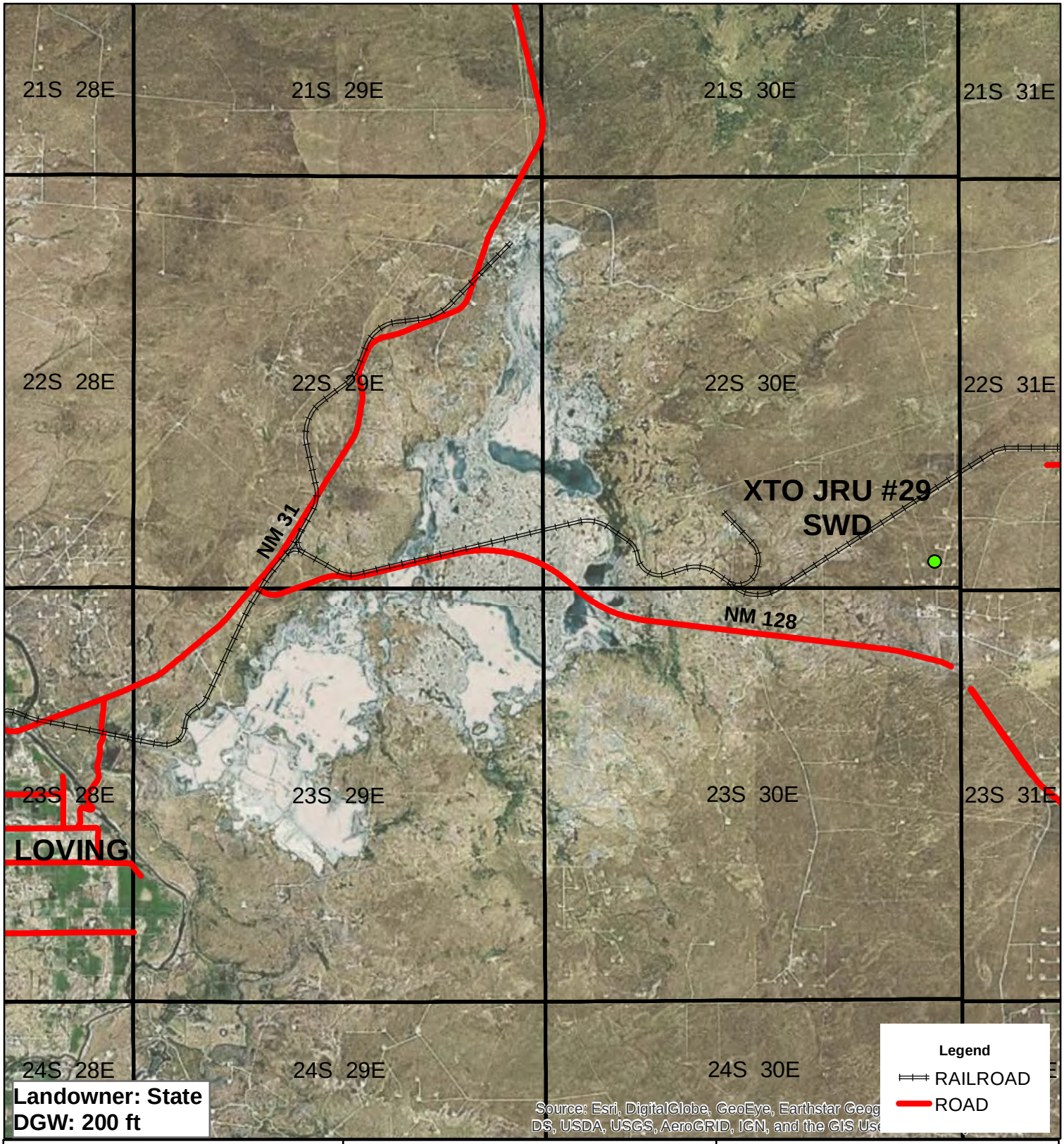
**TABLE 1**
**2017 CONCENTRATIONS OF FIELD CHLORIDE**
**XTO**
**JRU 29 SWD**
**EDDY COUNTY, NEW MEXICO**
**NMOCD REFERENCE #'S: 2RP-2726, 2RP-3082, 2RP-3302, 2RP-3726 and 2RP-4040**

| SAMPLE LOCATION | SAMPLE DEPTH (BGS) | SAMPLE DATE | SOIL STATUS | METHOD: 8015B | | | TPH $C_6$-$C_{35}$ (mg/Kg) | FIELD | 4500 CL-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | GRO $C_6$-$C_{12}$ (mg/Kg) | DRO $C_{12}$-$C_{28}$ (mg/Kg) | EXT DRO $C_{28}$-$C_{36}$ (mg/Kg) | | CHLORIDE (mg/Kg) | CHLORIDE (mg/Kg) |
| TT-5 | SUR | 9/11/2017 | In-Situ | NA | NA | NA | NA | > 2604 | NA |
| TT-5 | 1' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 360 | NA |
| TT-5 | 2' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 564 | NA |
| TT-5 | 3' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 328 | NA |
| TT-5 | 4' | 9/11/2017 | In-Situ | NA | NA | NA | NA | < 112 | NA |
| TT-5 | 5' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 564 | NA |
| TT-5 | 6' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 564 | NA |
| TT-5 | 7' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 476 | NA |
| TT-5 | 8' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 564 | NA |
| TT-5 | 9' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 440 | NA |
| TT-5 | 14' | 9/11/2017 | In-Situ | <10.0 | <10.0 | <10.0 | <30.0 | 160 | 240 |
| | | | | | | | | | |
| TT-6 | SUR | 9/11/2017 | In-Situ | NA | NA | NA | NA | < 112 | NA |
| TT-6 | 1' | 9/11/2017 | In-Situ | NA | NA | NA | NA | < 112 | NA |
| TT-6 | 2' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 328 | NA |
| TT-6 | 3' | 9/11/2017 | In-Situ | NA | NA | NA | NA | > 2604 | NA |
| TT-6 | 4' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 2,408 | NA |
| TT-6 | 6' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 296 | NA |
| TT-6 | 8' | 9/11/2017 | In-Situ | NA | NA | NA | NA | < 112 | NA |
| TT-6 | 14' | 9/11/2017 | In-Situ | <10.0 | <10.0 | <10.0 | <30.0 | < 112 | 64 |
| | | | | | | | | | |
| TT-7 | SUR | 9/11/2017 | In-Situ | NA | NA | NA | NA | < 112 | NA |
| TT-7 | 1' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 328 | NA |
| TT-7 | 2' | 9/11/2017 | In-Situ | NA | NA | NA | NA | > 2604 | NA |
| TT-7 | 3' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 1644 | NA |
| TT-7 | 4' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 1644 | NA |
| TT-7 | 6' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 908 | NA |
| TT-7 | 8' | 9/11/2017 | In-Situ | NA | NA | NA | NA | 664 | NA |
| TT-7 | 14' | 9/11/2017 | In-Situ | <10.0 | <10.0 | <10.0 | <30.0 | 976 | 1760 |
| | | | | | | | | | |
| **NMOCD Regulatory Standard** | | | | **10** | | | **5000** | **600** | **600** |
| | | | | | | | | | |

# FIGURES

# Geographic Location






Basin Environmental Effective Solutions Service Technologies

## XTO
## JRU 29 SWD

2RP-2766, 2RP-3082, 2RP-3302, 2RP-3726 & 2RP-4040

UL K SECTION 36
T-22-S R-30-E
EDDY COUNTY, NM

GPS: 32.319360 -103.931548

Figure 1

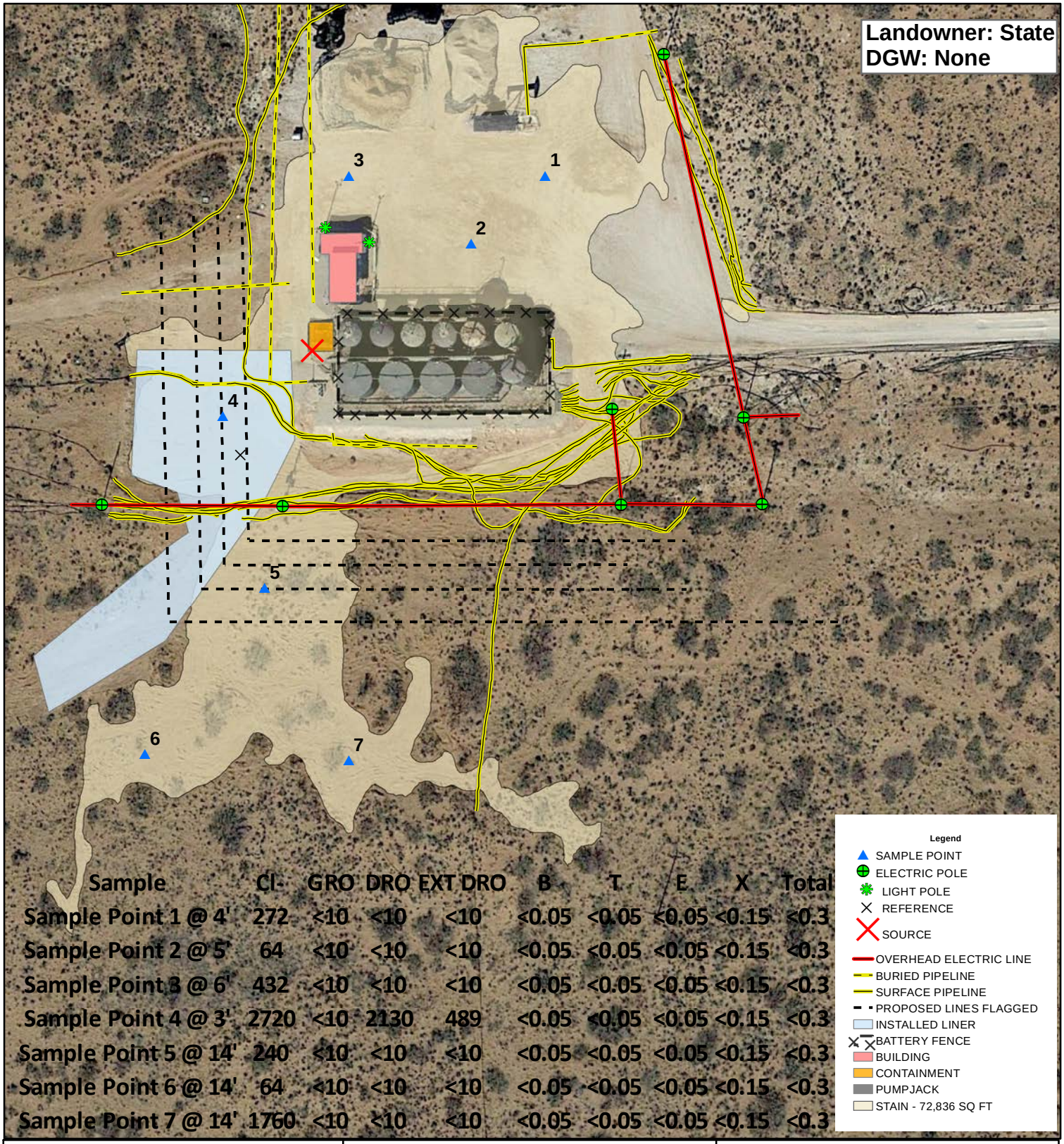
0 1 2 Miles

N W E S

Drawing date: 10/10/17
Drafted by: T. Grieco

# Initial Sampling






| Sample | Cl- | GRO | DRO | EXT DRO | B | T | E | X | Total |
|---|---|---|---|---|---|---|---|---|---|
| Sample Point 1 @ 4' | 272 | <10 | <10 | <10 | <0.05 | <0.05 | <0.05 | <0.15 | <0.3 |
| Sample Point 2 @ 5' | 64 | <10 | <10 | <10 | <0.05 | <0.05 | <0.05 | <0.15 | <0.3 |
| Sample Point 3 @ 6' | 432 | <10 | <10 | <10 | <0.05 | <0.05 | <0.05 | <0.15 | <0.3 |
| Sample Point 4 @ 3' | 2720 | <10 | 2130 | 489 | <0.05 | <0.05 | <0.05 | <0.15 | <0.3 |
| Sample Point 5 @ 14' | 240 | <10 | <10 | <10 | <0.05 | <0.05 | <0.05 | <0.15 | <0.3 |
| Sample Point 6 @ 14' | 64 | <10 | <10 | <10 | <0.05 | <0.05 | <0.05 | <0.15 | <0.3 |
| Sample Point 7 @ 14' | 1760 | <10 | <10 | <10 | <0.05 | <0.05 | <0.05 | <0.15 | <0.3 |

Basin Environmental Service Technologies
Effective Solutions

**XTO**
**JRU 29**

UL K SECTION 36
T-22-S R-30-E
EDDY COUNTY, NM

**Underground facilities are spatially projected and need to be field verified.**

GPS: 32.346386 -103.835900

0 50 100 Feet

GPS date: 9/5/17, 10/2/17 TG
Drawing date: 10/2/17
Drafted by: T. Grieco

N W E S

# APPENDIX A

CARDINAL Laboratories

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

September 25, 2017

ROBBIE RUNNELS

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: JRU 29 SWD

Enclosed are the results of analyses for samples received by the laboratory on 09/18/17 15:26.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

## Analytical Results For:

Basin Environmental Service
ROBBIE RUNNELS
P.O. Box 301
Lovington NM, 88260
Fax To: (575) 396-1429

| | | | |
|---|---|---|---|
| Received: | 09/18/2017 | Sampling Date: | 09/11/2017 |
| Reported: | 09/25/2017 | Sampling Type: | Soil |
| Project Name: | JRU 29 SWD | Sampling Condition: | ** (See Notes) |
| Project Number: | NONE GIVEN | Sample Received By: | Tamara Oldaker |
| Project Location: | EDDY COUNTY, NM | | |

### Sample ID: SP1 @ 4' (H702515-01)

**BTEX 8021B** mg/kg Analyzed By: MS

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.90 | 95.2 | 2.00 | 0.810 | |
| Toluene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.77 | 88.6 | 2.00 | 1.97 | |
| Ethylbenzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.85 | 92.4 | 2.00 | 1.18 | |
| Total Xylenes* | <0.150 | 0.150 | 09/22/2017 | ND | 5.59 | 93.2 | 6.00 | 1.42 | |
| Total BTEX | <0.300 | 0.300 | 09/22/2017 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *111 %* *72-148*

**Chloride, SM4500Cl-B** mg/kg Analyzed By: AC

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **272** | 16.0 | 09/20/2017 | ND | 432 | 108 | 400 | 0.00 | |

**TPH 8015M** mg/kg Analyzed By: MS

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10 | <10.0 | 10.0 | 09/20/2017 | ND | 183 | 91.7 | 200 | 0.349 | |
| DRO >C10-C28 | <10.0 | 10.0 | 09/20/2017 | ND | 196 | 98.0 | 200 | 0.105 | |
| EXT DRO >C28-C36 | <10.0 | 10.0 | 09/20/2017 | ND | | | | | |

*Surrogate: 1-Chlorooctane* *82.3 %* *28.3-164*

*Surrogate: 1-Chlorooctadecane* *85.0 %* *34.7-157*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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## Analytical Results For:

Basin Environmental Service
ROBBIE RUNNELS
P.O. Box 301
Lovington NM, 88260
Fax To: (575) 396-1429

| | | | |
|---|---|---|---|
| Received: | 09/18/2017 | Sampling Date: | 09/11/2017 |
| Reported: | 09/25/2017 | Sampling Type: | Soil |
| Project Name: | JRU 29 SWD | Sampling Condition: | ** (See Notes) |
| Project Number: | NONE GIVEN | Sample Received By: | Tamara Oldaker |
| Project Location: | EDDY COUNTY, NM | | |

### Sample ID: SP 2 @ 5' (H702515-02)

**BTEX 8021B** mg/kg Analyzed By: MS

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.90 | 95.2 | 2.00 | 0.810 | |
| Toluene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.77 | 88.6 | 2.00 | 1.97 | |
| Ethylbenzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.85 | 92.4 | 2.00 | 1.18 | |
| Total Xylenes* | <0.150 | 0.150 | 09/22/2017 | ND | 5.59 | 93.2 | 6.00 | 1.42 | |
| Total BTEX | <0.300 | 0.300 | 09/22/2017 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *112 %* *72-148*

**Chloride, SM4500Cl-B** mg/kg Analyzed By: AC

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **64.0** | 16.0 | 09/20/2017 | ND | 432 | 108 | 400 | 0.00 | |

