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 | NAB1913736899 |
| District RP | 2RP-5423 |
| Facility ID | |
| Application ID | pAB1913736572 |

# Release Notification

**5URIB-190808-C-1410**

## Responsible Party

| | |
|---|---|
| Responsible Party XTO Energy | OGRID 5380 |
| Contact Name Kyle Littrell | Contact Telephone 432-221-7331 |
| Contact email Kyle_Littrell@xtoenergy.com | Incident # *(assigned by OCD)* NAB1913736899 |
| Contact mailing address 522 W. Mermod, Carlsbad, NM 88220 | |

## Location of Release Source

Latitude 32.609905° Longitude -103.889990°

*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name Big Eddy Unit DI#4 (at COG Birdseye 32 St 1H) | Site Type Multiple Production Well Facility |
| Date Release Discovered 4/22/2019 | API# *(if applicable)* 30-015-42478 (BEU DI4 #264H) |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| O | 32 | 19S | 31E | Eddy |

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

## Nature and Volume of Release

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

| | | |
|---|---|---|
| ☐ Crude Oil | Volume Released (bbls) | Volume Recovered (bbls) |
| ☒ Produced Water | Volume Released (bbls) 8.2 | Volume Recovered (bbls) 0 |
| | Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l? | ☐ Yes ☐ No |
| ☐ Condensate | Volume Released (bbls) | Volume Recovered (bbls) |
| ☐ Natural Gas | Volume Released (Mcf) | Volume Recovered (Mcf) |
| ☐ Other (describe) | Volume/Weight Released (provide units) | Volume/Weight Recovered (provide units) |

Cause of Release

A poly flow line was damaged by vehicles passing over it at the point where it emerged from the caliche at a road crossing. The line was clamped and then repaired. Additional third party resources have been retained to assist with remediation.

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NAB1913736899 |
| District RP | 2RP-5423 |
| Facility ID | |
| Application ID | pAB1913736572 |

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

## Initial Response

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

☒ 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:
N/A

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: [signature]  Date: 5/2/2019

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

**OCD Only**

Received by: [signature]  Date: 5/17/2019

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-5323 |
| Facility ID | |
| Application ID | |

# Site Assessment/Characterization

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

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

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

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

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

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

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-5423 |
| 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: 08/07/2019

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-5423 |
| 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: 08/07/2019

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:

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

August 7, 2019

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

**RE: Closure Request**
**Big Eddy Unit DI #4 (at COG Birdseye 32 St 1H)**
**Remediation Permit Number 2RP-5423**
**Eddy County, New Mexico**

Dear Mr. Bratcher:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following Closure Request detailing soil sampling and excavation activities at the Big Eddy Unit DI #4 (at COG Birdseye 32 St 1H) (Site) in Unit O, Section 32, Township 19 South, Range 31 East, in Eddy County, New Mexico (Figure 1). The purpose of the soil sampling and excavation activities was to address impacts to soil following the release of produced water onto the Site access road and right-of-way (ROW) portions of the access road. Based on excavation activities and laboratory analytical results of the soil sampling events, XTO is submitting this Closure Request, describing completed remediation activities and requesting no further action for the release event.

## RELEASE BACKGROUND

On April 22, 2019, a poly flow line was damaged by vehicles passing over it, which resulted in the release of 8.2 barrels (bbls) of produced water. The release affected the Site access road and the ROW on the west and east side of the access road. The flow line was clamped and repaired; no fluid was recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 (Form C-141) on May 2, 2019, and was subsequently assigned Remediation Permit (RP) Number 2RP-5423 (Attachment 1).

## SITE CHARACTERIZATION

LTE characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data. The nearest permitted water well with depth to water data is CP 00722, located approximately 5,731 feet northeast of the Site. The water well has a depth to groundwater of 140 feet and a total depth of 220 feet. Ground surface elevation at the water well location is 3,459 feet above mean sea level (AMSL), which is approximately 551

feet higher in elevation than the Site. The closest continuously flowing water or significant watercourse to the Site is a tributary to an unnamed lake located approximately 5,417 feet west of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is located in a low potential karst area.

## 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;
- Total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg;
- TPH: 2,500 mg/kg; and
- Chloride: 20,00 mg/kg.

## SITE ASSESSMENT, EXCAVATION, AND DELINEATION SOIL SAMPLING ACTIVITIES

On June 27, 2019, LTE personnel inspected the Site and conducted field screening activities to evaluate the release extent. Additionally, two boreholes (BH01 and BH02) were advanced via stainless steel hand auger within the release extent to assess potential impacts to soil. Borehole BH01 was advanced to approximately 2 feet bgs and borehole BH02 was advanced to approximately 3 feet bgs. LTE personnel collected two delineation soil samples from each borehole from depths of approximately 1 foot (BH01 and BH02), 2 feet (BH01A), and 3 feet (BH02A) bgs. Soil from the two 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 each borehole were logged on lithologic/soil sampling logs, which are included in Attachment 2. The release extent and delineation soil sample locations were mapped utilizing a handheld Global Positing System (GPS) unit and are depicted on Figure 2.

The 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 Midland, Texas, 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 field screening results and in consideration of the United States Bureau of Land Management (BLM) preferred chloride closure criteria of 600 mg/kg in the top 4 feet of the subsurface, excavation of chloride containing soil appeared warranted in the ROW within the release extent. Photographic documentation was conducted during the Site visit. Photographs are included in Attachment 3.

From July 10 to July 18, 2019, LTE personnel were at the Site to oversee soil excavation activities. Due to the inability to excavate the release area on the active access road, two separate excavations were completed in the adjacent pasture; one excavation was completed on the west side of the access road and one excavation was completed on the east side of the access road. Due to the density of active flow lines in the release area, excavation was completed via hydro-vacuum. To direct excavation activities, LTE screened soil for volatile aromatic hydrocarbons and chloride utilizing a PID and Hach® chloride QuanTab® test strips, respectively. Following excavation activities, LTE collected 5-point composite soil samples every 200 square feet from the sidewalls and floor of the excavations. The 5-point composite samples were collected by depositing five aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples SW01 through SW10 were collected from the sidewalls of the excavations from depths ranging from ground surface to approximately 1.5 feet, 2 feet, or 3 feet bgs. Composite soil samples FS01 through FS07 were collected from the floor of the excavations from depths of approximately 2 feet and 3 feet bgs. The excavation soil samples were collected, handled and analyzed as described above and submitted to Xenco in Midland, Texas. The excavation extents and excavation soil sample locations are depicted on Figure 3.