**TPH 8015M** mg/kg Analyzed By: MS

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10 | <10.0 | 10.0 | 09/21/2017 | ND | 183 | 91.7 | 200 | 0.349 | |
| DRO >C10-C28 | <10.0 | 10.0 | 09/21/2017 | ND | 196 | 98.0 | 200 | 0.105 | |
| EXT DRO >C28-C36 | <10.0 | 10.0 | 09/21/2017 | ND | | | | | |

*Surrogate: 1-Chlorooctane* *84.4 %* *28.3-164*

*Surrogate: 1-Chlorooctadecane* *86.3 %* *34.7-157*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## Analytical Results For:

Basin Environmental Service
ROBBIE RUNNELS
P.O. Box 301
Lovington NM, 88260
Fax To: (575) 396-1429

| | | | |
|---|---|---|---|
| Received: | 09/18/2017 | Sampling Date: | 09/11/2017 |
| Reported: | 09/25/2017 | Sampling Type: | Soil |
| Project Name: | JRU 29 SWD | Sampling Condition: | ** (See Notes) |
| Project Number: | NONE GIVEN | Sample Received By: | Tamara Oldaker |
| Project Location: | EDDY COUNTY, NM | | |

### Sample ID: SP 3 @ 6' (H702515-03)

**BTEX 8021B** mg/kg **Analyzed By: MS**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.90 | 95.2 | 2.00 | 0.810 | |
| Toluene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.77 | 88.6 | 2.00 | 1.97 | |
| Ethylbenzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.85 | 92.4 | 2.00 | 1.18 | |
| Total Xylenes* | <0.150 | 0.150 | 09/22/2017 | ND | 5.59 | 93.2 | 6.00 | 1.42 | |
| Total BTEX | <0.300 | 0.300 | 09/22/2017 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *111 %* *72-148*

**Chloride, SM4500Cl-B** mg/kg **Analyzed By: AC**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **432** | 16.0 | 09/20/2017 | ND | 432 | 108 | 400 | 0.00 | |

**TPH 8015M** mg/kg **Analyzed By: MS**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10 | <10.0 | 10.0 | 09/21/2017 | ND | 183 | 91.7 | 200 | 0.349 | |
| DRO >C10-C28 | <10.0 | 10.0 | 09/21/2017 | ND | 196 | 98.0 | 200 | 0.105 | |
| EXT DRO >C28-C36 | <10.0 | 10.0 | 09/21/2017 | ND | | | | | |

*Surrogate: 1-Chlorooctane* *82.6 %* *28.3-164*

*Surrogate: 1-Chlorooctadecane* *89.7 %* *34.7-157*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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## Analytical Results For:

Basin Environmental Service
ROBBIE RUNNELS
P.O. Box 301
Lovington NM, 88260
Fax To: (575) 396-1429

| | | | |
|---|---|---|---|
| Received: | 09/18/2017 | Sampling Date: | 09/11/2017 |
| Reported: | 09/25/2017 | Sampling Type: | Soil |
| Project Name: | JRU 29 SWD | Sampling Condition: | ** (See Notes) |
| Project Number: | NONE GIVEN | Sample Received By: | Tamara Oldaker |
| Project Location: | EDDY COUNTY, NM | | |

### Sample ID: SP 4 @ 3' (H702515-04)

**BTEX 8021B** mg/kg **Analyzed By: MS**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.90 | 95.2 | 2.00 | 0.810 | |
| Toluene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.77 | 88.6 | 2.00 | 1.97 | |
| Ethylbenzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.85 | 92.4 | 2.00 | 1.18 | |
| Total Xylenes* | <0.150 | 0.150 | 09/22/2017 | ND | 5.59 | 93.2 | 6.00 | 1.42 | |
| Total BTEX | <0.300 | 0.300 | 09/22/2017 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *116 %* *72-148*

**Chloride, SM4500Cl-B** mg/kg **Analyzed By: AC**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **2720** | 16.0 | 09/20/2017 | ND | 432 | 108 | 400 | 0.00 | |

**TPH 8015M** mg/kg **Analyzed By: MS**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10 | <10.0 | 10.0 | 09/21/2017 | ND | 183 | 91.7 | 200 | 0.349 | |
| **DRO >C10-C28** | **2130** | 10.0 | 09/21/2017 | ND | 196 | 98.0 | 200 | 0.105 | |
| **EXT DRO >C28-C36** | **489** | 10.0 | 09/21/2017 | ND | | | | | |

*Surrogate: 1-Chlorooctane* *80.9 %* *28.3-164*

*Surrogate: 1-Chlorooctadecane* *123 %* *34.7-157*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## Analytical Results For:

Basin Environmental Service
ROBBIE RUNNELS
P.O. Box 301
Lovington NM, 88260
Fax To: (575) 396-1429

| | | | |
|---|---|---|---|
| Received: | 09/18/2017 | Sampling Date: | 09/11/2017 |
| Reported: | 09/25/2017 | Sampling Type: | Soil |
| Project Name: | JRU 29 SWD | Sampling Condition: | ** (See Notes) |
| Project Number: | NONE GIVEN | Sample Received By: | Tamara Oldaker |
| Project Location: | EDDY COUNTY, NM | | |

### Sample ID: SP 5 @ 14' (H702515-05)

**BTEX 8021B** mg/kg **Analyzed By: MS**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.97 | 98.3 | 2.00 | 0.292 | |
| Toluene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.82 | 91.1 | 2.00 | 0.577 | |
| Ethylbenzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.91 | 95.4 | 2.00 | 0.0216 | |
| Total Xylenes* | <0.150 | 0.150 | 09/22/2017 | ND | 5.73 | 95.4 | 6.00 | 0.0613 | |
| Total BTEX | <0.300 | 0.300 | 09/22/2017 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *108 %* *72-148*

**Chloride, SM4500Cl-B** mg/kg **Analyzed By: AC**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **240** | 16.0 | 09/20/2017 | ND | 432 | 108 | 400 | 0.00 | |

**TPH 8015M** mg/kg **Analyzed By: MS**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10 | <10.0 | 10.0 | 09/25/2017 | ND | 183 | 91.7 | 200 | 0.349 | |
| DRO >C10-C28 | <10.0 | 10.0 | 09/25/2017 | ND | 196 | 98.0 | 200 | 0.105 | |
| EXT DRO >C28-C36 | <10.0 | 10.0 | 09/25/2017 | ND | | | | | |

*Surrogate: 1-Chlorooctane* *79.5 %* *28.3-164*

*Surrogate: 1-Chlorooctadecane* *86.9 %* *34.7-157*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## Analytical Results For:

Basin Environmental Service
ROBBIE RUNNELS
P.O. Box 301
Lovington NM, 88260
Fax To: (575) 396-1429

| | | | |
|---|---|---|---|
| Received: | 09/18/2017 | Sampling Date: | 09/11/2017 |
| Reported: | 09/25/2017 | Sampling Type: | Soil |
| Project Name: | JRU 29 SWD | Sampling Condition: | ** (See Notes) |
| Project Number: | NONE GIVEN | Sample Received By: | Tamara Oldaker |
| Project Location: | EDDY COUNTY, NM | | |

### Sample ID: SP 6 @ 14' (H702515-06)

**BTEX 8021B** mg/kg Analyzed By: MS

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.97 | 98.3 | 2.00 | 0.292 | |
| Toluene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.82 | 91.1 | 2.00 | 0.577 | |
| Ethylbenzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.91 | 95.4 | 2.00 | 0.0216 | |
| Total Xylenes* | <0.150 | 0.150 | 09/22/2017 | ND | 5.73 | 95.4 | 6.00 | 0.0613 | |
| Total BTEX | <0.300 | 0.300 | 09/22/2017 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *110 %* *72-148*

**Chloride, SM4500Cl-B** mg/kg Analyzed By: AC

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **64.0** | 16.0 | 09/20/2017 | ND | 432 | 108 | 400 | 0.00 | |

**TPH 8015M** mg/kg Analyzed By: MS

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10 | <10.0 | 10.0 | 09/21/2017 | ND | 183 | 91.7 | 200 | 0.349 | |
| DRO >C10-C28 | <10.0 | 10.0 | 09/21/2017 | ND | 196 | 98.0 | 200 | 0.105 | |
| EXT DRO >C28-C36 | <10.0 | 10.0 | 09/21/2017 | ND | | | | | |

*Surrogate: 1-Chlorooctane* *99.9 %* *28.3-164*

*Surrogate: 1-Chlorooctadecane* *105 %* *34.7-157*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## Analytical Results For:

Basin Environmental Service
ROBBIE RUNNELS
P.O. Box 301
Lovington NM, 88260
Fax To: (575) 396-1429

| | | | |
|---|---|---|---|
| Received: | 09/18/2017 | Sampling Date: | 09/12/2017 |
| Reported: | 09/25/2017 | Sampling Type: | Soil |
| Project Name: | JRU 29 SWD | Sampling Condition: | ** (See Notes) |
| Project Number: | NONE GIVEN | Sample Received By: | Tamara Oldaker |
| Project Location: | EDDY COUNTY, NM | | |

### Sample ID: SP 7 @ 14' (H702515-07)

**BTEX 8021B** mg/kg **Analyzed By: MS**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.97 | 98.3 | 2.00 | 0.292 | |
| Toluene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.82 | 91.1 | 2.00 | 0.577 | |
| Ethylbenzene* | <0.050 | 0.050 | 09/22/2017 | ND | 1.91 | 95.4 | 2.00 | 0.0216 | |
| Total Xylenes* | <0.150 | 0.150 | 09/22/2017 | ND | 5.73 | 95.4 | 6.00 | 0.0613 | |
| Total BTEX | <0.300 | 0.300 | 09/22/2017 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *110 %* *72-148*

**Chloride, SM4500Cl-B** mg/kg **Analyzed By: AC**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **1760** | 16.0 | 09/20/2017 | ND | 432 | 108 | 400 | 0.00 | |

**TPH 8015M** mg/kg **Analyzed By: MS**

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10 | <10.0 | 10.0 | 09/21/2017 | ND | 183 | 91.7 | 200 | 0.349 | |
| DRO >C10-C28 | <10.0 | 10.0 | 09/21/2017 | ND | 196 | 98.0 | 200 | 0.105 | |
| EXT DRO >C28-C36 | <10.0 | 10.0 | 09/21/2017 | ND | | | | | |

*Surrogate: 1-Chlorooctane* *96.0 %* *28.3-164*

*Surrogate: 1-Chlorooctadecane* *104 %* *34.7-157*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## Notes and Definitions

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

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

# CARDINAL LABORATORIES

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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

| | | | |
|---|---|---|---|
| **Company Name:** | Basin Environmental Service Technologies, LLC | **BILL TO** | |
| **Project Manager:** | Robbie Runnels | **P.O. #:** | |
| **Address:** | P.O. Box 301 | **Company:** | XTO Energy |
| **City:** | Lovington **State:** NM **Zip:** 88260 | **Attn:** | Amy Ruth |
| **Phone #:** | (575)396-2378 **Fax #:** (575)396-1429 | **Address:** | |
| **Project #:** | **Project Owner:** XTO Energy | **City:** | |
| **Project Name:** | JRU 29 SWD | **State:** NM **Zip:** 88260 | |
| **Project Location:** | Eddy | **Phone #:** | |
| **Sampler Name:** | Robbie Runnels | **Fax #:** | |

| FOR LAB USE ONLY Lab I.D. | Sample I.D. | (G)RAB OR (C)OMP. | # CONTAINERS | MATRIX: GROUNDWATER | WASTEWATER | SOIL | OIL | SLUDGE | OTHER : | PRESERV.: ACID/BASE: | ICE / COOL | OTHER : | SAMPLING: DATE | TIME | ANALYSIS REQUEST: Chloride | TPH (8015M) | BTEX (8021B) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H702515 | | | | | | | | | | | | | | | | | |
| 1 | SP 1 @ 4' | g | 1 | | | X | | | | | X | | 9/11/17 | 9:35 | X | x | x |
| 2 | SP 2 @ 5' | g | 1 | | | x | | | | | x | | 9/11/17 | 10:05 | x | x | x |
| 3 | SP 3 @ 6' | g | 1 | | | x | | | | | x | | 9/11/17 | 10:40 | x | x | x |
| 4 | SP 4 @ 3' | g | 1 | | | x | | | | | x | | 9/11/17 | 11:21 | x | x | x |
| 5 | SP 5 @ 14' | g | 1 | | | x | | | | | x | | 9/11/17 | 13:30 | x | x | x |
| 6 | SP 6 @ 14' | g | 1 | | | x | | | | | x | | 9/11/17 | 14:20 | x | x | x |
| 7 | SP 7 @ 14' | g | 1 | | | x | | | | | x | | 9/12/17 | 7:55 | x | x | x |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |



| | | | |
|---|---|---|---|
| **Relinquished By:** | **Date:** 9/12/17 | **Received By:** Haley Cuerbow | **Phone Result:** ☐ Yes ☐ No **Add'l Phone #:** |
| | **Time:** 3:26 | | **Fax Result:** ☐ Yes ☐ No **Add'l Fax #:** |
| **Relinquished By:** | **Date:** | **Received By:** | **REMARKS:** |
| | **Time:** | | Please email results to pm@basinenv.com, amy_Ruth@xtoenergy.com |

**Delivered By: (Circle One)** Sampler - UPS - Bus - Other: 12.3°C / 12.55°C

**Sample Condition** Cool: ☐ Yes ☑ No Intact: ☑ Yes ☐ No

**CHECKED BY: (Initials)** HC

FORM-006
Revision 1.0

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

Corrected t.25°C

## Littrell, Kyle

**From:** Ruth, Amy
**Sent:** Friday, March 9, 2018 3:00 PM
**To:** Littrell, Kyle
**Cc:** Foust, Bryan
**Subject:** FW: Corrective Action Plan for JRU 29 SWD

**Importance:** High

FYI, we are approved by OCD to begin the JRU 29 SWD. We already submitted an AFE proposal for this one. The OCD is just asking for some extra sampling. Not bad, though.

---

**From:** Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]
**Sent:** Friday, March 09, 2018 12:26 PM
**To:** John Farrell; Bratcher, Mike, EMNRD
**Cc:** Ruth, Amy; agroves@slo.state.nm.us; 'Jody Walters'; 'Robbie Runnels'
**Subject:** RE: Corrective Action Plan for JRU 29 SWD

RE: XTO (BOPCO OGRID 260737) * James Ranch Unit 29 SWD Battery (API utilized is for JRU #29 well 30-015-27735) * 2RP-2726, 2RP-3082, 2RP-3302, 2RP-3726 , and 2RP-4040

Hello all,

I believe I also attended the meeting that John mentioned that occurred on 10/4/17 and upon review of the existing files OCD has for these case numbers mentioned above I feel I am as equipped as anyone else to provide a review of this project, unless there are any emails going back and forth on it that I do not know about because they were only with Mike Bratcher. So if no emails of that nature exist then we should be good.

First off I wanted to say this is a well written work plan. Thank you for that. Explanations and history that is provided in the plan helps out a lot. Also the email body of the email that this work plan was sent with helps out cause it summarizes what XTO interpreted from what was discussed during the meeting we had with you all.

<u>In review of the work plan and meeting summary notes OCD approves this work plan but needs to include/request the following additions/conditions:</u>

- It appears that data for each sample point in the Excel data table is all field data up until the last deepest depth sample taken for each sample point which each of those samples appears to have been sent in for laboratory testing confirmation. Since the remediation proposal for this location is to perform the 4ft removal with liner placement, OCD normally must acquire lab tested samples for the whole delineation of each sample point that show from start to finish what we have in the soil column until target clean delineation numbers are reached.
    - However, due to how long this work plan has sat and other factors OCD will accept confirmation samples produced during the excavation process instead of requesting that the delineation data be recollected. So starting of course below the 4ft depth OCD needs you all to have lab data tested for all RRAL and COA required constituents until they show clean based on site ranking score clean up levels and chloride delineation requirement. The sampling that gets submitted to the lab can start below the 4ft mark as I mentioned but the samples need to be in 1ft intervals and need to be tested for TPH for extended range (GRO+DRO+MRO; $C_6$ thru $C_{36}$) using method 8015, Benzene results of 10ppm or less and total BTEX of 50ppm or less tested via either Method 8260 or 8021, and chlorides are to be 600ppm or less using EPA Method 300.0 testing.