The excavation extent on the west side of the access road measured approximately 785 square feet in area and the excavation on the east side of the access road measured approximately 680 square feet in area. A total of approximately 135 cubic yards of chloride-containing soil were removed from the excavations. The soil was transported and properly disposed of at the Lea Land landfill facility located in Hobbs, New Mexico.

## ANALYTICAL RESULTS

Laboratory analytical results for the delineation soil samples collected from boreholes BH01 and BH02 indicated benzene, BTEX, TPH, and chloride concentrations were compliant with the Closure Criteria. Laboratory analytical results indicated that chloride concentrations in delineation soil sample BH01 collected at approximately 1 foot bgs was greater than the BLM preferred closure criteria of 600 mg/kg in the top 4 feet of the subsurface; however, due to the location of this borehole, excavation did not appear to be warranted. Borehole BH01 was located on the active access road, which does not need to be conducive to vegetation growth in the

foreseeable future; therefore, the BLM preferred closure criteria of 600 mg/kg in the top 4 feet of the subsurface is not applicable to the release extent in the vicinity of the active access road.

Based on field screening results and in consideration of the BLM preferred closure criteria of 600 mg/kg in the top 4 feet of the subsurface, chloride containing soil was excavated to the extent possible from the pasture area on both sides of the access road. Following excavation of chloride containing soil, confirmation soil samples were collected from the sidewalls and floor of the excavations. Laboratory analytical results indicated benzene, BTEX, TPH, and chloride concentrations were compliant with the Closure Criteria in all excavation soil samples and no further excavation was required.

Laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included as Attachment 4.

## CLOSURE REQUEST

A total of approximately 135 cubic yards of soil were excavated from the release extent in the pasture adjacent to the access road. Laboratory analytical results for the confirmation soil samples collected from the final excavation extents indicated benzene, BTEX, TPH, and chloride concentrations were compliant with the Closure Criteria. Delineation soil sampling activities were conducted within the release extent on the access road. Laboratory analytical results for the delineation soil samples indicated benzene, BTEX, TPH, and chloride concentrations were compliant with the Closure Criteria and no further excavation was required.

Initial response efforts and excavation of chloride-containing soil have mitigated adverse effects at this Site. XTO requests no further action for RP Number 2RP-5423. Upon approval of this closure request, XTO will backfill the excavation with material purchased locally and recontour the Site to match pre-existing site conditions. An updated NMOCD Form C-141 is included as 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.

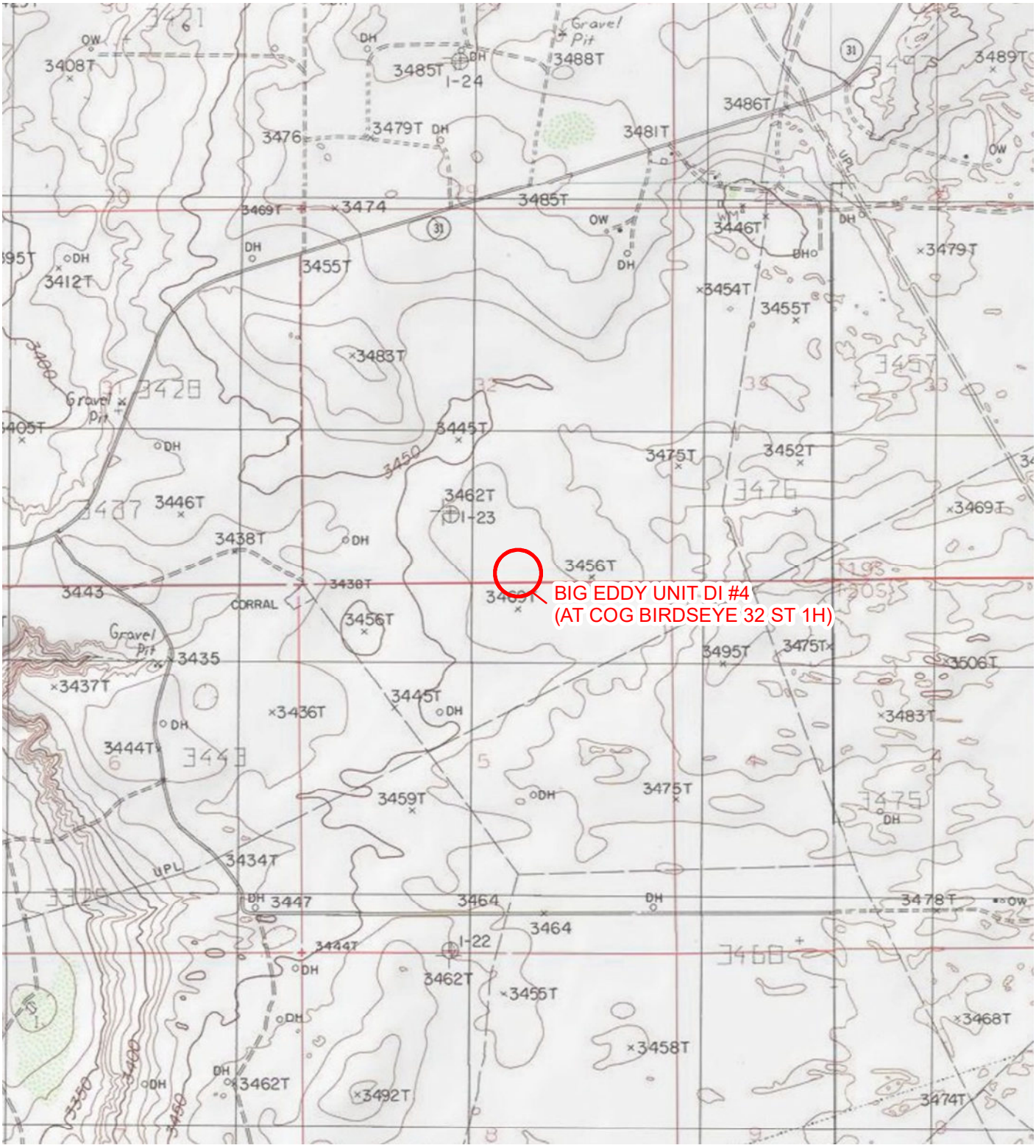
Carol Ann Whaley
Staff Geologist

Ashley L. Ager, P.G.
Senior Geologist

cc: Kyle Littrell, XTO
Jim Amos, BLM
Robert Hamlet, NMOCD
Victoria Venegas, NMOCD

Attachments:

| | |
|---|---|
| Figure 1 | Site Location Map |
| Figure 2 | Delineation Soil Sample Locations |
| Figure 3 | Excavation Soil Sample Locations |
| Table 1 | Soil Analytical Reports |
| Attachment 1 | Initial/Final NMOCD Form C-141 (2RP-5423) |
| Attachment 2 | Lithologic/Soil Sample Logs |
| Attachment 3 | Photographic Log |
| Attachment 4 | Laboratory Analytical Reports |




**LEGEND**

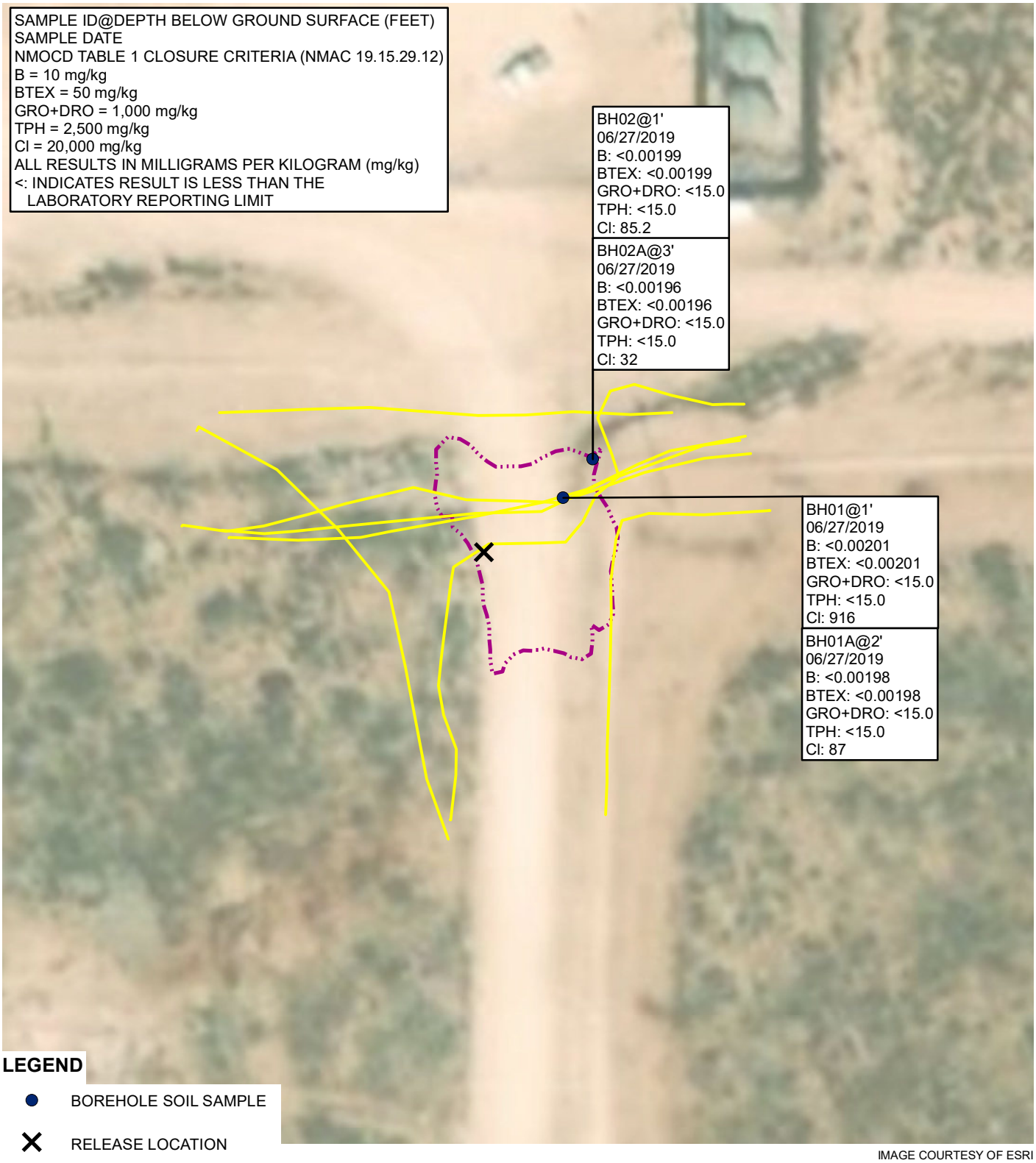
SITE LOCATION

NEW MEXICO

NOTE: REMEDIATION PERMIT NUMBER 2RP-5423

FIGURE 1
SITE LOCATION MAP
BIG EDDY UNIT DI #4 (AT COG BIRDSEYE 32 ST 1H)
UNIT O SEC 32 T19S R31E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