  - I understand that during the reporting phase via C-141s for all of these spills it was stated on the forms that produced water was the only production fluid lost each time. However, produced water is regularly known to have many contaminants in it and OCD asking for verification that BTEX and TPH are not an issue is standard procedure. I believe we discussed all of this during the meeting of 10/4/17. . . Correct me if I am wrong on that. If we didn't discuss then I may be getting another meeting mixed up with this one, but it is no matter cause it is still being requested now.

- Also when I do a ground water assessment study, on my end, I find the closest well (with depth to water data) to the location is actually one with documentation of shallower depth to water than a lot of the other ground water wells that are farther away from your location. OSE cites depth to ground water for well C-2492 at 85ft. So based on that assessment OCD will assess a site ranking score for this location of 10, which only changes the target levels for TPH, which will now need to be at 1000ppm or less.

- Furthermore, because the occurrence of spills at this location total 5 over the span of time from 2014- now, and are now all being dealt with in a group project OCD feels justified in saying that based on depth to ground water having the potential to be less than 100ft for this site, we will need some additional confirmation sample points to be collected during the excavation process for this spill plume area. Please generate an additional confirmation sample point somewhere between your existing SP-5 and SP-7 and if practicable somewhere directly south of the battery but still on the pad.

- Also as you all have offered full delineation for chlorides at your SP-4 and SP-7 still needs to proceed as you all have indicated you are prepared to do.

- Please provide OCD notification of when this project has been mobilized to begin remediation efforts.

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.

If you have any questions or concerns, and for notification of moblization of equipment, please contact Mike Bratcher and/or myself in the District II Office.

**Crystal Weaver**
Environmental Specialist
OCD – Artesia District II
811 S. 1st Street
Artesia, NM 88210
Office: 575-748-1283 ext. 101
Cell: 575-840-5963
Fax: 575-748-9720

**From:** John Farrell [mailto:jfarrell@basinenv.com]
**Sent:** Friday, December 15, 2017 11:41 AM
**To:** Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
**Cc:** 'Ruth, Amy' <Amy_Ruth@xtoenergy.com>; Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; agroves@slo.state.nm.us; 'Jody Walters' <sjwalters@basinenv.com>; 'Robbie Runnels' <rrunnels@basinenv.com>
**Subject:** Corrective Action Plan for JRU 29 SWD

Dear Mr. Bratcher:

Attached, please find the Corrective Action Plan (CAP) for the XTO JRU 29 SWD facility in Eddy County, New Mexico.

To review, during our meeting on October 4, 2017, Basin Environmental/XTO stated the JRU 29 SWD CAP was preliminary and that it would be updated; that a regional Groundwater Trend Map would be used to determine depth to groundwater at the site; that there will be further delineation of chlorides at Test Trenches 4 and 7 using excavation equipment; and, in pasture areas impacted by the spills, Basin will remove a previously existing liner and place a new liner using methods described in the CAP.

Per NMOCD request, as part of the CAP, Basin has placed data from field and laboratory testing into a Microsoft Xcel ® Spreadsheet to facilitate ease of review. Please note that Basin used the 600mg/kg chloride level discussed at the meeting as the benchmark indicating that cleanup has been achieved.

CAP SUMMARY: the CAP proposes some additional delineation of chlorides at two of the test trench points, soil removal to a depth of approximately 4 feet and placement of a liner over the area of contamination in pasture areas and grading to local contours. The plan also calls for removal of 1 foot of caliche on the chloride impacted pad area followed by replacement with un-impacted caliche and compaction to complete the remedial process. Currently, excavation of impacted soil and installation of liners is the best available technology to further prevent migration of contaminants downwards towards the water table.

Please review the attached CAP and provide any comments to Amy Ruth of XTO with copies to Jody Walters, Robbie Runnels and John Farrell of Basin Environmental Service Technologies.

Sincerely,

John P. Farrell P.G.
Project Manager
Basin Environmental Service Technologies, LLC
575 631 1278

ATTACHMENT 2: INITIAL/FINAL NMOCD FORM C-141 (2RP-3082, 2RP-3302, 2RP-3726, and 2RP-4040)

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 26 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
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

nAB1518142271 260737

## 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-29 SWD Tank Battery | Facility Type: SWD |

| | | |
|---|---|---|
| Surface Owner: State of N.M. | Mineral Owner: State of N.M. | API No. 30-015-27735 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County: |
|---|---|---|---|---|---|---|---|---|
| K | 36 | 22S | 30E | 1980 | South | 2310 | West | Eddy |

Latitude N 32.346432 Longitude W 103.835934

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release: Produced water | Volume of Release: 110 bbls. | Volume Recovered: 40 bbls. |
| Source of Release: 4" SWD pump discharge line | Date and Hour of Occurrence: 6/22/15 Time unknown | Date and Hour of Discovery: 6/22/15 at about 5:45 p.m. |
| Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required | If YES, To Whom? NMOCD emergency #104 | |
| By Whom? Tony Savoie | Date and Hour: 6/22/15 at 6:36 p.m. | |
| Was a Watercourse Reached? ☐ Yes ☒ No | If YES, Volume Impacting the Watercourse. | |

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
A 4" pipe fitting failed on the discharge of the SWD transfer pump. The pump was shut down and the fitting was replaced.

Describe Area Affected and Cleanup Action Taken.*
The spill impacted approximately 5,000 sq.ft. of pasture area. All of the free standing fluid was recovered with a vacuum truck. Twenty bbls of PW was recovered from the 0 Perm containment and 20bbls off the ground. A portion of the impacted area has a liner installed at about 3 ft. in depth. This liner was installed during a previous closed remediation at the location.
The spill area will be cleaned up in accordance to the NMOCD 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 | OIL CONSERVATION DIVISION |
| Printed Name: Tony Savoie | Signed By Mike Bratcher<br>Approved by Environmental Specialist: |
| Title: Waste Management and Remediation Specialist | Approval Date: 6/30/15 Expiration Date: N/A |
| E-mail Address: tasavoie@basspet.com | Conditions of Approval: Attached ☐ |
| Date: 6/26/15 Phone: 432-556-8730 | Remediation per O.C.D. Rules & Guidelines<br>SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 8/1/15 |

* Attach Additional Sheets If Necessary

2RP-3082

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-3082 |
| 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-3082 |
| Contact mailing address: 522 W. Mermod, Suite 704 Carlsbad, NM 88220 | |

## Location of Release Source

Latitude 32.346432 Longitude -103.835934
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name: JRU-29 SWD Tank Battery | Site Type: Exploration and Production |
| Date Release Discovered: 6/22/2015 | API# *(if applicable)* 30-015-27735 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| K | 36 | 22S | 30E | Eddy |

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

## Nature and Volume of Release

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

| | | |
|---|---|---|
| ☐ Crude Oil | Volume Released (bbls) | Volume Recovered (bbls) |
| ☒ Produced Water | Volume Released (bbls) 110 bbls | Volume Recovered (bbls) 40 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

A 4” pipe fitting failed on the discharge of the SWD transfer pump. The pump was shut down and the fitting was replaced.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3082 |
| Facility ID | |
| Application ID | |

| | |
|---|---|
| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>☒ Yes ☐ No | If YES, for what reason(s) does the responsible party consider this a major release?<br>Release volume was greater than 25 bbls. |
| If YES, was immediate notice given to the OCD?<br>Yes, immediate notice was given to NMOCD emergency #104 by Tony Savoie on 06/22/2015 at 6:36pm. | |

## 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 Supervisor

Signature: _____ Date: 4-28-2020

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

**OCD Only**

Received by: _____ Date: _____

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3082 |
| 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-3082 |
| 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 Supervisor

Signature: Date: 4/28/2020

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

**OCD Only**

Received by: Date:

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3082 |
| Facility ID | |
| Application ID | |

# Closure

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

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

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

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

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

☒ Description of remediation activities

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: _____ Date: 4-28-2020

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

**OCD Only**

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 24 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
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

NAB1526753593

## OPERATOR

☒ Initial Report ☐ Final Report

| | |
|---|---|
| Name of Company: BOPCO, L.P. 260737 | Contact: Amy Ruth |
| Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220 | Telephone No. 575-887-7329 |
| Facility Name: James Ranch Unit #29 SWD Tank Battery | Facility Type: SWD |

| | | |
|---|---|---|
| Surface Owner: State of New Mexico | Mineral Owner: State of New Mexico | API No. 30-015-27735 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| K | 36 | 22S | 30E | 1980 | South | 2310 | West | Eddy |

Latitude 32.346409° Longitude -103.835868°

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release Produced Water | Volume of Release 290 bbls | Volume Recovered 240 bbls |
| Source of Release Water Transfer Pump | Date and Hour of Occurrence 9/18/2015 at 6:30 pm | Date and Hour of Discovery 9/18/2015 at 7 pm |
| Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required | If YES, To Whom? Mike Bratcher and Heather Patterson | |
| By Whom? Tony Savoie | Date and Hour 9/19/2015 at 9:35 am | |
| 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.*
Flange bolts on the south water transfer pump failed. Most of the fluids were released to zero perm containment. Pump was repaired.

Describe Area Affected and Cleanup Action Taken.*
A total of 4235 square feet of pasture west of the containment was affected. The leak occurred within a previously remediated area containing a 20 mil plastic liner approximately 3 feet below ground surface. Vacuum truck recovered standing fluids.

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 Ruth
Title: Assistant Remediation Foreman
E-mail Address: ACRuth@basspet.com
Date: 9-24-15 Phone: 432-661-0571

OIL CONSERVATION DIVISION

Signed By Mike Bratcher
Approved by Environmental Specialist:

Approval Date: 9/24/15 Expiration Date: N/A

Conditions of Approval: Attached ☐
Remediation per O.C.D. Rules & Guidelines
~~SUBMIT REMEDIATION PROPOSAL NO~~
LATER THAN: 10/25/15

2RP-3302

* 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-3302 |
| 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-3302 |
| Contact mailing address: 522 W. Mermod, Suite 704 Carlsbad, NM 88220 | |

## Location of Release Source

Latitude 32.346409 Longitude -103.835868
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name James Ranch Unit #29 SWD Tank Battery | Site Type Exploration and Production |
| Date Release Discovered 9/18/2015 | API# *(if applicable)* 30-015-27735 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| K | 36 | 22S | 30E | Eddy |

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

## Nature and Volume of Release

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

| | | |
|---|---|---|
| ☐ Crude Oil | Volume Released (bbls) | Volume Recovered (bbls) |
| ☒ Produced Water | Volume Released (bbls) 290 bbls | Volume Recovered (bbls) 240 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

Flange bolts on the south water transfer pump failed. Most of the fluids were released to zero perm containment. Pump was repaired.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3302 |
| Facility ID | |
| Application ID | |

| | |
|---|---|
| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>☒ Yes ☐ No | If YES, for what reason(s) does the responsible party consider this a major release?<br>Release volume was greater than 25 bbls. |
| If YES, was immediate notice given to the OCD?<br>Yes, immediate notice was given to Mike Bratcher and Heather Patterson by Tony Savoie on 09/19/2015 at 9:35am | |

## 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 Supervisor

Signature: _____ Date: 4-28-2020

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

**OCD Only**

Received by: _____ Date: _____

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3302 |
| 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-3302 |
| 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 Supervisor

Signature: Date: 4/28/2020

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

**OCD Only**

Received by: Date:

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3302 |
| Facility ID | |
| Application ID | |

# Closure

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

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

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

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

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

☒ Description of remediation activities

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: _____ Date: 4-28-2020

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

**OCD Only**

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 07 2016
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
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

nAB1616127076

## OPERATOR

☒ Initial Report ☐ Final Report

| | |
|---|---|
| Name of Company: BOPCO, L.P. 260737 | Contact: Amy Ruth |
| Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220 | Telephone No. 575-887-7329 |
| Facility Name: James Ranch Unit 29 SWD | Facility Type: Exploration and Production |

| | | |
|---|---|---|
| Surface Owner: State | Mineral Owner: State | API No. 30-015-27735 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| K | 36 | 22S | 30E | 1840 | South | 2184 | West | Eddy |

Latitude 32.346457° Longitude -103.835847°

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release: Produced Water | Volume of Release: 775 bbls | Volume Recovered: 760 bbls |
| Source of Release: Produced Water Tanks | Date and Hour of Occurrence: Unknown | Date and Hour of Discovery: 5/27/2016 10 am |
| Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required | If YES, To Whom? Mike Bratcher/Heather Patterson (NMOCD) | |
| By Whom? Amy Ruth | Date and Hour: 5/27/2016 2:58 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.*
Location VSAT (satellite) was damaged and caused SCADA communication to fail. Failure triggered an alarm that was not responded to by the proper personnel. Produced water tanks overflowed into zero perm containment. After filling containment, fluids began overflowing onto location well pad. Satellite was repaired.

Describe Area Affected and Cleanup Action Taken.*
The leak affected 2,212 sq. ft. of location well pad and 688 sq. ft. of pasture west of the caliche pad. Standing fluids were recovered by vacuum trucks.

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: Amy C. Ruth

Printed Name: Amy C. Ruth

Title: EHS Remediation Specialist

E-mail Address: ACRuth@basspet.com

Date: 6/7/2016 Phone: 432-661-0571

OIL CONSERVATION DIVISION

Signed By Mike Bratcher

Approved by Environmental Specialist:

Approval Date: 6/8/16 Expiration Date: N/A

Conditions of Approval: Attached ☐

**Remediation per O.C.D. Rules & Guidelines**
**SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 7/8/16**

2RP-3726

* 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-3726 |
| 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-3726 |
| Contact mailing address: 522 W. Mermod, Suite 704 Carlsbad, NM 88220 | |

## Location of Release Source

Latitude 32.346609 Longitude -103.835868
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name James Ranch Unit 29 SWD | Site Type Exploration and Production |
| Date Release Discovered 5/27/2016 | API# *(if applicable)* 30-015-27735 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| K | 36 | 22S | 30E | Eddy |

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

## Nature and Volume of Release

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

| | | |
|---|---|---|
| ☐ Crude Oil | Volume Released (bbls) | Volume Recovered (bbls) |
| ☒ Produced Water | Volume Released (bbls) 775 bbls | Volume Recovered (bbls) 760 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

Location VSTA (satellite) was damaged and caused SCADA communication to fail. Failure triggered an alarm that was not responded to by the proper personnel. Produced water tanks overflowed into zero perm containment, fluids began overflowing onto location well pad. Satellite was repaired.

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3726 |
| Facility ID | |
| Application ID | |

| | |
|---|---|
| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>☒ Yes ☐ No | If YES, for what reason(s) does the responsible party consider this a major release?<br>Release volume was greater than 25 bbls. |
| If YES, was immediate notice given to the OCD?<br>Yes, immediate notice was given to Mike Bratcher and Heather Patterson of NMOCD by Amy Ruth on 05/27/2016 at 2:58pm | |

## 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 Supervisor

Signature: _____ Date: 4-28-2020

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

**OCD Only**

Received by: _____ Date: _____

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3726 |
| 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-3726 |
| 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 Supervisor

Signature: Date: 4/28/2020

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

**OCD Only**

Received by: Date:

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-3726 |
| Facility ID | |
| Application ID | |

# Closure

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

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

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

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

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

☒ Description of remediation activities

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: _____ Date: 4-28-2020

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

**OCD Only**

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

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

NM OIL CONSERVATION
ARTESIA DISTRICT
DEC 19 2016
RECEIVED

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

nAB1635656725 260737

## 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: JRU 29 SWD Battery at JRU well #29 | Facility Type: Exploration and Production |

| | | |
|---|---|---|
| Surface Owner: State of New Mexico | Mineral Owner: State of New Mexico | API No. 30-015-27735 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| K | 36 | 22S | 30E | 1845 | South | 2160 | West | Eddy |

Latitude 32.346427° Longitude -103.835871°

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release: Produced Water | Volume of Release: 3324 bbls | Volume Recovered: 2990 bbls |
| Source of Release: Water transfer pump | Date and Hour of Occurrence: Unknown | Date and Hour of Discovery: 12/1/2016 approx. 9 am |
| Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required | If YES, To Whom? Mike Bratcher and Heather Patterson (NMOCD) | |
| By Whom? Amy Ruth | Date and Hour 12/1/2016 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.*
Release was due to a water transfer pump failure resulting in damage to pump fiberglass line. Fluids overflowed containment. Pump was isolated for repair.

Describe Area Affected and Cleanup Action Taken.*
The leak affected 56,043 square feet (33,938 square feet of this is in pasture). Standing fluids were recovered from the ground. Saturated surface soils were scraped and stockpiled on bermed plastic located on the caliche pad.