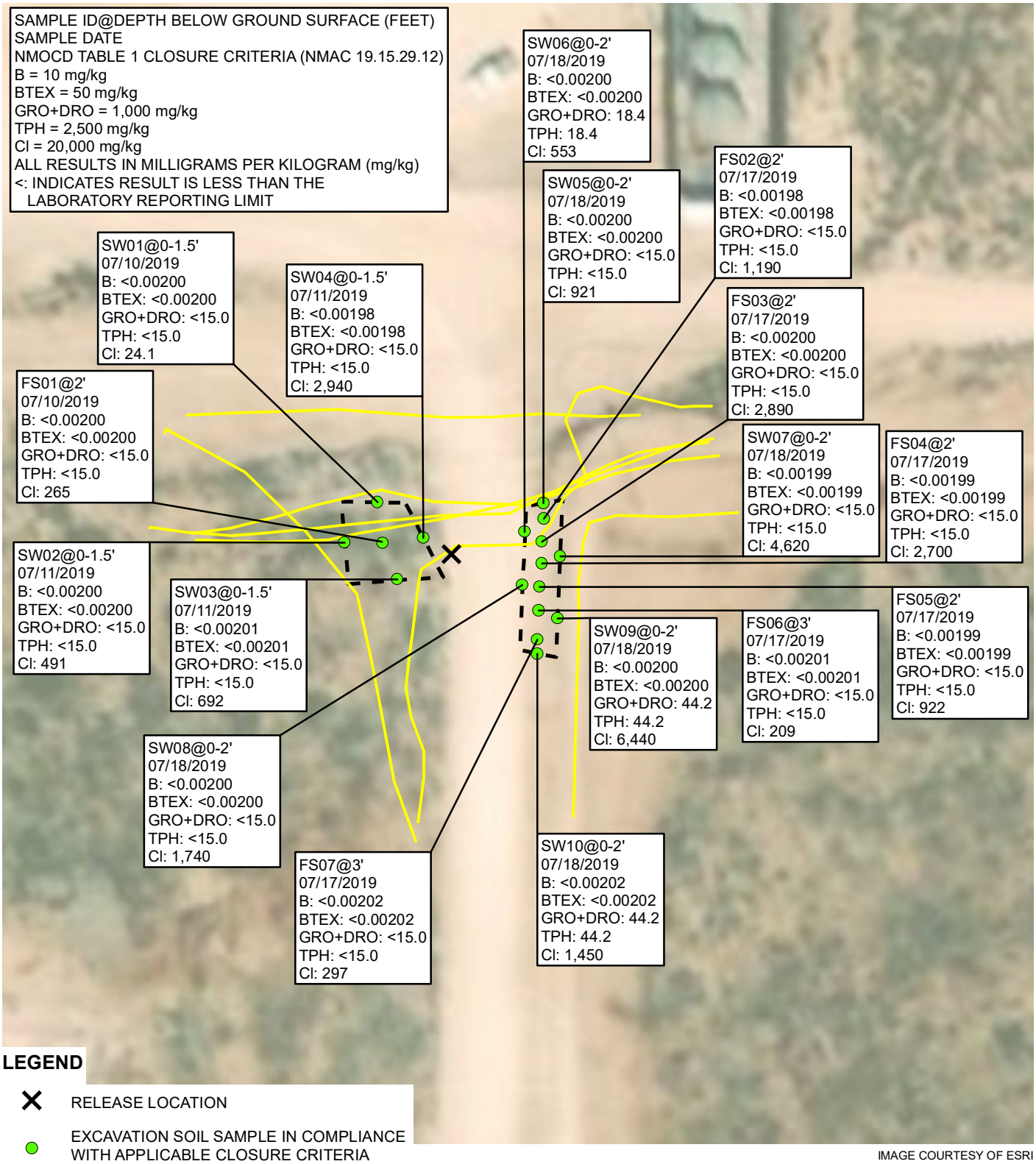
P:\XTO Energy\GIS\MXD\012919075_BEU DI #4 @ COG BIRDSEYE 32 ST 1H\012919075_FIG01_SL_5423.mxd




B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
TPH: TOTAL PETROLEUM HYDROCARBONS
Cl: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBER 2RP-5423

FIGURE 2
DELINEATION SOIL SAMPLE LOCATIONS
BIG EDDY UNIT DI #4 (AT COG BIRDSEYE 23 ST 1H)
UNIT O SEC 32 T19S R31E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

P:\XTO Energy\GIS\MXD\012919075_BEU DI #4 @ COG BIRDSEYE 32 ST 1H\012919075_FIG02_DELINEATION_5423.mxd




B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
TPH: TOTAL PETROLEUM HYDROCARBONS
Cl: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
NOTE: REMEDIATION PERMIT NUMBER 2RP-5423

FIGURE 3
EXCAVATION SOIL SAMPLE LOCATIONS
BIG EDDY UNIT DI #4 (AT COG BIRDSEYE 23 ST 1H)
UNIT O SEC 32 T19S R31E
EDDY COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

P:\XTO Energy\GIS\MXD\012919075_BEU DI #4 @ COG BIRDSEYE 32 ST 1H\012919075_FIG03_EXCAVATION_5423.mxd

**TABLE 1**
**SOIL ANALYTICAL RESULTS**

**BIG EDDY UNIT DI #4 (AT COG BIRDSEYE 32 ST 1H)**
**REMEDIATION PERMIT NUMBER 2RP-5423**
**EDDY COUNTY, NEW MEXICO**
**XTO ENERGY, INC.**

| Sample Name | Sample Depth (feet bgs) | Sample Date | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | GRO (mg/kg) | DRO (mg/kg) | MRO (mg/kg) | GRO+DRO (mg/kg) | TPH (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH01 | 1 | 06/27/2019 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 916 |
| BH02 | 1 | 06/27/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 85.2 |
| BH01A | 2 | 06/27/2019 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 86.6 |
| BH02A | 3 | 06/27/2019 | <0.00196 | <0.00196 | <0.00196 | <0.00196 | <0.00196 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 32.4 |
| SW01 | 0 - 1.5 | 07/10/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 24.1 |
| SW02 | 0 - 1.5 | 07/11/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 491 |
| SW03 | 0 - 1.5 | 07/11/2019 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 692 |
| SW04 | 0 - 1.5 | 07/11/2019 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 2,940 |
| SW05 | 0 - 2 | 07/18/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 921 |
| SW06 | 0 - 2 | 07/18/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <14.9 | 18.4 | <14.9 | 18.4 | 18.4 | 553 |
| SW07 | 0 - 2 | 07/18/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 4,620 |
| SW08 | 0 - 2 | 07/18/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 1,740 |
| SW09 | 0 - 3 | 07/18/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | 44.2 | <15.0 | 44.2 | 44.2 | 6,440 |
| SW10 | 0 - 3 | 07/18/2019 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <15.0 | 44.2 | <15.0 | 44.2 | 44.2 | 1,450 |
| FS01 | 2 | 07/10/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 265 |
| FS02 | 2 | 07/17/2019 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <0.00198 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 1,190 |
| FS03 | 2 | 07/17/2019 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 2,890 |
| FS04 | 2 | 07/17/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 2,700 |
| FS05 | 2 | 07/17/2019 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <0.00199 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 922 |
| FS06 | 3 | 07/17/2019 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <0.00201 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 209 |
| FS07 | 3 | 07/17/2019 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <0.00202 | <15.0 | <15.0 | <15.0 | <15.0 | <15.0 | 297 |
| 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
mg/kg - milligrams per kilogram
NE - not established

DRO - diesel range organics
GRO - gasoline range organics
ORO - oil range organics
TPH - total petroleum hydrocarbons

NMOCD - New Mexico Oil Conservation Division
Table 1 - closure criteria for soils impacted by a release per
NMAC 19.15.29 August 2018 NMAC -New Mexico Administrative Code
< - indicates result is below laboratory reporting limits

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 | NAB1913736899 |
| District RP | 2RP-5423 |
| Facility ID | |
| Application ID | pAB1913736572 |

# Release Notification

## Responsible Party

| | |
|---|---|
| Responsible Party XTO Energy | OGRID 5380 |
| Contact Name Kyle Littrell | Contact Telephone 432-221-7331 |
| Contact email Kyle_Littrell@xtoenergy.com | Incident # *(assigned by OCD)* NAB1913736899 |
| Contact mailing address 522 W. Mermod, Carlsbad, NM 88220 | |

## Location of Release Source

Latitude 32.609905° Longitude -103.889990°

*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name Big Eddy Unit DI#4 (at COG Birdseye 32 St 1H) | Site Type Multiple Production Well Facility |
| Date Release Discovered 4/22/2019 | API# *(if applicable)* 30-015-42478 (BEU DI4 #264H) |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| O | 32 | 19S | 31E | Eddy |

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

## Nature and Volume of Release

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

| | | |
|---|---|---|
| ☐ Crude Oil | Volume Released (bbls) | Volume Recovered (bbls) |
| ☒ Produced Water | Volume Released (bbls) 8.2 | Volume Recovered (bbls) 0 |
| | Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l? | ☐ Yes ☐ No |
| ☐ Condensate | Volume Released (bbls) | Volume Recovered (bbls) |
| ☐ Natural Gas | Volume Released (Mcf) | Volume Recovered (Mcf) |
| ☐ Other (describe) | Volume/Weight Released (provide units) | Volume/Weight Recovered (provide units) |

Cause of Release

A poly flow line was damaged by vehicles passing over it at the point where it emerged from the caliche at a road crossing. The line was clamped and then repaired. Additional third party resources have been retained to assist with remediation.

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NAB1913736899 |
| District RP | 2RP-5423 |
| Facility ID | |
| Application ID | pAB1913736572 |

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

## Initial Response

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

☒ 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:
N/A

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: [signature]  Date: 5/2/2019

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

**OCD Only**

Received by: [signature]  Date: 5/17/2019

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-5323 |
| Facility ID | |
| Application ID | |

# Site Assessment/Characterization

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

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

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

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

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

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

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | 2RP-5423 |
| 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: 08/07/2019

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-5423 |
| 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: 08/07/2019

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 2: LITHOLOGIC SOIL SAMPLE LOGS

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

| | |
|---|---|
| Identifier: BH01 | Date: 6/27/19 |
| Project Name: Big eddy unit D1 #4 @ COG Birdseye 32St 1H | RP Number: 2RP-5423 |
| Logged By: Fatima Smith | Method: Auger |
| Lat/Long: 32.609905, -103.889990 | Field Screening: |
| Hole Diameter: | Total Depth: 2' |

**LITHOLOGIC / SOIL SAMPLING LOG**

Comments:

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| Dry | 1114 | 0.1 | N | BH01 | 0 | | S | SP-SM, topsoil, poorly graded, earthy brown, no plasticity, Large chunks caliche throughout, some roots, no odor. |
| Dry | <173 | 0.1 | N | BH01A | 1 | | S | |
| Dry | <173 | 0.4 | N | | 2 | | S | |
| | | | | | | 2.5' | | ↓ deepest depth @ 2.5' (auger refusal) |
| | | | | | 3 | | | |
| | | | | | 4 | | | |
| | | | | | 5 | | | |
| | | | | | 6 | | | |
| | | | | | 7 | | | |
| | | | | | 8 | | | |
| | | | | | 9 | | | |
| | | | | | 10 | | | |
| | | | | | 11 | | | |
| | | | | | 12 | | | |

Fatima Smith

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

| | |
|---|---|
| Identifier: BH02 | Date: 6/27/19 |
| Project Name: Big eddy unit D1 #4 @ COG Birdseye 32 St 1H | RP Number: 2RP-5423 |
| Logged By: Fatima Smith | Method: Auger |
| Hole Diameter: | Total Depth: 3' |
| Lat/Long: 32.609905, -103.889990 | Field Screening: |

Comments:

## LITHOLOGIC / SOIL SAMPLING LOG

| Moisture Content | Chloride (ppm) | Vapor (ppm) | Staining | Sample # | Depth (ft. bgs.) | Sample Depth | Soil/Rock Type | Lithology/Remarks |
|---|---|---|---|---|---|---|---|---|
| Dry | <173 | 0.1 | N | BH02 | 0–1 | | S | SP-SM, topsoil, poorly graded, no plasticity, earthy brown, some roots, no odor ↓ |
| Dry | <173 | 0.3 | N | | 1–2 | | S | |
| Dry | <173 | 0.9 | N | BH02A | 2–3 | | S | SP, poorly graded, no plasticity, no odor, dry, earthy brwn |
| | | | | | 3–4 | | | deepest depth @ 3' (auger refusal) |
| | | | | | 4–5 | | | |
| | | | | | 5–6 | | | |
| | | | | | 6–7 | | | |
| | | | | | 7–8 | | | |
| | | | | | 8–9 | | | |
| | | | | | 9–10 | | | |
| | | | | | 10–11 | | | |
| | | | | | 11–12 | | | |

Fatima Smith

**Eastern view of point of release identified on flow line during site assessment.**

| | | |
|---|---|---|
| Project: 012919075 | XTO Energy, Inc.<br>Big Eddy Unit DI #4 (at COG Birdseye 32 St 1H) | LTE Advancing Opportunity |
| June 27, 2019 | Photographic Log | |

**Eastern view of final excavation extent to the west of the lease road.**

| | | |
|---|---|---|
| Project: 012919075 | XTO Energy, Inc.<br>Big Eddy Unit DI #4 (at COG Birdseye 32 St 1H) | LTE Advancing Opportunity |
| July 18, 2019 | Photographic Log | |

# ATTACHMENT 4: LABORATORY ANALYTICAL REPORTS

# Analytical Report 629473

## for

## LT Environmental, Inc.

**Project Manager: Ashley Ager**

**Big Eddy unit D1#4 @COG Birdseye 32 St 1H**

**012919075**

**09-JUL-19**

Collected By: Client


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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

09-JUL-19

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

Reference: XENCO Report No(s): **629473**
**Big Eddy unit D1#4 @COG Birdseye 32 St 1H**
Project Address: Eddy County

**Ashley Ager**:

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) 629473. 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. 629473 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

# Sample Cross Reference 629473

## LT Environmental, Inc., Arvada, CO

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| BH01 | S | 06-27-19 08:47 | 1 ft | 629473-001 |
| BH01A | S | 06-27-19 08:53 | 2 ft | 629473-002 |
| BH02 | S | 06-27-19 11:45 | 1 ft | 629473-003 |
| BH02A | S | 06-27-19 11:58 | 3 ft | 629473-004 |