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: | OIL CONSERVATION DIVISION |
| Printed Name: Amy C. Ruth | Approved by Environmental Specialist: Crystal Weaver |
| Title: ~~EHS~~ Environmental Supervisor | Approval Date: / Expiration Date: |
| E-mail Address: ACRuth@basspet.com | Conditions of Approval: see attached / Attached ☒ |
| Date: 12/16/2016 Phone: 432-661-0571 | |

* Attach Additional Sheets If Necessary

2RP-4040

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-4040 |
| 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-4040 |
| Contact mailing address: 522 W. Mermod, Suite 704 Carlsbad, NM 88220 | |

## Location of Release Source

Latitude 32.346427 Longitude -103.835871
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name JRU 29 SWD Battery at JRU well #29 | Site Type Exploration and Production |
| Date Release Discovered 12/1/2016 | API# *(if applicable)* 30-015-27735 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| K | 36 | 22S | 30E | Eddy |

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

## Nature and Volume of Release

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

| | | |
|---|---|---|
| ☐ Crude Oil | Volume Released (bbls) | Volume Recovered (bbls) |
| ☒ Produced Water | Volume Released (bbls) 3,324 bbls | Volume Recovered (bbls) 2,990 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

Release was due to a water transfer pump failure resulting in damage to pump fiberglass line. Fluids overflowed containment. Pump was isolated for repair.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-4040 |
| Facility ID | |
| Application ID | |

| | |
|---|---|
| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>☒ Yes ☐ No | If YES, for what reason(s) does the responsible party consider this a major release?<br>Release volume was greater than 25 bbls. |
| If YES, was immediate notice given to the OCD?<br>Yes, immediate notice was given to Mike Bratcher and Heather Patterson of NMOCD by Amy Ruth on 12/01/2016 at 4:52pm. | |

## 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 Supervisor

Signature: _____ Date: 4-28-2020

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

**OCD Only**

Received by: _____ Date: _____

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-4040 |
| 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-4040 |
| 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 Supervisor

Signature: Date: 4/28/2020

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

**OCD Only**

Received by: Date:

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-4040 |
| Facility ID | |
| Application ID | |

# Closure

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

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

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

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

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

☒ Description of remediation activities

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

Printed Name: Kyle Littrell Title: SH&E Supervisor

Signature: _____ Date: 4-28-2020

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

**OCD Only**

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

# ATTACHMENT 3: LITHOLOGIC / SOIL SAMPLE LOGS

**LT Environmental, Inc.**
508 West Stevens Street
Carlsbad, New Mexico 88220
Compliance · Engineering · Remediation

| Identifier: | Date: |
|---|---|
| BH01 | 1/18-1/21/20 |
| Project Name: JRU 29 | RP Number: 2RP-3302, 2RP-3726, 2RP-4040, 2RP-3082 |

**LITHOLOGIC / SOIL SAMPLING LOG**

| Logged By: BB, FS, WM | Method: Sonic Drill |
|---|---|
| Lat/Long: | Field Screening: NA |
| Hole Diameter: 6" | Total Depth: 110' |

Comments:
No field screenings, lithology remarks only

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| D | | | N | | 0 | 0' | CCHE | CALICHE, tan-off white, fill |
| | | | | | | 0.5' | SP | SAND, dry, reddish brown, poorly graded, fine-very fine, soft no odor, no stain |
| D | | | N | | | 5' | CCHE | CALICHE, dry, tan-off white, few subangular gravel, trace fine sand, no odor, no stain |
| D | | | N | | 10' | 12.5' | SP-SM | silty SAND, dry, reddish brown, poorly graded, fine grained, few tan-off white subangular gravel, no stain, no odor |
| D | | | N | | 20' | 23' | ML-S | SILTSTONE, dry, reddish brown, moderatley consolidated, 2mm caliche inclusions, trace off-white subangular gravel, no stain, no odor |
| D | | | N | | 30' | | | |
| M | | | N | | | 37' | | moist |
| | | | | | 40' | | | |
| D | | | N | | | 45' | | dry |
| | | | | | 50' | | | |
| D | | | N | | | | | |
| | | | | | | 58' | CL-S | CLAYSTONE, dry, reddish brown, low plasticity, cohesive, well consolidated with some silty dolomite inclusions (1-2mm), no stain, no odor |
| D | | | N | | 60' | | | |
| D | | | N | | 70' | | | |
| D | | | N | | | | | |
| | | | | | 80' | | | |
| D | | | N | | | | | |
| D | | | N | | 90' | | | |
| D | | | N | | | | | |
| | | | | | 100' | | | |
| M | | | N | | | 102' | | moist |
| M | | | N | | 110' | | | Total Depth 110 feet bgs |

| LT Environmental, Inc. | Identifier: SP-11 | Date: 1/21/2020 |
|---|---|---|
| **LT Environmental, Inc.**<br>508 West Stevens Street<br>Carlsbad, New Mexico 88220<br>Compliance · Engineering · Remediation | Project Name: JRU 29 | RP Number: 2RP-3302, 2RP-3726, 2RP-4040, 2RP-3802 |
| **LITHOLOGIC / SOIL SAMPLING LOG** | Logged By: BB, FS | Method: Sonic Drill |
| Lat/Long: | Field Screening: Chloride, PID | Hole Diameter: 4" / Total Depth: 26' |

Comments:
All chloride tests include a 40% correction factor

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | | Open Excavation |
| D | 475 | 0.0 | N | | | 3'<br>4' | CCHE | CALICHE, dry, tan-off white, few subangular gravel, trace fine sand, moderately consolidated, no syain, no odor |
| | | | | | 6 | | | |
| D | 425 | 0.4 | N | | | 9' | | |
| | | | | | 12 | | | |
| D | >3628 | 0.4 | N | | | 13' | SP | SAND, dry, reddish brown, poorly graded, fine grained, no odor no stain |
| M | 5,958 | 0.2 | N | | 18 | 18' | SM | SILTY sand, moist, reddish brown, poorly graded, no plasticity, non cohesive, no odor, no stain |
| M | <120 | 1.2 | N | SP-11 | | 23' | | |
| M | <120 | 2.3 | N | SP-11A | 24 | 24' | | |
| M | <120 | 0.5 | N | SP-11B | | 25' | | |
| M | 168 | 1.2 | N | SP-11C | | 26' | | Total Depth 26 feet bgs |
| | | | | | 30 | | | |
| | | | | | 36 | | | |

**LT Environmental, Inc.**
*508 West Stevens Street*
*Carlsbad, New Mexico 88220*
*Compliance · Engineering · Remediation*

| Identifier: | Date: |
|---|---|
| SP-12 | 1/21/2020 |
| Project Name: JRU 29 | RP Number: 2RP-3302, 2RP-3726, 2RP-4040, 2RP-3082 |

**LITHOLOGIC / SOIL SAMPLING LOG**

| Logged By: BB, FS | Method: Sonic Drill |
|---|---|

| Lat/Long: | Field Screening: Chloride, PID | Hole Diameter: 4" | Total Depth: 14' |
|---|---|---|---|

Comments:
All chloride tests include a 40% correction factor

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | | |
| | | | | | | 3' | CCHE | CALICHE, dry tan-off white, moderately consolidated w/ trace fine grained sand, no stain, no odor |
| D | 1,008 | 0.0 | N | SP-12 | | 4' | | |
| D | 1719 | 0.2 | N | SP-12A | | 5' | | |
| D | 1,092 | 0.2 | N | SP-12B | 6 | 6' | | |
| D | 929 | 0.2 | N | SP-12C | | 7' | | |
| M | 1,282 | 0.3 | N | SP-12D | | 8' | SP | SAND, moist, brown-redish brown, poorly graded, fine grained w/ trace gravel, no stain, no odor |
| M | 543 | 0.0 | N | SP-12E | | 9' | | |
| M | 672 | 0.2 | N | SP-12F | 10 | 10' | | |
| M | <120 | 2.8 | N | SP-12G | | 11' | | |
| M | <120 | 4.0 | N | SP-12H | | 12' | | |
| M | <120 | 4.0 | N | SP-12I | | 13' | | |
| M | <120 | 2.8 | N | SP-12J | 14 | 14' | | Total Depth 14 feet bgs |
| | | | | | 18 | | | |
| | | | | | 22 | | | |
| | | | | | 26 | | | |

# ATTACHMENT 4: PHOTOGRAPHIC LOG

# PHOTOGRAPHIC LOG

**Photograph 1:** East facing view of open excavation.

**Photograph 2:** West facing view of open excavation.

**Photograph 3:** North facing view of open excavation

**Photograph 4:** Previously installed liner near SP-4 exposed.

JRU 29 SWD Tank Battery
Eddy County, New Mexico
Photographs Taken: July 2018 through March 2020



A proud member of WSP

PHOTOGRAPHIC LOG

**Photograph 5:** North facing view of previously installed liner exposed.

**Photograph 6:** West facing view of excavation area at SP-7.

**Photograph 7:** East facing view during backfilling activities.

**Photograph 8:** North facing view during backfilling activities

# ATTACHMENT 5: LABORATORY ANALYTICAL REPORTS

# Analytical Report 649845

## for

## LT Environmental, Inc.

**Project Manager: Dan Moir**

**JRU 29**

**012918135**

**31-JAN-20**

Collected By: Client


**1089 N Canal Street**
**Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

31-JAN-20

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

Reference: XENCO Report No(s): **649845**
**JRU 29**
Project Address:

**Dan Moir**:

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) 649845. 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. 649845 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 649845

## LT Environmental, Inc., Arvada, CO

JRU 29

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| SP-11 | S | 01-21-20 13:03 | 23 ft | 649845-001 |
| SP-11 A | S | 01-21-20 13:05 | 24 ft | 649845-002 |
| SP-11 B | S | 01-21-20 13:24 | 25 ft | 649845-003 |
| SP-11 C | S | 01-21-20 13:26 | 26 ft | 649845-004 |

# CASE NARRATIVE

***Client Name: LT Environmental, Inc.***

***Project Name: JRU 29***

Project ID: *012918135*
Work Order Number(s): *649845*

Report Date: *31-JAN-20*
Date Received: *01/22/2020*

**Sample receipt non conformances and comments:**

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3115058 BTEX by EPA 8021B

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

# Certificate of Analysis Summary 649845

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 29

**Project Id:** 012918135
**Contact:** Dan Moir
**Project Location:**

**Date Received in Lab:** Wed Jan-22-20 09:45 am
**Report Date:** 31-JAN-20
**Project Manager:** Jessica Kramer

| Analysis Requested | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 649845-001 | | 649845-002 | | 649845-003 | | 649845-004 | | | | | | | |
| | ***Field Id:*** | SP-11 | | SP-11 A | | SP-11 B | | SP-11 C | | | | | | | |
| | ***Depth:*** | 23- ft | | 24- ft | | 25- ft | | 26- ft | | | | | | | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | SOIL | | | | | | | |
| | ***Sampled:*** | Jan-21-20 13:03 | | Jan-21-20 13:05 | | Jan-21-20 13:24 | | Jan-21-20 13:26 | | | | | | | |
| **BTEX by EPA 8021B SUB: T104704400-19-19** | ***Extracted:*** | Jan-30-20 10:00 | | Jan-30-20 10:00 | | Jan-30-20 10:00 | | Jan-30-20 10:00 | | | | | | | |
| | ***Analyzed:*** | Jan-30-20 14:52 | | Jan-30-20 15:52 | | Jan-30-20 16:12 | | Jan-30-20 16:33 | | | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | | | |
| Benzene | | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | | | | | | |
| Toluene | | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | | | | | | |
| Ethylbenzene | | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | | | | | | |
| m,p-Xylenes | | <0.00398 | 0.00398 | <0.00397 | 0.00397 | <0.00399 | 0.00399 | <0.00402 | 0.00402 | | | | | | |
| o-Xylene | | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | | | | | | |
| Total Xylenes | | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | | | | | | |
| Total BTEX | | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00201 | 0.00201 | | | | | | |
| **Chloride by EPA 300 SUB: T104704400-19-19** | ***Extracted:*** | Jan-23-20 17:45 | | Jan-23-20 17:45 | | Jan-23-20 17:45 | | Jan-23-20 17:45 | | | | | | | |
| | ***Analyzed:*** | Jan-23-20 23:27 | | Jan-24-20 00:32 | | Jan-24-20 00:38 | | Jan-24-20 00:57 | | | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | | | |
| Chloride | | 32.9 | 4.97 | 157 | 5.05 | 289 | 4.96 | 216 | 4.95 | | | | | | |
| **TPH by SW8015 Mod SUB: T104704400-19-19** | ***Extracted:*** | Jan-25-20 16:00 | | Jan-25-20 16:00 | | Jan-25-20 16:00 | | Jan-25-20 16:00 | | | | | | | |
| | ***Analyzed:*** | Jan-26-20 19:01 | | Jan-26-20 19:22 | | Jan-26-20 19:43 | | Jan-26-20 20:04 | | | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | | | |
| Gasoline Range Hydrocarbons (GRO) | | <50.0 | 50.0 | <49.8 | 49.8 | <50.0 | 50.0 | <50.0 | 50.0 | | | | | | |
| Diesel Range Organics (DRO) | | <50.0 | 50.0 | <49.8 | 49.8 | <50.0 | 50.0 | <50.0 | 50.0 | | | | | | |
| Motor Oil Range Hydrocarbons (MRO) | | <50.0 | 50.0 | <49.8 | 49.8 | <50.0 | 50.0 | <50.0 | 50.0 | | | | | | |
| Total GRO-DRO | | <50.0 | 50.0 | <49.8 | 49.8 | <50.0 | 50.0 | <50.0 | 50.0 | | | | | | |
| Total TPH | | <50.0 | 50.0 | <49.8 | 49.8 | <50.0 | 50.0 | <50.0 | 50.0 | | | | | | |



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

Jessica Kramer
Project Assistant



Final 1.000

# Certificate of Analytical Results 649845

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-11** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649845-001 | Date Collected: | 01.21.20 13.03 | Sample Depth: | 23 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **32.9** | 4.97 | mg/kg | 01.23.20 23.27 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 16.00 | Basis: | Wet Weight |
| Seq Number: | 3114519 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 01.26.20 19.01 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 01.26.20 19.01 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 01.26.20 19.01 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 01.26.20 19.01 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 01.26.20 19.01 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 105 | % | 70-135 | 01.26.20 19.01 | |
| o-Terphenyl | 84-15-1 | 102 | % | 70-135 | 01.26.20 19.01 | |

# Certificate of Analytical Results 649845

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-11** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649845-001 | Date Collected: | 01.21.20 13.03 | Sample Depth: | 23 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.30.20 10.00 | Basis: | Wet Weight |
| Seq Number: | 3115058 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 01.30.20 14.52 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 01.30.20 14.52 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 01.30.20 14.52 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 01.30.20 14.52 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 01.30.20 14.52 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 01.30.20 14.52 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 01.30.20 14.52 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 79 | % | 70-130 | 01.30.20 14.52 | |
| 1,4-Difluorobenzene | 540-36-3 | 113 | % | 70-130 | 01.30.20 14.52 | |

# Certificate of Analytical Results 649845

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-11 A** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649845-002 | Date Collected: | 01.21.20 13.05 | Sample Depth: | 24 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **157** | 5.05 | mg/kg | 01.24.20 00.32 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 16.00 | Basis: | Wet Weight |
| Seq Number: | 3114519 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.8 | 49.8 | mg/kg | 01.26.20 19.22 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.8 | 49.8 | mg/kg | 01.26.20 19.22 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.8 | 49.8 | mg/kg | 01.26.20 19.22 | U | 1 |
| Total GRO-DRO | PHC628 | <49.8 | 49.8 | mg/kg | 01.26.20 19.22 | U | 1 |
| Total TPH | PHC635 | <49.8 | 49.8 | mg/kg | 01.26.20 19.22 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 102 | % | 70-135 | 01.26.20 19.22 | |
| o-Terphenyl | 84-15-1 | 99 | % | 70-135 | 01.26.20 19.22 | |

# Certificate of Analytical Results 649845

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-11 A** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649845-002 | Date Collected: | 01.21.20 13.05 | Sample Depth: | 24 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.30.20 10.00 | Basis: | Wet Weight |
| Seq Number: | 3115058 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00198 | 0.00198 | mg/kg | 01.30.20 15.52 | U | 1 |
| Toluene | 108-88-3 | <0.00198 | 0.00198 | mg/kg | 01.30.20 15.52 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00198 | 0.00198 | mg/kg | 01.30.20 15.52 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00397 | 0.00397 | mg/kg | 01.30.20 15.52 | U | 1 |
| o-Xylene | 95-47-6 | <0.00198 | 0.00198 | mg/kg | 01.30.20 15.52 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00198 | 0.00198 | mg/kg | 01.30.20 15.52 | U | 1 |
| Total BTEX | | <0.00198 | 0.00198 | mg/kg | 01.30.20 15.52 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 98 | % | 70-130 | 01.30.20 15.52 | |
| 1,4-Difluorobenzene | 540-36-3 | 114 | % | 70-130 | 01.30.20 15.52 | |

# Certificate of Analytical Results 649845

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-11 B** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649845-003 | Date Collected: | 01.21.20 13.24 | Sample Depth: | 25 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **289** | 4.96 | mg/kg | 01.24.20 00.38 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 16.00 | Basis: | Wet Weight |
| Seq Number: | 3114519 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 01.26.20 19.43 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 01.26.20 19.43 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 01.26.20 19.43 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 01.26.20 19.43 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 01.26.20 19.43 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 100 | % | 70-135 | 01.26.20 19.43 | |
| o-Terphenyl | 84-15-1 | 96 | % | 70-135 | 01.26.20 19.43 | |

# Certificate of Analytical Results 649845

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-11 B** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649845-003 | Date Collected: | 01.21.20 13.24 | Sample Depth: | 25 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.30.20 10.00 | Basis: | Wet Weight |
| Seq Number: | 3115058 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 01.30.20 16.12 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 01.30.20 16.12 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 01.30.20 16.12 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 01.30.20 16.12 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 01.30.20 16.12 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 01.30.20 16.12 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 01.30.20 16.12 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 112 | % | 70-130 | 01.30.20 16.12 | |
| 4-Bromofluorobenzene | 460-00-4 | 85 | % | 70-130 | 01.30.20 16.12 | |

# Certificate of Analytical Results 649845

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-11 C** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649845-004 | Date Collected: | 01.21.20 13.26 | Sample Depth: | 26 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **216** | 4.95 | mg/kg | 01.24.20 00.57 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 16.00 | Basis: | Wet Weight |
| Seq Number: | 3114519 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 01.26.20 20.04 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 01.26.20 20.04 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 01.26.20 20.04 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 01.26.20 20.04 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 01.26.20 20.04 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 103 | % | 70-135 | 01.26.20 20.04 | |
| o-Terphenyl | 84-15-1 | 99 | % | 70-135 | 01.26.20 20.04 | |

# Certificate of Analytical Results 649845

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-11 C** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649845-004 | Date Collected: | 01.21.20 13.26 | Sample Depth: | 26 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.30.20 10.00 | Basis: | Wet Weight |
| Seq Number: | 3115058 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 01.30.20 16.33 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 01.30.20 16.33 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 01.30.20 16.33 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 01.30.20 16.33 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 01.30.20 16.33 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 01.30.20 16.33 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 01.30.20 16.33 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 80 | % | 70-130 | 01.30.20 16.33 | |
| 1,4-Difluorobenzene | 540-36-3 | 111 | % | 70-130 | 01.30.20 16.33 | |

# 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 649845



## LT Environmental, Inc.

JRU 29

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3114316 — Matrix: Solid — Date Prep: 01.23.20
MB Sample Id: 7695087-1-BLK — LCS Sample Id: 7695087-1-BKS — LCSD Sample Id: 7695087-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.858 | 250 | 256 | 102 | 257 | 103 | 90-110 | 0 | 20 | mg/kg | 01.23.20 23:14 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3114316 — Matrix: Soil — Date Prep: 01.23.20
Parent Sample Id: 649845-001 — MS Sample Id: 649845-001 S — MSD Sample Id: 649845-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 32.9 | 249 | 299 | 107 | 296 | 106 | 90-110 | 1 | 20 | mg/kg | 01.23.20 23:33 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3114316 — Matrix: Soil — Date Prep: 01.23.20
Parent Sample Id: 649845-004 — MS Sample Id: 649845-004 S — MSD Sample Id: 649845-004 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 216 | 248 | 459 | 98 | 460 | 98 | 90-110 | 0 | 20 | mg/kg | 01.24.20 01:04 | |

**Analytical Method:** TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3114519 — Matrix: Solid — Date Prep: 01.25.20
MB Sample Id: 7695243-1-BLK — LCS Sample Id: 7695243-1-BKS — LCSD Sample Id: 7695243-1-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) | <15.0 | 1000 | 808 | 81 | 917 | 92 | 70-135 | 13 | 20 | mg/kg | 01.26.20 11:59 | |
| Diesel Range Organics (DRO) | <15.0 | 1000 | 814 | 81 | 926 | 93 | 70-135 | 13 | 20 | mg/kg | 01.26.20 11:59 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 110 | | 105 | | 119 | | 70-135 | % | 01.26.20 11:59 |
| o-Terphenyl | 110 | | 104 | | 117 | | 70-135 | % | 01.26.20 11:59 |

**Analytical Method:** TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3114519 — Matrix: Solid — Date Prep: 01.25.20
MB Sample Id: 7695243-1-BLK

| Parameter | MB Result | Units | Analysis Date | Flag |
|---|---|---|---|---|
| Motor Oil Range Hydrocarbons (MRO) | <50.0 | mg/kg | 01.26.20 11:38 | |

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 649845

## LT Environmental, Inc.

JRU 29

**Analytical Method:** TPH by SW8015 Mod | Prep Method: SW8015P
Seq Number: 3114519 | Matrix: Soil | Date Prep: 01.25.20
Parent Sample Id: 649839-001 | MS Sample Id: 649839-001 S | MSD Sample Id: 649839-001 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) | <15.0 | 997 | 831 | 83 | 841 | 84 | 70-135 | 1 | 20 | mg/kg | 01.26.20 13:03 | |
| Diesel Range Organics (DRO) | 17.8 | 997 | 824 | 81 | 839 | 82 | 70-135 | 2 | 20 | mg/kg | 01.26.20 13:03 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 113 | | 102 | | 70-135 | % | 01.26.20 13:03 |
| o-Terphenyl | 93 | | 97 | | 70-135 | % | 01.26.20 13:03 |

**Analytical Method:** BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3115058 | Matrix: Solid | Date Prep: 01.30.20
MB Sample Id: 7695528-1-BLK | LCS Sample Id: 7695528-1-BKS | LCSD Sample Id: 7695528-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000385 | 0.100 | 0.107 | 107 | 0.110 | 110 | 70-130 | 3 | 35 | mg/kg | 01.30.20 12:32 | |
| Toluene | <0.000456 | 0.100 | 0.101 | 101 | 0.106 | 106 | 70-130 | 5 | 35 | mg/kg | 01.30.20 12:32 | |
| Ethylbenzene | <0.000565 | 0.100 | 0.0956 | 96 | 0.102 | 102 | 70-130 | 6 | 35 | mg/kg | 01.30.20 12:32 | |
| m,p-Xylenes | <0.00101 | 0.200 | 0.186 | 93 | 0.200 | 100 | 70-130 | 7 | 35 | mg/kg | 01.30.20 12:32 | |
| o-Xylene | <0.000344 | 0.100 | 0.0943 | 94 | 0.0980 | 98 | 70-130 | 4 | 35 | mg/kg | 01.30.20 12:32 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 110 | | 110 | | 112 | | 70-130 | % | 01.30.20 12:32 |
| 4-Bromofluorobenzene | 79 | | 85 | | 88 | | 70-130 | % | 01.30.20 12:32 |

**Analytical Method:** BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3115058 | Matrix: Soil | Date Prep: 01.30.20
Parent Sample Id: 649845-001 | MS Sample Id: 649845-001 S | MSD Sample Id: 649845-001 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 | 0.112 | 113 | 0.102 | 102 | 70-130 | 9 | 35 | mg/kg | 01.30.20 13:13 | |
| Toluene | 0.000596 | 0.0994 | 0.107 | 107 | 0.0978 | 98 | 70-130 | 9 | 35 | mg/kg | 01.30.20 13:13 | |
| Ethylbenzene | <0.000561 | 0.0994 | 0.103 | 104 | 0.0945 | 95 | 70-130 | 9 | 35 | mg/kg | 01.30.20 13:13 | |
| m,p-Xylenes | <0.00101 | 0.199 | 0.202 | 102 | 0.184 | 92 | 70-130 | 9 | 35 | mg/kg | 01.30.20 13:13 | |
| o-Xylene | 0.000378 | 0.0994 | 0.0996 | 100 | 0.0925 | 92 | 70-130 | 7 | 35 | mg/kg | 01.30.20 13:13 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 115 | | 107 | | 70-130 | % | 01.30.20 13:13 |
| 4-Bromofluorobenzene | 95 | | 87 | | 70-130 | % | 01.30.20 13:13 |

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

# Chain of Custody

Work Order No: 649845

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 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | 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: | 432.236.3849 | 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: | JRU 29 | Turn Around | |
| Project Number: | 01291835 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Benjamin Belill | Due Date: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | Yes No | Wet Ice: | Yes No |
| Temperature (°C): | 0.4 | Thermometer ID | |
| Received Intact: | Yes No | T-NM-007 | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | -0.2 |
| Sample Custody Seals: | Yes No N/A | Total Containers: | 4 |

**ANALYSIS REQUEST**

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 0=8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| SP-11 | S | 1/21/20 | 1303 | 23' | 1 | X | X | X |
| SP-11 A | | | 1305 | 24' | | X | X | X |
| SP-11 B | | | 1324 | 25' | | X | X | X |
| SP-11 C | | | 1326 | 26' | | X | X | X |
| | | | | | | 1/21/20 | | |

**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 | | | 1/22/20 9:00am | 2 | | 01/22/20 0945 |
| 3 | | | | 4 | | |
| 5 | | | | 6 | | |

Revised Date 051418 Rev. 2018.1

# Inter-Office Shipment





**IOS Number** **56546**

Date/Time: 01/22/20 11:42
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 777580852397

Please send report to: Jessica Kramer
Address: 1089 N Canal Street
E-Mail: jessica.kramer@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 649845-001 | S | SP-11 | 01/21/20 13:03 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649845-001 | S | SP-11 | 01/21/20 13:03 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649845-001 | S | SP-11 | 01/21/20 13:03 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649845-002 | S | SP-11 A | 01/21/20 13:05 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649845-002 | S | SP-11 A | 01/21/20 13:05 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649845-002 | S | SP-11 A | 01/21/20 13:05 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649845-003 | S | SP-11 B | 01/21/20 13:24 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649845-003 | S | SP-11 B | 01/21/20 13:24 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649845-003 | S | SP-11 B | 01/21/20 13:24 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649845-004 | S | SP-11 C | 01/21/20 13:26 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649845-004 | S | SP-11 C | 01/21/20 13:26 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649845-004 | S | SP-11 C | 01/21/20 13:26 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Elizabeth McClellan

Date Relinquished: 01/22/2020

Received By: Brianna Teel

Date Received: 01/23/2020 11:19

Cooler Temperature: 0.3

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Midland

**IOS #:** 56546

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : R8**

**Sent By:** Elizabeth McClellan **Date Sent:** 01/22/2020 11:42 AM

**Received By:** Brianna Teel **Date Received:** 01/23/2020 11:19 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .3 | |
| #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:** Brianna Teel Date: 01/23/2020

Brianna Teel

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 01.22.2020 09.45.00 AM

**Work Order #:** 649845

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

**Temperature Measuring device used : T-NM-007**

| 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? | **Yes** | |
| #5 Custody Seals intact on sample bottles? | **Yes** | |
| #6*Custody Seals Signed and dated? | **Yes** | |
| #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)? | **Yes** | Subbed to Midland. |
| #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:** Elizabeth McClellan Date: 01.22.2020

**Checklist reviewed by:** Jessica Kramer Date: 01.22.2020

Jessica Kramer

# Analytical Report 649846

## for

## LT Environmental, Inc.

**Project Manager: Dan Moir**

**JRU 29**

**012918135**

**03-FEB-20**

Collected By: Client


**1089 N Canal Street**
**Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

03-FEB-20

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

Reference: XENCO Report No(s): **649846**
**JRU 29**
Project Address:

**Dan Moir**:

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) 649846. 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. 649846 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 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| SP-12 | S | 01-21-20 10:42 | 4 ft | 649846-001 |
| SP-12 A | S | 01-21-20 10:41 | 5 ft | 649846-002 |
| SP-12 B | S | 01-21-20 10:44 | 6 ft | 649846-003 |
| SP-12 C | S | 01-21-20 10:45 | 7 ft | 649846-004 |
| SP-12 D | S | 01-21-20 10:46 | 8 ft | 649846-005 |
| SP-12 E | S | 01-21-20 10:48 | 9 ft | 649846-006 |
| SP-12 F | S | 01-21-20 10:49 | 10 ft | 649846-007 |
| SP-12 G | S | 01-21-20 10:50 | 11 ft | 649846-008 |
| SP-12 H | S | 01-21-20 10:51 | 12 ft | 649846-009 |
| SP-12 I | S | 01-21-20 10:53 | 13 ft | 649846-010 |
| SP-12 J | S | 01-21-20 10:54 | 14 ft | 649846-011 |

# CASE NARRATIVE

***Client Name: LT Environmental, Inc.***

***Project Name: JRU 29***

Project ID: *012918135*
Work Order Number(s): *649846*

Report Date: *03-FEB-20*
Date Received: *01/22/2020*

**Sample receipt non conformances and comments:**

None

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3115184 BTEX by EPA 8021B

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

# Certificate of Analysis Summary 649846

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 29

**Project Id:** 012918135
**Contact:** Dan Moir
**Project Location:**

**Date Received in Lab:** Wed Jan-22-20 09:45 am
**Report Date:** 03-FEB-20
**Project Manager:** Jessica Kramer

| Analysis Requested | | 649846-001 | | 649846-002 | | 649846-003 | | 649846-004 | | 649846-005 | | 649846-006 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Field Id:* | SP-12 | | SP-12 A | | SP-12 B | | SP-12 C | | SP-12 D | | SP-12 E | |
| | *Depth:* | 4- ft | | 5- ft | | 6- ft | | 7- ft | | 8- ft | | 9- ft | |
| | *Matrix:* | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | *Sampled:* | Jan-21-20 10:42 | | Jan-21-20 10:41 | | Jan-21-20 10:44 | | Jan-21-20 10:45 | | Jan-21-20 10:46 | | Jan-21-20 10:48 | |
| **BTEX by EPA 8021B SUB: T104704400-19-19** | *Extracted:* | Jan-31-20 10:30 | | Jan-31-20 10:30 | | Jan-31-20 10:30 | | Jan-31-20 10:30 | | Jan-31-20 10:30 | | Jan-31-20 10:30 | |
| | *Analyzed:* | Jan-31-20 18:33 | | Jan-31-20 19:52 | | Jan-31-20 20:12 | | Jan-31-20 20:32 | | Jan-31-20 20:52 | | Jan-31-20 21:12 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Benzene | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 |
| Toluene | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 |
| Ethylbenzene | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 |
| m,p-Xylenes | | <0.00401 | 0.00401 | <0.00404 | 0.00404 | <0.00402 | 0.00402 | <0.00397 | 0.00397 | <0.00399 | 0.00399 | <0.00398 | 0.00398 |
| o-Xylene | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 |
| Total Xylenes | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 |
| Total BTEX | | <0.00200 | 0.00200 | <0.00202 | 0.00202 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 |
| **Chloride by EPA 300 SUB: T104704400-19-19** | *Extracted:* | Jan-23-20 17:45 | | Jan-23-20 17:45 | | Jan-23-20 17:45 | | Jan-23-20 17:45 | | Jan-23-20 17:45 | | Jan-23-20 17:45 | |
| | *Analyzed:* | Jan-24-20 00:45 | | Jan-24-20 00:51 | | Jan-24-20 01:17 | | Jan-24-20 01:23 | | Jan-24-20 01:43 | | Jan-24-20 01:49 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 1940 | 24.8 | 2010 | 25.0 | 1760 | 25.2 | 1580 | 25.0 | 1110 | 5.00 | 383 | 5.00 |
| **TPH by SW8015 Mod SUB: T104704400-19-19** | *Extracted:* | Jan-25-20 12:00 | | Jan-25-20 12:00 | | Jan-25-20 12:00 | | Jan-25-20 12:00 | | Jan-25-20 12:00 | | Jan-25-20 12:00 | |
| | *Analyzed:* | Jan-25-20 22:03 | | Jan-25-20 23:05 | | Jan-25-20 23:26 | | Jan-25-20 23:47 | | Jan-26-20 00:08 | | Jan-26-20 00:30 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <50.0 | 50.0 | <49.8 | 49.8 | <49.9 | 49.9 | <50.0 | 50.0 | <49.8 | 49.8 | <50.0 | 50.0 |
| Diesel Range Organics (DRO) | | <50.0 | 50.0 | <49.8 | 49.8 | <49.9 | 49.9 | <50.0 | 50.0 | <49.8 | 49.8 | <50.0 | 50.0 |
| Motor Oil Range Hydrocarbons (MRO) | | <50.0 | 50.0 | <49.8 | 49.8 | <49.9 | 49.9 | <50.0 | 50.0 | <49.8 | 49.8 | <50.0 | 50.0 |
| Total GRO-DRO | | <50.0 | 50.0 | <49.8 | 49.8 | <49.9 | 49.9 | <50.0 | 50.0 | <49.8 | 49.8 | <50.0 | 50.0 |
| Total TPH | | <50.0 | 50.0 | <49.8 | 49.8 | <49.9 | 49.9 | <50.0 | 50.0 | <49.8 | 49.8 | <50.0 | 50.0 |