**Sample receipt non conformances and comments:**

None

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

None

**Analytical non conformances and comments:**

Batch: LBA-3094148 Inorganic Anions by EPA 300

Lab Sample ID 629473-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 629473-001, -002, -003, -004.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3094717 BTEX by EPA 8021B

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

# Certificate of Analysis Summary 629473

## LT Environmental, Inc., Arvada, CO

## Project Name: Big Eddy unit D1#4 @COG Birdseye 32 St 1H

**Project Id:** 012919075
**Contact:** Ashley Ager
**Project Location:** Eddy County

**Date Received in Lab:** Fri Jun-28-19 12:00 pm
**Report Date:** 09-JUL-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 629473-001 | | 629473-002 | | 629473-003 | | 629473-004 | | | | | |
| | ***Field Id:*** | BH01 | | BH01A | | BH02 | | BH02A | | | | | |
| | ***Depth:*** | 1- ft | | 2- ft | | 1- ft | | 3- ft | | | | | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | SOIL | | | | | |
| | ***Sampled:*** | Jun-27-19 08:47 | | Jun-27-19 08:53 | | Jun-27-19 11:45 | | Jun-27-19 11:58 | | | | | |
| **BTEX by EPA 8021B SUB: T104704400-18-16** | ***Extracted:*** | Jul-07-19 10:45 | | Jul-07-19 10:45 | | Jul-07-19 10:45 | | Jul-07-19 10:45 | | | | | |
| | ***Analyzed:*** | Jul-08-19 09:09 | | Jul-08-19 09:32 | | Jul-08-19 09:56 | | Jul-08-19 10:19 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | |
| Benzene | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00196 | 0.00196 | | | | |
| Toluene | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00196 | 0.00196 | | | | |
| Ethylbenzene | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00196 | 0.00196 | | | | |
| m,p-Xylenes | | <0.00402 | 0.00402 | <0.00398 | 0.00398 | <0.00395 | 0.00395 | <0.00392 | 0.00392 | | | | |
| o-Xylene | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00196 | 0.00196 | | | | |
| Total Xylenes | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00196 | 0.00196 | | | | |
| Total BTEX | | <0.00201 | 0.00201 | <0.00199 | 0.00199 | <0.00198 | 0.00198 | <0.00196 | 0.00196 | | | | |
| **Chloride by EPA 300 SUB: T104704400-18-16** | ***Extracted:*** | Jul-01-19 14:30 | | Jul-01-19 14:30 | | Jul-01-19 14:30 | | Jul-01-19 14:30 | | | | | |
| | ***Analyzed:*** | Jul-01-19 17:30 | | Jul-01-19 17:45 | | Jul-01-19 17:50 | | Jul-01-19 18:04 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | |
| Chloride | | 916 | 4.99 | 85.2 | 4.97 | 86.6 | 5.04 | 32.4 | 5.01 | | | | |
| **TPH by SW8015 Mod SUB: T104704400-18-16** | ***Extracted:*** | Jul-03-19 14:00 | | Jul-03-19 14:00 | | Jul-02-19 14:00 | | Jul-02-19 14:00 | | | | | |
| | ***Analyzed:*** | Jul-04-19 06:38 | | Jul-04-19 07:02 | | Jul-03-19 06:24 | | Jul-03-19 06:49 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | |
| Gasoline Range Hydrocarbons (GRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Diesel Range Organics (DRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Motor Oil Range Hydrocarbons (MRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Total TPH | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Total GRO-DRO | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |





Jessica Kramer
Project Assistant

# Certificate of Analytical Results 629473

## LT Environmental, Inc., Arvada, CO

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01** | Matrix: | Soil | Date Received: | 06.28.19 12.00 |
| Lab Sample Id: | 629473-001 | Date Collected: | 06.27.19 08.47 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.01.19 14.30 | Basis: | Wet Weight |
| Seq Number: | 3094148 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **916** | 4.99 | mg/kg | 07.01.19 17.30 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.03.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3094458 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.04.19 06.38 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.04.19 06.38 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.04.19 06.38 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.04.19 06.38 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.04.19 06.38 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 106 | % | 70-135 | 07.04.19 06.38 | |
| o-Terphenyl | 84-15-1 | 93 | % | 70-135 | 07.04.19 06.38 | |

# Certificate of Analytical Results 629473

## LT Environmental, Inc., Arvada, CO

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01** | Matrix: | Soil | Date Received: | 06.28.19 12.00 |
| Lab Sample Id: | 629473-001 | Date Collected: | 06.27.19 08.47 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JHB | | | % Moisture: | |
| Analyst: | JHB | Date Prep: | 07.07.19 10.45 | Basis: | Wet Weight |
| Seq Number: | 3094717 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 07.08.19 09.09 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 07.08.19 09.09 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 07.08.19 09.09 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 07.08.19 09.09 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 07.08.19 09.09 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 07.08.19 09.09 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 07.08.19 09.09 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 94 | % | 70-130 | 07.08.19 09.09 | |
| 4-Bromofluorobenzene | 460-00-4 | 110 | % | 70-130 | 07.08.19 09.09 | |



Final 1.000

# Certificate of Analytical Results 629473

## LT Environmental, Inc., Arvada, CO

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01A** | Matrix: | Soil | Date Received: | 06.28.19 12.00 |
| Lab Sample Id: | 629473-002 | Date Collected: | 06.27.19 08.53 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.01.19 14.30 | Basis: | Wet Weight |
| Seq Number: | 3094148 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **85.2** | 4.97 | mg/kg | 07.01.19 17.45 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.03.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3094458 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.04.19 07.02 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.04.19 07.02 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.04.19 07.02 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.04.19 07.02 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.04.19 07.02 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 108 | % | 70-135 | 07.04.19 07.02 | |
| o-Terphenyl | 84-15-1 | 97 | % | 70-135 | 07.04.19 07.02 | |

# Certificate of Analytical Results 629473

## LT Environmental, Inc., Arvada, CO

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH01A** | Matrix: | Soil | Date Received: | 06.28.19 12.00 |
| Lab Sample Id: | 629473-002 | Date Collected: | 06.27.19 08.53 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JHB | | | % Moisture: | |
| Analyst: | JHB | Date Prep: | 07.07.19 10.45 | Basis: | Wet Weight |
| Seq Number: | 3094717 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 07.08.19 09.32 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 07.08.19 09.32 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 07.08.19 09.32 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 07.08.19 09.32 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 07.08.19 09.32 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 07.08.19 09.32 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 07.08.19 09.32 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 109 | % | 70-130 | 07.08.19 09.32 | |
| 1,4-Difluorobenzene | 540-36-3 | 94 | % | 70-130 | 07.08.19 09.32 | |