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

Jessica Kramer
Project Assistant



Final 1.000

# Certificate of Analysis Summary 649846

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 29

**Project Id:** 012918135
**Contact:** Dan Moir
**Project Location:**

**Date Received in Lab:** Wed Jan-22-20 09:45 am
**Report Date:** 03-FEB-20
**Project Manager:** Jessica Kramer

| Analysis Requested | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Lab Id:* | 649846-007 | | 649846-008 | | 649846-009 | | 649846-010 | | 649846-011 | |
| | *Field Id:* | SP-12 F | | SP-12 G | | SP-12 H | | SP-12 I | | SP-12 J | |
| | *Depth:* | 10- ft | | 11- ft | | 12- ft | | 13- ft | | 14- ft | |
| | *Matrix:* | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | *Sampled:* | Jan-21-20 10:49 | | Jan-21-20 10:50 | | Jan-21-20 10:51 | | Jan-21-20 10:53 | | Jan-21-20 10:54 | |
| **BTEX by EPA 8021B SUB: T104704400-19-19** | *Extracted:* | Jan-31-20 10:30 | | Jan-31-20 10:30 | | Jan-31-20 10:30 | | Jan-31-20 10:30 | | Jan-31-20 10:30 | |
| | *Analyzed:* | Jan-31-20 21:32 | | Jan-31-20 21:52 | | Jan-31-20 22:13 | | Jan-31-20 22:33 | | Jan-31-20 22:53 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Benzene | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| Toluene | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| Ethylbenzene | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| m,p-Xylenes | | <0.00398 | 0.00398 | <0.00398 | 0.00398 | <0.00400 | 0.00400 | <0.00399 | 0.00399 | <0.00403 | 0.00403 |
| o-Xylene | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| Total Xylenes | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| Total BTEX | | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| **Chloride by EPA 300 SUB: T104704400-19-19** | *Extracted:* | Jan-23-20 17:45 | | Jan-23-20 17:45 | | Jan-23-20 17:45 | | Jan-23-20 17:45 | | Jan-23-20 18:00 | |
| | *Analyzed:* | Jan-24-20 01:56 | | Jan-24-20 02:02 | | Jan-24-20 02:09 | | Jan-24-20 02:15 | | Jan-24-20 08:37 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 537 | 5.00 | 418 | 5.02 | 698 | 4.96 | 947 | 4.98 | 561 | 5.05 |
| **TPH by SW8015 Mod SUB: T104704400-19-19** | *Extracted:* | Jan-25-20 12:00 | | Jan-25-20 12:00 | | Jan-25-20 12:00 | | Jan-25-20 12:00 | | Jan-25-20 12:00 | |
| | *Analyzed:* | Jan-26-20 00:51 | | Jan-26-20 01:12 | | Jan-26-20 01:33 | | Jan-26-20 01:54 | | Jan-26-20 02:37 | |
| | *Units/RL:* | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <49.9 | 49.9 | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |
| Diesel Range Organics (DRO) | | <49.9 | 49.9 | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |
| Motor Oil Range Hydrocarbons (MRO) | | <49.9 | 49.9 | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |
| Total GRO-DRO | | <49.9 | 49.9 | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |
| Total TPH | | <49.9 | 49.9 | <49.9 | 49.9 | <50.0 | 50.0 | <50.0 | 50.0 | <49.9 | 49.9 |



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

Jessica Kramer
Project Assistant



Final 1.000

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-001 | Date Collected: | 01.21.20 10.42 | Sample Depth: | 4 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1940** | 24.8 | mg/kg | 01.24.20 00.45 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 01.25.20 22.03 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 01.25.20 22.03 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 01.25.20 22.03 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 01.25.20 22.03 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 01.25.20 22.03 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 119 | % | 70-135 | 01.25.20 22.03 | |
| o-Terphenyl | 84-15-1 | 124 | % | 70-135 | 01.25.20 22.03 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-001 | Date Collected: | 01.21.20 10.42 | Sample Depth: | 4 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 01.31.20 18.33 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 01.31.20 18.33 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 01.31.20 18.33 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00401 | 0.00401 | mg/kg | 01.31.20 18.33 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 01.31.20 18.33 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 01.31.20 18.33 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 01.31.20 18.33 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 118 | % | 70-130 | 01.31.20 18.33 | |
| 4-Bromofluorobenzene | 460-00-4 | 77 | % | 70-130 | 01.31.20 18.33 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 A** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-002 | Date Collected: | 01.21.20 10.41 | Sample Depth: | 5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2010** | 25.0 | mg/kg | 01.24.20 00.51 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.8 | 49.8 | mg/kg | 01.25.20 23.05 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.8 | 49.8 | mg/kg | 01.25.20 23.05 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.8 | 49.8 | mg/kg | 01.25.20 23.05 | U | 1 |
| Total GRO-DRO | PHC628 | <49.8 | 49.8 | mg/kg | 01.25.20 23.05 | U | 1 |
| Total TPH | PHC635 | <49.8 | 49.8 | mg/kg | 01.25.20 23.05 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 115 | % | 70-135 | 01.25.20 23.05 | |
| o-Terphenyl | 84-15-1 | 114 | % | 70-135 | 01.25.20 23.05 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 A** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-002 | Date Collected: | 01.21.20 10.41 | Sample Depth: | 5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00202 | 0.00202 | mg/kg | 01.31.20 19.52 | U | 1 |
| Toluene | 108-88-3 | <0.00202 | 0.00202 | mg/kg | 01.31.20 19.52 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00202 | 0.00202 | mg/kg | 01.31.20 19.52 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00404 | 0.00404 | mg/kg | 01.31.20 19.52 | U | 1 |
| o-Xylene | 95-47-6 | <0.00202 | 0.00202 | mg/kg | 01.31.20 19.52 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00202 | 0.00202 | mg/kg | 01.31.20 19.52 | U | 1 |
| Total BTEX | | <0.00202 | 0.00202 | mg/kg | 01.31.20 19.52 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 114 | % | 70-130 | 01.31.20 19.52 | |
| 4-Bromofluorobenzene | 460-00-4 | 73 | % | 70-130 | 01.31.20 19.52 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 B** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-003 | Date Collected: | 01.21.20 10.44 | Sample Depth: | 6 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1760** | 25.2 | mg/kg | 01.24.20 01.17 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.9 | 49.9 | mg/kg | 01.25.20 23.26 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.9 | 49.9 | mg/kg | 01.25.20 23.26 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.9 | 49.9 | mg/kg | 01.25.20 23.26 | U | 1 |
| Total GRO-DRO | PHC628 | <49.9 | 49.9 | mg/kg | 01.25.20 23.26 | U | 1 |
| Total TPH | PHC635 | <49.9 | 49.9 | mg/kg | 01.25.20 23.26 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 116 | % | 70-135 | 01.25.20 23.26 | |
| o-Terphenyl | 84-15-1 | 113 | % | 70-135 | 01.25.20 23.26 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 B** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-003 | Date Collected: | 01.21.20 10.44 | Sample Depth: | 6 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 01.31.20 20.12 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 01.31.20 20.12 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 01.31.20 20.12 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 01.31.20 20.12 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 01.31.20 20.12 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 01.31.20 20.12 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 01.31.20 20.12 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 75 | % | 70-130 | 01.31.20 20.12 | |
| 1,4-Difluorobenzene | 540-36-3 | 115 | % | 70-130 | 01.31.20 20.12 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 C** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-004 | Date Collected: | 01.21.20 10.45 | Sample Depth: | 7 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1580** | 25.0 | mg/kg | 01.24.20 01.23 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 01.25.20 23.47 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 01.25.20 23.47 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 01.25.20 23.47 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 01.25.20 23.47 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 01.25.20 23.47 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 119 | % | 70-135 | 01.25.20 23.47 | |
| o-Terphenyl | 84-15-1 | 116 | % | 70-135 | 01.25.20 23.47 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 C** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-004 | Date Collected: | 01.21.20 10.45 | Sample Depth: | 7 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00198 | 0.00198 | mg/kg | 01.31.20 20.32 | U | 1 |
| Toluene | 108-88-3 | <0.00198 | 0.00198 | mg/kg | 01.31.20 20.32 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00198 | 0.00198 | mg/kg | 01.31.20 20.32 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00397 | 0.00397 | mg/kg | 01.31.20 20.32 | U | 1 |
| o-Xylene | 95-47-6 | <0.00198 | 0.00198 | mg/kg | 01.31.20 20.32 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00198 | 0.00198 | mg/kg | 01.31.20 20.32 | U | 1 |
| Total BTEX | | <0.00198 | 0.00198 | mg/kg | 01.31.20 20.32 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 113 | % | 70-130 | 01.31.20 20.32 | |
| 4-Bromofluorobenzene | 460-00-4 | 73 | % | 70-130 | 01.31.20 20.32 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 D** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-005 | Date Collected: | 01.21.20 10.46 | Sample Depth: | 8 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1110** | 5.00 | mg/kg | 01.24.20 01.43 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.8 | 49.8 | mg/kg | 01.26.20 00.08 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.8 | 49.8 | mg/kg | 01.26.20 00.08 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.8 | 49.8 | mg/kg | 01.26.20 00.08 | U | 1 |
| Total GRO-DRO | PHC628 | <49.8 | 49.8 | mg/kg | 01.26.20 00.08 | U | 1 |
| Total TPH | PHC635 | <49.8 | 49.8 | mg/kg | 01.26.20 00.08 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 121 | % | 70-135 | 01.26.20 00.08 | |
| o-Terphenyl | 84-15-1 | 116 | % | 70-135 | 01.26.20 00.08 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 D** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-005 | Date Collected: | 01.21.20 10.46 | Sample Depth: | 8 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 01.31.20 20.52 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 01.31.20 20.52 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 01.31.20 20.52 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 01.31.20 20.52 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 01.31.20 20.52 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 01.31.20 20.52 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 01.31.20 20.52 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 74 | % | 70-130 | 01.31.20 20.52 | |
| 1,4-Difluorobenzene | 540-36-3 | 115 | % | 70-130 | 01.31.20 20.52 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 E** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-006 | Date Collected: | 01.21.20 10.48 | Sample Depth: | 9 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **383** | 5.00 | mg/kg | 01.24.20 01.49 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 01.26.20 00.30 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 01.26.20 00.30 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 01.26.20 00.30 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 01.26.20 00.30 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 01.26.20 00.30 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 119 | % | 70-135 | 01.26.20 00.30 | |
| o-Terphenyl | 84-15-1 | 114 | % | 70-135 | 01.26.20 00.30 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 E** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-006 | Date Collected: | 01.21.20 10.48 | Sample Depth: | 9 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.12 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.12 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.12 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 01.31.20 21.12 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.12 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.12 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.12 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 84 | % | 70-130 | 01.31.20 21.12 | |
| 1,4-Difluorobenzene | 540-36-3 | 117 | % | 70-130 | 01.31.20 21.12 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 F** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-007 | Date Collected: | 01.21.20 10.49 | Sample Depth: | 10 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **537** | 5.00 | mg/kg | 01.24.20 01.56 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.9 | 49.9 | mg/kg | 01.26.20 00.51 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.9 | 49.9 | mg/kg | 01.26.20 00.51 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.9 | 49.9 | mg/kg | 01.26.20 00.51 | U | 1 |
| Total GRO-DRO | PHC628 | <49.9 | 49.9 | mg/kg | 01.26.20 00.51 | U | 1 |
| Total TPH | PHC635 | <49.9 | 49.9 | mg/kg | 01.26.20 00.51 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 118 | % | 70-135 | 01.26.20 00.51 | |
| o-Terphenyl | 84-15-1 | 114 | % | 70-135 | 01.26.20 00.51 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 F** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-007 | Date Collected: | 01.21.20 10.49 | Sample Depth: | 10 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.32 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.32 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.32 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 01.31.20 21.32 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.32 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.32 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.32 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 79 | % | 70-130 | 01.31.20 21.32 | |
| 1,4-Difluorobenzene | 540-36-3 | 113 | % | 70-130 | 01.31.20 21.32 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 G** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-008 | Date Collected: | 01.21.20 10.50 | Sample Depth: | 11 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **418** | 5.02 | mg/kg | 01.24.20 02.02 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.9 | 49.9 | mg/kg | 01.26.20 01.12 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.9 | 49.9 | mg/kg | 01.26.20 01.12 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.9 | 49.9 | mg/kg | 01.26.20 01.12 | U | 1 |
| Total GRO-DRO | PHC628 | <49.9 | 49.9 | mg/kg | 01.26.20 01.12 | U | 1 |
| Total TPH | PHC635 | <49.9 | 49.9 | mg/kg | 01.26.20 01.12 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 114 | % | 70-135 | 01.26.20 01.12 | |
| o-Terphenyl | 84-15-1 | 110 | % | 70-135 | 01.26.20 01.12 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 G** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-008 | Date Collected: | 01.21.20 10.50 | Sample Depth: | 11 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.52 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.52 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.52 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 01.31.20 21.52 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.52 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.52 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 01.31.20 21.52 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 117 | % | 70-130 | 01.31.20 21.52 | |
| 4-Bromofluorobenzene | 460-00-4 | 77 | % | 70-130 | 01.31.20 21.52 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 H** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-009 | Date Collected: | 01.21.20 10.51 | Sample Depth: | 12 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **698** | 4.96 | mg/kg | 01.24.20 02.09 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 01.26.20 01.33 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 01.26.20 01.33 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 01.26.20 01.33 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 01.26.20 01.33 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 01.26.20 01.33 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 118 | % | 70-135 | 01.26.20 01.33 | |
| o-Terphenyl | 84-15-1 | 116 | % | 70-135 | 01.26.20 01.33 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 H** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-009 | Date Collected: | 01.21.20 10.51 | Sample Depth: | 12 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.13 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.13 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.13 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 01.31.20 22.13 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.13 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.13 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.13 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 72 | % | 70-130 | 01.31.20 22.13 | |
| 1,4-Difluorobenzene | 540-36-3 | 113 | % | 70-130 | 01.31.20 22.13 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 I** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-010 | Date Collected: | 01.21.20 10.53 | Sample Depth: | 13 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 17.45 | Basis: | Wet Weight |
| Seq Number: | 3114316 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **947** | 4.98 | mg/kg | 01.24.20 02.15 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <50.0 | 50.0 | mg/kg | 01.26.20 01.54 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <50.0 | 50.0 | mg/kg | 01.26.20 01.54 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <50.0 | 50.0 | mg/kg | 01.26.20 01.54 | U | 1 |
| Total GRO-DRO | PHC628 | <50.0 | 50.0 | mg/kg | 01.26.20 01.54 | U | 1 |
| Total TPH | PHC635 | <50.0 | 50.0 | mg/kg | 01.26.20 01.54 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 118 | % | 70-135 | 01.26.20 01.54 | |
| o-Terphenyl | 84-15-1 | 115 | % | 70-135 | 01.26.20 01.54 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 I** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-010 | Date Collected: | 01.21.20 10.53 | Sample Depth: | 13 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.33 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.33 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.33 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 01.31.20 22.33 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.33 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.33 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 01.31.20 22.33 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 71 | % | 70-130 | 01.31.20 22.33 | |
| 1,4-Difluorobenzene | 540-36-3 | 112 | % | 70-130 | 01.31.20 22.33 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 J** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-011 | Date Collected: | 01.21.20 10.54 | Sample Depth: | 14 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 01.23.20 18.00 | Basis: | Wet Weight |
| Seq Number: | 3114317 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **561** | 5.05 | mg/kg | 01.24.20 08.37 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 01.25.20 12.00 | Basis: | Wet Weight |
| Seq Number: | 3114508 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.9 | 49.9 | mg/kg | 01.26.20 02.37 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.9 | 49.9 | mg/kg | 01.26.20 02.37 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.9 | 49.9 | mg/kg | 01.26.20 02.37 | U | 1 |
| Total GRO-DRO | PHC628 | <49.9 | 49.9 | mg/kg | 01.26.20 02.37 | U | 1 |
| Total TPH | PHC635 | <49.9 | 49.9 | mg/kg | 01.26.20 02.37 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 113 | % | 70-135 | 01.26.20 02.37 | |
| o-Terphenyl | 84-15-1 | 109 | % | 70-135 | 01.26.20 02.37 | |