# Certificate of Analytical Results 629473

## LT Environmental, Inc., Arvada, CO

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02** | Matrix: | Soil | Date Received: | 06.28.19 12.00 |
| Lab Sample Id: | 629473-003 | Date Collected: | 06.27.19 11.45 | Sample Depth: | 1 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.01.19 14.30 | Basis: | Wet Weight |
| Seq Number: | 3094148 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **86.6** | 5.04 | mg/kg | 07.01.19 17.50 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.02.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3094321 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.03.19 06.24 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.03.19 06.24 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.03.19 06.24 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.03.19 06.24 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.03.19 06.24 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 84 | % | 70-135 | 07.03.19 06.24 | |
| o-Terphenyl | 84-15-1 | 78 | % | 70-135 | 07.03.19 06.24 | |

# Certificate of Analytical Results 629473

## LT Environmental, Inc., Arvada, CO

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02** | Matrix: | Soil | Date Received: | 06.28.19 12.00 |
| Lab Sample Id: | 629473-003 | Date Collected: | 06.27.19 11.45 | Sample Depth: | 1 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JHB | | | % Moisture: | |
| Analyst: | JHB | Date Prep: | 07.07.19 10.45 | Basis: | Wet Weight |
| Seq Number: | 3094717 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00198 | 0.00198 | mg/kg | 07.08.19 09.56 | U | 1 |
| Toluene | 108-88-3 | <0.00198 | 0.00198 | mg/kg | 07.08.19 09.56 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00198 | 0.00198 | mg/kg | 07.08.19 09.56 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00395 | 0.00395 | mg/kg | 07.08.19 09.56 | U | 1 |
| o-Xylene | 95-47-6 | <0.00198 | 0.00198 | mg/kg | 07.08.19 09.56 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00198 | 0.00198 | mg/kg | 07.08.19 09.56 | U | 1 |
| Total BTEX | | <0.00198 | 0.00198 | mg/kg | 07.08.19 09.56 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 112 | % | 70-130 | 07.08.19 09.56 | |
| 1,4-Difluorobenzene | 540-36-3 | 93 | % | 70-130 | 07.08.19 09.56 | |

# Certificate of Analytical Results 629473

## LT Environmental, Inc., Arvada, CO

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02A** | Matrix: | Soil | Date Received: | 06.28.19 12.00 |
| Lab Sample Id: | 629473-004 | Date Collected: | 06.27.19 11.58 | Sample Depth: | 3 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.01.19 14.30 | Basis: | Wet Weight |
| Seq Number: | 3094148 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **32.4** | 5.01 | mg/kg | 07.01.19 18.04 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.02.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3094321 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.03.19 06.49 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.03.19 06.49 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.03.19 06.49 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.03.19 06.49 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.03.19 06.49 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 82 | % | 70-135 | 07.03.19 06.49 | |
| o-Terphenyl | 84-15-1 | 71 | % | 70-135 | 07.03.19 06.49 | |

# Certificate of Analytical Results 629473

## LT Environmental, Inc., Arvada, CO

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **BH02A** | Matrix: | Soil | Date Received: | 06.28.19 12.00 |
| Lab Sample Id: | 629473-004 | Date Collected: | 06.27.19 11.58 | Sample Depth: | 3 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | JHB | | | % Moisture: | |
| Analyst: | JHB | Date Prep: | 07.07.19 10.45 | Basis: | Wet Weight |
| Seq Number: | 3094717 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00196 | 0.00196 | mg/kg | 07.08.19 10.19 | U | 1 |
| Toluene | 108-88-3 | <0.00196 | 0.00196 | mg/kg | 07.08.19 10.19 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00196 | 0.00196 | mg/kg | 07.08.19 10.19 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00392 | 0.00392 | mg/kg | 07.08.19 10.19 | U | 1 |
| o-Xylene | 95-47-6 | <0.00196 | 0.00196 | mg/kg | 07.08.19 10.19 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00196 | 0.00196 | mg/kg | 07.08.19 10.19 | U | 1 |
| Total BTEX | | <0.00196 | 0.00196 | mg/kg | 07.08.19 10.19 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 91 | % | 70-130 | 07.08.19 10.19 | |
| 4-Bromofluorobenzene | 460-00-4 | 115 | % | 70-130 | 07.08.19 10.19 | |

# 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 629473

## LT Environmental, Inc.

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3094148 Matrix: Solid Date Prep: 07.01.19
MB Sample Id: 7681124-1-BLK LCS Sample Id: 7681124-1-BKS LCSD Sample Id: 7681124-1-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 | 253 | 101 | 253 | 101 | 90-110 | 0 | 20 | mg/kg | 07.01.19 16:13 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3094148 Matrix: Soil Date Prep: 07.01.19
Parent Sample Id: 629458-001 MS Sample Id: 629458-001 S MSD Sample Id: 629458-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 52.7 | 249 | 312 | 104 | 313 | 105 | 90-110 | 0 | 20 | mg/kg | 07.01.19 16:27 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3094148 Matrix: Soil Date Prep: 07.01.19
Parent Sample Id: 629473-001 MS Sample Id: 629473-001 S MSD Sample Id: 629473-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 916 | 250 | 1110 | 78 | 1110 | 78 | 90-110 | 0 | 20 | mg/kg | 07.01.19 17:35 | X |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3094321 Matrix: Solid Date Prep: 07.02.19
MB Sample Id: 7681279-1-BLK LCS Sample Id: 7681279-1-BKS LCSD Sample Id: 7681279-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <8.00 | 1000 | 965 | 97 | 1030 | 103 | 70-135 | 7 | 20 | mg/kg | 07.02.19 21:03 | |
| Diesel Range Organics (DRO) | <8.13 | 1000 | 1020 | 102 | 1120 | 112 | 70-135 | 9 | 20 | mg/kg | 07.02.19 21:03 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 106 | | 90 | | 92 | | 70-135 | % | 07.02.19 21:03 |
| o-Terphenyl | 107 | | 93 | | 100 | | 70-135 | % | 07.02.19 21:03 |