# Certificate of Analytical Results 649846

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SP-12 J** | Matrix: | Soil | Date Received: | 01.22.20 09.45 |
| Lab Sample Id: | 649846-011 | Date Collected: | 01.21.20 10.54 | Sample Depth: | 14 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | KTL | | | % Moisture: | |
| Analyst: | KTL | Date Prep: | 01.31.20 10.30 | Basis: | Wet Weight |
| Seq Number: | 3115184 | | | SUB: | T104704400-19-19 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00202 | 0.00202 | mg/kg | 01.31.20 22.53 | U | 1 |
| Toluene | 108-88-3 | <0.00202 | 0.00202 | mg/kg | 01.31.20 22.53 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00202 | 0.00202 | mg/kg | 01.31.20 22.53 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00403 | 0.00403 | mg/kg | 01.31.20 22.53 | U | 1 |
| o-Xylene | 95-47-6 | <0.00202 | 0.00202 | mg/kg | 01.31.20 22.53 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00202 | 0.00202 | mg/kg | 01.31.20 22.53 | U | 1 |
| Total BTEX | | <0.00202 | 0.00202 | mg/kg | 01.31.20 22.53 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 78 | % | 70-130 | 01.31.20 22.53 | |
| 1,4-Difluorobenzene | 540-36-3 | 113 | % | 70-130 | 01.31.20 22.53 | |

# 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 649846



## LT Environmental, Inc.

JRU 29

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3114316 — Matrix: Solid — Date Prep: 01.23.20
MB Sample Id: 7695087-1-BLK — LCS Sample Id: 7695087-1-BKS — LCSD Sample Id: 7695087-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.858 | 250 | 256 | 102 | 257 | 103 | 90-110 | 0 | 20 | mg/kg | 01.23.20 23:14 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3114317 — Matrix: Solid — Date Prep: 01.23.20
MB Sample Id: 7695088-1-BLK — LCS Sample Id: 7695088-1-BKS — LCSD Sample Id: 7695088-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.858 | 250 | 252 | 101 | 252 | 101 | 90-110 | 0 | 20 | mg/kg | 01.24.20 05:36 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3114316 — Matrix: Soil — Date Prep: 01.23.20
Parent Sample Id: 649845-001 — MS Sample Id: 649845-001 S — MSD Sample Id: 649845-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 32.9 | 249 | 299 | 107 | 296 | 106 | 90-110 | 1 | 20 | mg/kg | 01.23.20 23:33 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3114316 — Matrix: Soil — Date Prep: 01.23.20
Parent Sample Id: 649845-004 — MS Sample Id: 649845-004 S — MSD Sample Id: 649845-004 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 216 | 248 | 459 | 98 | 460 | 98 | 90-110 | 0 | 20 | mg/kg | 01.24.20 01:04 | |

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3114317 — Matrix: Soil — Date Prep: 01.23.20
Parent Sample Id: 649966-005 — MS Sample Id: 649966-005 S — MSD Sample Id: 649966-005 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1260 | 202 | 1450 | 94 | 1460 | 99 | 90-110 | 1 | 20 | mg/kg | 01.24.20 07:26 | |

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 649846



## LT Environmental, Inc.

JRU 29

**Analytical Method:** Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3114317 — Matrix: Soil — Date Prep: 01.23.20
Parent Sample Id: 649969-006 — MS Sample Id: 649969-006 S — MSD Sample Id: 649969-006 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 338 | 299 | 622 | 95 | 622 | 95 | 90-110 | 0 | 20 | mg/kg | 01.24.20 05:55 | |

**Analytical Method:** TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3114508 — Matrix: Solid — Date Prep: 01.25.20
MB Sample Id: 7695229-1-BLK — LCS Sample Id: 7695229-1-BKS — LCSD Sample Id: 7695229-1-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) | <50.0 | 1000 | 1060 | 106 | 1050 | 105 | 70-135 | 1 | 20 | mg/kg | 01.25.20 21:21 | |
| Diesel Range Organics (DRO) | <15.0 | 1000 | 1180 | 118 | 1180 | 118 | 70-135 | 0 | 20 | mg/kg | 01.25.20 21:21 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 122 | | 123 | | 122 | | 70-135 | % | 01.25.20 21:21 |
| o-Terphenyl | 130 | | 125 | | 113 | | 70-135 | % | 01.25.20 21:21 |

**Analytical Method:** TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3114508 — Matrix: Solid — Date Prep: 01.25.20
MB Sample Id: 7695229-1-BLK

| Parameter | MB Result | Units | Analysis Date | Flag |
|---|---|---|---|---|
| Motor Oil Range Hydrocarbons (MRO) | <50.0 | mg/kg | 01.25.20 21:00 | |

**Analytical Method:** TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3114508 — Matrix: Soil — Date Prep: 01.25.20
Parent Sample Id: 649846-001 — MS Sample Id: 649846-001 S — MSD Sample Id: 649846-001 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) | 23.8 | 997 | 1070 | 105 | 996 | 97 | 70-135 | 7 | 20 | mg/kg | 01.25.20 22:24 | |
| Diesel Range Organics (DRO) | <15.0 | 997 | 1140 | 114 | 1130 | 113 | 70-135 | 1 | 20 | mg/kg | 01.25.20 22:24 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 128 | | 122 | | 70-135 | % | 01.25.20 22:24 |
| o-Terphenyl | 126 | | 111 | | 70-135 | % | 01.25.20 22:24 |

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 649846



## LT Environmental, Inc.

JRU 29

**Analytical Method:** BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3115184 — Matrix: Solid — Date Prep: 01.31.20
MB Sample Id: 7695650-1-BLK — LCS Sample Id: 7695650-1-BKS — LCSD Sample Id: 7695650-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000385 | 0.100 | 0.112 | 112 | 0.102 | 102 | 70-130 | 9 | 35 | mg/kg | 01.31.20 13:12 | |
| Toluene | <0.000456 | 0.100 | 0.104 | 104 | 0.114 | 114 | 70-130 | 9 | 35 | mg/kg | 01.31.20 13:12 | |
| Ethylbenzene | <0.000565 | 0.100 | 0.100 | 100 | 0.114 | 114 | 70-130 | 13 | 35 | mg/kg | 01.31.20 13:12 | |
| m,p-Xylenes | <0.00101 | 0.200 | 0.197 | 99 | 0.233 | 117 | 70-130 | 17 | 35 | mg/kg | 01.31.20 13:12 | |
| o-Xylene | <0.000344 | 0.100 | 0.0978 | 98 | 0.115 | 115 | 70-130 | 16 | 35 | mg/kg | 01.31.20 13:12 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | | 110 | | 110 | | 70-130 | % | 01.31.20 13:12 |
| 4-Bromofluorobenzene | 76 | | 87 | | 99 | | 70-130 | % | 01.31.20 13:12 |

**Analytical Method:** BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3115184 — Matrix: Soil — Date Prep: 01.31.20
Parent Sample Id: 650807-001 — MS Sample Id: 650807-001 S — MSD Sample Id: 650807-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000386 | 0.100 | 0.110 | 110 | 0.0951 | 94 | 70-130 | 15 | 35 | mg/kg | 01.31.20 13:53 | |
| Toluene | <0.000457 | 0.100 | 0.107 | 107 | 0.0961 | 95 | 70-130 | 11 | 35 | mg/kg | 01.31.20 13:53 | |
| Ethylbenzene | <0.000567 | 0.100 | 0.103 | 103 | 0.0914 | 90 | 70-130 | 12 | 35 | mg/kg | 01.31.20 13:53 | |
| m,p-Xylenes | <0.00102 | 0.201 | 0.205 | 102 | 0.179 | 89 | 70-130 | 14 | 35 | mg/kg | 01.31.20 13:53 | |
| o-Xylene | <0.000346 | 0.100 | 0.104 | 104 | 0.0884 | 88 | 70-130 | 16 | 35 | mg/kg | 01.31.20 13:53 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 115 | | 118 | | 70-130 | % | 01.31.20 13:53 |
| 4-Bromofluorobenzene | 94 | | 78 | | 70-130 | % | 01.31.20 13:53 |

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

# Chain of Custody

Work Order No: 604846

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 1 of 2

| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | 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: | 432.236.3849 | 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: | JRU 29 | Turn Around | |
| Project Number: | 012918135 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Benjamin Belill | Due Date: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | (Yes) No | Wet Ice: | (Yes) No |
| Temperature (°C): | 0.4 | Thermometer ID | |
| Received Intact: | (Yes) No | T-NM-007 | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | -0.2 |
| Sample Custody Seals: | Yes No (N/A) | Total Containers: | 11 |

ANALYSIS REQUEST

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 0=8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| SP-12 | S | 1/21/20 | 1042 | 4' | 1 | X | X | X |
| SP-12 A | | | 1041 | 5' | | X | X | X |
| SP-12 B | | | 1044 | 6' | | X | X | X |
| SP-12 C | | | 1045 | 7' | | X | X | X |
| SP-12 D | | | 1046 | 8' | | X | X | X |
| SP-12 E | | | 1048 | 9' | | X | X | X |
| SP-12 F | | | 1049 | 10' | | X | X | X |
| SP-12 G | | | 1050 | 11' | | X | X | X |
| SP-12 H | | | 1051 | 12' | | X | X | X |
| SP-12 I | ↓ | ↓ | 1053 | 13' | ↓ | 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 |
|---|---|---|---|---|---|
| | | 1/22/20 9:00 | 2 | | 1/22/20 0945 |
| | | | 4 | | |
| | | | 6 | | |

Revised Date 051418 Rev. 2018.1

# Chain of Custody

Work Order No: 649846

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)
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Page 2 of 2

| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | 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: | 432.236.3849 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: | JRU 29 | Turn Around | |
| Project Number: | 01241835 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Benjamin Belill | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes No | Wet Ice: | Yes No | |
| Temperature (°C): | ~~0.1~~ 1.1/22 | Thermometer ID | See pg 1 | |
| Received Intact: | Yes No | | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | |
| 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 0=8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|
| SP-12 J | S | 1/21/20 | 1054 | 14' | 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 |
|---|---|---|---|---|---|
| | | 1/22/20 9:00am | 2 | | 1/22/20 9:45 |
| | | | 4 | | |
| | | | 6 | | |

Revised Date 051418 Rev. 2018.1

# Inter-Office Shipment





**IOS Number** **56551**

Date/Time: 01/22/20 11:52
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 777580852397

Please send report to: Jessica Kramer
Address: 1089 N Canal Street
E-Mail: jessica.kramer@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 649846-001 | S | SP-12 | 01/21/20 10:42 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649846-001 | S | SP-12 | 01/21/20 10:42 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649846-001 | S | SP-12 | 01/21/20 10:42 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-002 | S | SP-12 A | 01/21/20 10:41 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649846-002 | S | SP-12 A | 01/21/20 10:41 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-002 | S | SP-12 A | 01/21/20 10:41 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649846-003 | S | SP-12 B | 01/21/20 10:44 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649846-003 | S | SP-12 B | 01/21/20 10:44 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649846-003 | S | SP-12 B | 01/21/20 10:44 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-004 | S | SP-12 C | 01/21/20 10:45 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-004 | S | SP-12 C | 01/21/20 10:45 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649846-004 | S | SP-12 C | 01/21/20 10:45 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649846-005 | S | SP-12 D | 01/21/20 10:46 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649846-005 | S | SP-12 D | 01/21/20 10:46 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649846-005 | S | SP-12 D | 01/21/20 10:46 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-006 | S | SP-12 E | 01/21/20 10:48 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-006 | S | SP-12 E | 01/21/20 10:48 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649846-006 | S | SP-12 E | 01/21/20 10:48 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649846-007 | S | SP-12 F | 01/21/20 10:49 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-007 | S | SP-12 F | 01/21/20 10:49 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649846-007 | S | SP-12 F | 01/21/20 10:49 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649846-008 | S | SP-12 G | 01/21/20 10:50 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-008 | S | SP-12 G | 01/21/20 10:50 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649846-008 | S | SP-12 G | 01/21/20 10:50 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649846-009 | S | SP-12 H | 01/21/20 10:51 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |

# Inter-Office Shipment





**IOS Number** **56551**

Date/Time: 01/22/20 11:52
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 777580852397

Please send report to: Jessica Kramer
Address: 1089 N Canal Street
E-Mail: jessica.kramer@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 649846-009 | S | SP-12 H | 01/21/20 10:51 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-009 | S | SP-12 H | 01/21/20 10:51 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649846-010 | S | SP-12 I | 01/21/20 10:53 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |
| 649846-010 | S | SP-12 I | 01/21/20 10:53 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-010 | S | SP-12 I | 01/21/20 10:53 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649846-011 | S | SP-12 J | 01/21/20 10:54 | E300_CL | Chloride by EPA 300 | 01/28/20 | 02/18/20 | JKR | CL | |
| 649846-011 | S | SP-12 J | 01/21/20 10:54 | SW8021B | BTEX by EPA 8021B | 01/28/20 | 02/04/20 | JKR | BZ BZME EBZ XYLENES | |
| 649846-011 | S | SP-12 J | 01/21/20 10:54 | SW8015MOD_NM | TPH by SW8015 Mod | 01/28/20 | 02/04/20 | JKR | GRO-DRO PHCC10C28 PI | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Elizabeth McClellan

Date Relinquished: 01/22/2020

Received By: Brianna Teel

Date Received: 01/23/2020 11:20

Cooler Temperature: 0.3

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Midland

**IOS #:** 56551

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : R8**

**Sent By:** Elizabeth McClellan **Date Sent:** 01/22/2020 11:52 AM

**Received By:** Brianna Teel **Date Received:** 01/23/2020 11:20 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .3 | |
| #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:** Brianna Teel Date: 01/23/2020

Brianna Teel

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 01/22/2020 09:45:00 AM

**Work Order #:** 649846

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

**Temperature Measuring device used : T-NM-007**

| 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? | **Yes** | |
| #5 Custody Seals intact on sample bottles? | **Yes** | |
| #6*Custody Seals Signed and dated? | **Yes** | |
| #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)? | **Yes** | Subbed to Midland |
| #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:** Elizabeth McClellan Date: 01/22/2020

**Checklist reviewed by:** Jessica Kramer Date: 01/23/2020

Jessica Kramer

# Analytical Report 655037

## for

## LT Environmental, Inc.

**Project Manager: Dan Moir**

**JRU 29**

**012918135**

**10-MAR-20**

Collected By: Client


**1089 N Canal Street**
**Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

10-MAR-20

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

Reference: XENCO Report No(s): **655037**
**JRU 29**
Project Address:

**Dan Moir**:

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) 655037. 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. 655037 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 Manager

***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 655037

## LT Environmental, Inc., Arvada, CO

JRU 29

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| FS01 | S | 03-09-20 13:40 | 5.5 ft | 655037-001 |

# CASE NARRATIVE

***Client Name: LT Environmental, Inc.***

***Project Name: JRU 29***

Project ID: *012918135*
Work Order Number(s): *655037*

Report Date: *10-MAR-20*
Date Received: *03/09/2020*

**Sample receipt non conformances and comments:**

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3119031 BTEX by EPA 8021B

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

# Certificate of Analysis Summary 655037

## LT Environmental, Inc., Arvada, CO

## Project Name: JRU 29

**Project Id:** 012918135
**Contact:** Dan Moir
**Project Location:**

**Date Received in Lab:** Mon Mar-09-20 03:03 pm
**Report Date:** 10-MAR-20
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | |
|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 655037-001 | | | | | |
| | ***Field Id:*** | FS01 | | | | | |
| | ***Depth:*** | 5.5- ft | | | | | |
| | ***Matrix:*** | SOIL | | | | | |
| | ***Sampled:*** | Mar-09-20 13:40 | | | | | |
| **BTEX by EPA 8021B** | ***Extracted:*** | Mar-09-20 15:30 | | | | | |
| | ***Analyzed:*** | Mar-10-20 02:19 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | | | | |
| Benzene | | <0.00200 | 0.00200 | | | | |
| Toluene | | <0.00200 | 0.00200 | | | | |
| Ethylbenzene | | <0.00200 | 0.00200 | | | | |
| m,p-Xylenes | | <0.00401 | 0.00401 | | | | |
| o-Xylene | | <0.00200 | 0.00200 | | | | |
| Total Xylenes | | <0.00200 | 0.00200 | | | | |
| Total BTEX | | <0.00200 | 0.00200 | | | | |
| **Chloride by EPA 300** | ***Extracted:*** | Mar-09-20 16:00 | | | | | |
| | ***Analyzed:*** | Mar-09-20 20:01 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | | | | |
| Chloride | | 2200 | 50.0 | | | | |
| **TPH by SW8015 Mod** | ***Extracted:*** | Mar-09-20 17:00 | | | | | |
| | ***Analyzed:*** | Mar-10-20 05:29 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | | | | |
| Gasoline Range Hydrocarbons (GRO) | | <49.8 | 49.8 | | | | |
| Diesel Range Organics (DRO) | | <49.8 | 49.8 | | | | |
| Motor Oil Range Hydrocarbons (MRO) | | <49.8 | 49.8 | | | | |
| Total GRO-DRO | | <49.8 | 49.8 | | | | |
| Total TPH | | <49.8 | 49.8 | | | | |



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

Jessica Kramer
Project Manager



Final 1.000

# Certificate of Analytical Results 655037

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS01** | Matrix: | Soil | Date Received: | 03.09.20 15.03 |
| Lab Sample Id: | 655037-001 | Date Collected: | 03.09.20 13.40 | Sample Depth: | 5.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | MAB | | | % Moisture: | |
| Analyst: | MAB | Date Prep: | 03.09.20 16.00 | Basis: | Wet Weight |
| Seq Number: | 3119022 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2200** | 50.0 | mg/kg | 03.09.20 20.01 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | SW8015P |
| Tech: | DTH | | | % Moisture: | |
| Analyst: | DTH | Date Prep: | 03.09.20 17.00 | Basis: | Wet Weight |
| Seq Number: | 3119055 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <49.8 | 49.8 | mg/kg | 03.10.20 05.29 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <49.8 | 49.8 | mg/kg | 03.10.20 05.29 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <49.8 | 49.8 | mg/kg | 03.10.20 05.29 | U | 1 |
| Total GRO-DRO | PHC628 | <49.8 | 49.8 | mg/kg | 03.10.20 05.29 | U | 1 |
| Total TPH | PHC635 | <49.8 | 49.8 | mg/kg | 03.10.20 05.29 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 103 | % | 70-135 | 03.10.20 05.29 | |
| o-Terphenyl | 84-15-1 | 112 | % | 70-135 | 03.10.20 05.29 | |

# Certificate of Analytical Results 655037

## LT Environmental, Inc., Arvada, CO

JRU 29

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS01** | Matrix: | Soil | Date Received: | 03.09.20 15.03 |
| Lab Sample Id: | 655037-001 | Date Collected: | 03.09.20 13.40 | Sample Depth: | 5.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | MAB | | | % Moisture: | |
| Analyst: | MAB | Date Prep: | 03.09.20 15.30 | Basis: | Wet Weight |
| Seq Number: | 3119031 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 03.10.20 02.19 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 03.10.20 02.19 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 03.10.20 02.19 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00401 | 0.00401 | mg/kg | 03.10.20 02.19 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 03.10.20 02.19 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 03.10.20 02.19 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 03.10.20 02.19 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 96 | % | 70-130 | 03.10.20 02.19 | |
| 1,4-Difluorobenzene | 540-36-3 | 107 | % | 70-130 | 03.10.20 02.19 | |

# 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 655037



## LT Environmental, Inc.

JRU 29

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3119022 Matrix: Solid Date Prep: 03.09.20
MB Sample Id: 7698414-1-BLK LCS Sample Id: 7698414-1-BKS LCSD Sample Id: 7698414-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <10.0 | 250 | 258 | 103 | 263 | 105 | 90-110 | 2 | 20 | mg/kg | 03.09.20 19:19 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3119022 Matrix: Soil Date Prep: 03.09.20
Parent Sample Id: 654990-026 MS Sample Id: 654990-026 S MSD Sample Id: 654990-026 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 3480 | 248 | 3760 | 113 | 3770 | 117 | 90-110 | 0 | 20 | mg/kg | 03.09.20 19:37 | X |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3119055 Matrix: Solid Date Prep: 03.09.20
MB Sample Id: 7698462-1-BLK LCS Sample Id: 7698462-1-BKS LCSD Sample Id: 7698462-1-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) | <50.0 | 1000 | 916 | 92 | 927 | 93 | 70-135 | 1 | 35 | mg/kg | 03.10.20 09:41 | |
| Diesel Range Organics (DRO) | <50.0 | 1000 | 916 | 92 | 914 | 91 | 70-135 | 0 | 35 | mg/kg | 03.10.20 09:41 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 96 | | 107 | | 100 | | 70-135 | % | 03.10.20 09:41 |
| o-Terphenyl | 106 | | 111 | | 104 | | 70-135 | % | 03.10.20 09:41 |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3119055 Matrix: Solid Date Prep: 03.09.20
MB Sample Id: 7698462-1-BLK

| Parameter | MB Result | Units | Analysis Date | Flag |
|---|---|---|---|---|
| Motor Oil Range Hydrocarbons (MRO) | <50.0 | mg/kg | 03.10.20 09:21 | |

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 655037

## LT Environmental, Inc.

JRU 29

**Analytical Method:** TPH by SW8015 Mod | Prep Method: SW8015P
Seq Number: 3119055 | Matrix: Soil | Date Prep: 03.09.20
Parent Sample Id: 654990-026 | MS Sample Id: 654990-026 S | MSD Sample Id: 654990-026 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) | <49.9 | 997 | 962 | 96 | 984 | 98 | 70-135 | 2 | 35 | mg/kg | 03.10.20 04:28 | |
| Diesel Range Organics (DRO) | <49.9 | 997 | 939 | 94 | 956 | 96 | 70-135 | 2 | 35 | mg/kg | 03.10.20 04:28 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 130 | | 119 | | 70-135 | % | 03.10.20 04:28 |
| o-Terphenyl | 125 | | 125 | | 70-135 | % | 03.10.20 04:28 |

**Analytical Method:** BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3119031 | Matrix: Solid | Date Prep: 03.09.20
MB Sample Id: 7698418-1-BLK | LCS Sample Id: 7698418-1-BKS | LCSD Sample Id: 7698418-1-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 | 0.107 | 107 | 0.108 | 108 | 70-130 | 1 | 35 | mg/kg | 03.09.20 23:36 | |
| Toluene | <0.00200 | 0.100 | 0.102 | 102 | 0.104 | 104 | 70-130 | 2 | 35 | mg/kg | 03.09.20 23:36 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.0961 | 96 | 0.0989 | 99 | 71-129 | 3 | 35 | mg/kg | 03.09.20 23:36 | |
| m,p-Xylenes | <0.00400 | 0.200 | 0.196 | 98 | 0.204 | 102 | 70-135 | 4 | 35 | mg/kg | 03.09.20 23:36 | |
| o-Xylene | <0.00200 | 0.100 | 0.0995 | 100 | 0.103 | 103 | 71-133 | 3 | 35 | mg/kg | 03.09.20 23:36 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | | 107 | | 108 | | 70-130 | % | 03.09.20 23:36 |
| 4-Bromofluorobenzene | 94 | | 93 | | 94 | | 70-130 | % | 03.09.20 23:36 |

**Analytical Method:** BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3119031 | Matrix: Soil | Date Prep: 03.09.20
Parent Sample Id: 654990-026 | MS Sample Id: 654990-026 S | MSD Sample Id: 654990-026 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 | 0.0852 | 86 | 0.0958 | 96 | 70-130 | 12 | 35 | mg/kg | 03.10.20 00:16 | |
| Toluene | <0.00199 | 0.0994 | 0.0807 | 81 | 0.0905 | 91 | 70-130 | 11 | 35 | mg/kg | 03.10.20 00:16 | |
| Ethylbenzene | <0.00199 | 0.0994 | 0.0747 | 75 | 0.0835 | 84 | 71-129 | 11 | 35 | mg/kg | 03.10.20 00:16 | |
| m,p-Xylenes | <0.00398 | 0.199 | 0.152 | 76 | 0.169 | 85 | 70-135 | 11 | 35 | mg/kg | 03.10.20 00:16 | |
| o-Xylene | <0.00199 | 0.0994 | 0.0762 | 77 | 0.0852 | 85 | 71-133 | 11 | 35 | mg/kg | 03.10.20 00:16 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | | 107 | | 70-130 | % | 03.10.20 00:16 |
| 4-Bromofluorobenzene | 96 | | 93 | | 70-130 | % | 03.10.20 00:16 |

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



Final 1.000

# 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 Craslbad, NM (432) 704-5440
Phoenix,AZ (480) 355-0900 Atlanta,GA (770) 449-8800 Tampa,FL (813) 620-2000 West Palm Beach, FL (561) 689-6701
www.xenco.com

Work Order No: 655037

Page 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | Bill to: (if different) | Kyle Littrell |
| Company Name: | LT Environmental, Inc. Permian Office | Company Name: | XTO Energy |
| Address: | 3300 North A Street | Address: | 3104 East Green Street |
| City, State ZIP: | Midland, TX 79705 | City, State ZIP: | Carlsbad, NM 88220 |
| Phone: | 432-236-3849 | Email: | slo@ltenv.com, dmoir@ltenv.com, acole@ltenv.com |

**Work Order Comments**

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

| | | | |
|---|---|---|---|
| Project Name: | JRU 29 | Turn Around | |
| Project Number: | 01291813S | Routine ☐ | |
| Project Location | | Rush: 24H | |
| Sampler's Name: | | Due Date: | |
| PO #: | | Quote #: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | (Yes) No | Wet Ice: | (Yes) No |
| Temperature (°C): | 3.0 | Thermometer ID | T-NM-007 |
| Received Intact: | (Yes) No | Correction Factor: | -0.2 |
| Cooler Custody Seals: | Yes (No) N/A | Total Containers: | 1 |
| Sample Custody Seals: | Yes (No) N/A | | |

**ANALYSIS REQUEST**

**Preservative Codes**

MeOH: Me
None: NO
HNO3: HN
H2S04: H2
HCL: HL
NaOH: Na
Zn Acetate+ NaOH: Zn

TAT starts the day recevied by the lab, if received by 4:00pm

| Lab ID | Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | Pres. Code | TPH (EPA 8015) | BTEX (EPA 8021) | Chloride (EPA 300) | Sample Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | FS01 | S | 3-9-20 | 1340 | 5.5' | 1 | | X | X | X | |

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 |
|---|---|---|---|---|---|
| | | 3/9/20 15:03 | 2 | | |
| | | | 4 | | |
| | | | 6 | | |

Revised Date 022619 Rev. 2019.1

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 03.09.2020 03.03.00 PM

**Work Order #:** 655037

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

**Temperature Measuring device used : T-NM-007**

| Sample Receipt Checklist | Comments |
|---|---|
| #1 *Temperature of cooler(s)? | 3.6 |
| #2 *Shipping container in good condition? | **Yes** |
| #3 *Samples received on ice? | **Yes** |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** |
| #5 Custody Seals intact on sample bottles? | **Yes** |
| #6*Custody Seals Signed and dated? | **Yes** |
| #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)? | **No** |
| #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:** Elizabeth McClellan Date: 03.09.2020

**Checklist reviewed by:** Jessica Kramer Date: 03.10.2020

Jessica Kramer

## Green, Garrett J

**From:** Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@state.nm.us>
**Sent:** Wednesday, August 3, 2022 1:25 PM
**To:** Green, Garrett J
**Cc:** Billings, Bradford, EMNRD
**Subject:** RE: [EXTERNAL] Response to denial of C141 for incident ID (n#) nAB1518142271, Application ID: 8143

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

**Categories:** External Sender

External Email – Think Before You Click

To whom it may concern,

Regarding incident ID (n#) nAB1518142271, Application ID: 8143.
Please resubmit the C-141 closure request/report through our application portal. Please include a copy of this email correspondence and all attachments. The OCD will review the resubmitted application in the order it is received.

If you have any other questions or concerns, please feel free to contact me.

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

**From:** Green, Garrett J <garrett.green@exxonmobil.com>
**Sent:** Thursday, July 21, 2022 1:03 PM
**To:** Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@state.nm.us>
**Cc:** Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Pennington, Shelby G <shelby.g.pennington@exxonmobil.com>
**Subject:** [EXTERNAL] Response to denial of C141 for incident ID (n#) nAB1518142271, Application ID: 8143

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

Ms. Harimon,

XTO is requesting NMOCD reconsider denial of the C141/Closure Request for incident ID (n#) nAB1518142271. NMOCD recently denied the closure request for the following reasons:

- Depth to ground water is insufficiently defined
- Unclear confirmation samples - Not vertically defined

XTO would like to clarify that a borehole was drilled at the site to confirm depth to water is greater than 100 feet. I have attached a boring log and a revised site map showing the location of that boring. As stated in the report, the boring was drilled in January of 2020 to 110 feet bgs and left open for over 72 hours to allow for potential infill of groundwater. No groundwater was observed in the borehole following the 72-hour waiting period and groundwater was confirmed to be greater than 100 feet deep.

Regarding a lack of vertical delineation/definition, all of the samples collected from the delineation borings advanced within the release footprint (SP-4, SP-6, SP-7/SP-11, SP-8, SP-9, SP-10, and SP-12) and depicted in Figure 3 of the report meet the site-specific closure criteria for chloride and each boring was advanced until samples met the strictest closure criteria (600 mg/kg). This ranges from 4 feet bgs in SP-6 to 23 feet bgs in SP-11 and generally occurs near 10 feet bgs in the majority of the boreholes.

XTO acknowledges that confirmation sampling to confirm removal of impacted material does not follow Part 29 guidance. However, please consider the circumstances of the timing and approach. First of all, the excavation included removal of 33,000 cubic yards of material and occurred in 2018 under the conditions of an NMOCD-approved corrective action plan. The confirmation samples were collected in a manner generally acceptable at that time when liner installations were included in the scope of work. These included discrete sidewall samples, but no floor samples. The floor samples were deemed unnecessary because the entirety of the top 4 feet of impacted material in the pasture was removed and because delineation sampling defined the concentration of chloride remaining in place below 4 feet. The highest chloride concentrations documented in samples collected from 4 feet or greater in the delineation borings ranged from 529 mg/kg to 15,600 mg/kg. None of the concentrations exceeded 20,000 mg/kg. Please reference Table 1 of the report.

In summary, a depth to water boring confirmed that groundwater is greater than 100 feet at the site and that the closure criteria applied was correct. The top 4 feet of material within the release footprint in the pasture was removed and sidewall samples confirm remaining soil in the top 4 feet meet the reclamation standard (600 mg/kg chloride). Material remaining in place beneath 4 feet bgs meets the site-specific closure criteria as documented by 59 discrete delineation samples collected from depths ranging from 4 feet bgs to 26 feet bgs. The delineation samples additionally document vertical delineation to the strictest closure criteria (600 mg/kg chloride). The excavation was conducted in 2018 and removed 33,000 cubic yards of material. The excavation was backfilled and collection of composite confirmation samples from the floor of the excavation is no longer practical. XTO believes the discrete sidewall samples define lateral delineation and the delineation samples provide sufficient data to characterize remaining chloride concentrations in the soil below 4 feet bgs. In light of these clarifications, XTO respectfully requests NMOCD review this additional information and reconsider the denial.

If NMOCD prefers a meeting, XTO is open to a video conference or in-person meeting to discuss the unique details of this project.

Thank You,

**Garrett Green**
Environmental Coordinator
Delaware Business Unit
(575) 200-0729
Garrett.Green@ExxonMobil.com

XTO Energy, Inc.
3104 E. Greene Street | Carlsbad, NM 88220 | M: (575)200-0729

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

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

CONDITIONS

Action 136529

## CONDITIONS

| | |
|---|---|
| Operator:<br>XTO ENERGY, INC<br>6401 Holiday Hill Road<br>Midland, TX 79707 | OGRID:<br>5380 |
| | Action Number:<br>136529 |
| | Action Type:<br>[C-141] Release Corrective Action (C-141) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| jharimon | None | 9/20/2022 |