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 629473

## LT Environmental, Inc.

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3094458 Matrix: Solid Date Prep: 07.03.19
MB Sample Id: 7681379-1-BLK LCS Sample Id: 7681379-1-BKS LCSD Sample Id: 7681379-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <8.00 | 1000 | 1140 | 114 | 1120 | 112 | 70-135 | 2 | 20 | mg/kg | 07.03.19 21:19 | |
| Diesel Range Organics (DRO) | <8.13 | 1000 | 1140 | 114 | 1140 | 114 | 70-135 | 0 | 20 | mg/kg | 07.03.19 21:19 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 105 | | 103 | | 100 | | 70-135 | % | 07.03.19 21:19 |
| o-Terphenyl | 91 | | 103 | | 107 | | 70-135 | % | 07.03.19 21:19 |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3094321 Matrix: Soil Date Prep: 07.02.19
Parent Sample Id: 629602-001 MS Sample Id: 629602-001 S MSD Sample Id: 629602-001 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) | 11.5 | 997 | 988 | 98 | 996 | 99 | 70-135 | 1 | 20 | mg/kg | 07.02.19 22:17 | |
| Diesel Range Organics (DRO) | 11.5 | 997 | 1100 | 109 | 1040 | 103 | 70-135 | 6 | 20 | mg/kg | 07.02.19 22:17 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 85 | | 85 | | 70-135 | % | 07.02.19 22:17 |
| o-Terphenyl | 95 | | 89 | | 70-135 | % | 07.02.19 22:17 |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3094458 Matrix: Soil Date Prep: 07.03.19
Parent Sample Id: 629716-001 MS Sample Id: 629716-001 S MSD Sample Id: 629716-001 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) | 11.5 | 998 | 1070 | 106 | 1170 | 116 | 70-135 | 9 | 20 | mg/kg | 07.03.19 22:33 | |
| Diesel Range Organics (DRO) | 10.3 | 998 | 1080 | 107 | 1210 | 120 | 70-135 | 11 | 20 | mg/kg | 07.03.19 22:33 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | | 101 | | 70-135 | % | 07.03.19 22:33 |
| o-Terphenyl | 100 | | 108 | | 70-135 | % | 07.03.19 22:33 |

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

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

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

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

# QC Summary 629473

## LT Environmental, Inc.

Big Eddy unit D1#4 @COG Birdseye 32 St 1H

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

Seq Number: 3094717 Matrix: Solid Date Prep: 07.07.19

MB Sample Id: 7681468-1-BLK LCS Sample Id: 7681468-1-BKS LCSD Sample Id: 7681468-1-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 | 0.0819 | 82 | 0.0913 | 91 | 70-130 | 11 | 35 | mg/kg | 07.08.19 05:57 | |
| Toluene | <0.000456 | 0.100 | 0.101 | 101 | 0.110 | 110 | 70-130 | 9 | 35 | mg/kg | 07.08.19 05:57 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.118 | 118 | 0.127 | 127 | 70-130 | 7 | 35 | mg/kg | 07.08.19 05:57 | |
| m,p-Xylenes | <0.00101 | 0.200 | 0.238 | 119 | 0.255 | 128 | 70-130 | 7 | 35 | mg/kg | 07.08.19 05:57 | |
| o-Xylene | 0.000409 | 0.100 | 0.113 | 113 | 0.122 | 122 | 70-130 | 8 | 35 | mg/kg | 07.08.19 05:57 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 87 | | 87 | | 89 | | 70-130 | % | 07.08.19 05:57 |
| 4-Bromofluorobenzene | 113 | | 113 | | 116 | | 70-130 | % | 07.08.19 05:57 |

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

Seq Number: 3094717 Matrix: Soil Date Prep: 07.07.19

Parent Sample Id: 629496-001 MS Sample Id: 629496-001 S MSD Sample Id: 629496-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00199 | 0.0996 | 0.0795 | 80 | 0.0819 | 83 | 70-130 | 3 | 35 | mg/kg | 07.08.19 06:44 | |
| Toluene | <0.00199 | 0.0996 | 0.0961 | 96 | 0.0965 | 98 | 70-130 | 0 | 35 | mg/kg | 07.08.19 06:44 | |
| Ethylbenzene | <0.00199 | 0.0996 | 0.109 | 109 | 0.110 | 111 | 70-130 | 1 | 35 | mg/kg | 07.08.19 06:44 | |
| m,p-Xylenes | <0.00101 | 0.199 | 0.217 | 109 | 0.217 | 110 | 70-130 | 0 | 35 | mg/kg | 07.08.19 06:44 | |
| o-Xylene | <0.00199 | 0.0996 | 0.104 | 104 | 0.103 | 104 | 70-130 | 1 | 35 | mg/kg | 07.08.19 06:44 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | | 91 | | 70-130 | % | 07.08.19 06:44 |
| 4-Bromofluorobenzene | 121 | | 117 | | 70-130 | % | 07.08.19 06:44 |

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: 629473

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 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

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| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | Bill to: (if different) | Kyle Littrell |
| Company Name: | LT Environmental | Company Name: | XTO Energy |
| Address: | 3300 N-A Street | Address: | 3104 E Greene St |
| City, State ZIP: | Midland, TX 79705 | City, State ZIP: | Carlsbad, NM 88220 |
| Phone: | 432/236-3849 | Email: | fsmith@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: | Big Eddy unit D#4 @ COG Birdseye 32 St 1H | Turn Around | |
| Project Number: | 012919075 | Routine | ☑ |
| Project Location | Eddy county | Rush: | |
| Sampler's Name: | Fatma Smith | Due Date: | |
| PO #: | 2RP-5423 | Quote #: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | Yes / No | Wet Ice: | Yes / No |
| Temperature (°C): | 4.0 | Thermometer ID | T-NM-007 |
| Received Intact: | Yes / No | Correction Factor: | -0.2 |
| Cooler Custody Seals: | Yes / No / N/A | Total Containers: | 4 |
| Sample Custody Seals: | Yes / No / N/A | | |

| Lab ID | Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | Pres. Code | TPH (EPA 8015) | BTEX (EPA 8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|
| | BH01 | S | 6/27/19 | 0847 | 1' | 1 | | X | X | X |
| | BH01A | S | 6/27/19 | 0853 | 2' | 1 | | X | X | X |
| | BH02 | S | 6/27/19 | 1145 | 1' | 1 | | X | X | X |
| | BH02A | S | 6/27/19 | 1158 | 3' | 1 | | X | X | X |

**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

**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 | Fatma Smith | | 06/28/2019 11:45 | 2 | | 06/28/2019 12:00 |
| 3 | | | | 4 | | |
| 5 | | | | 6 | | |

Revised Date 022619 Rev. 2019.1

Final 1.000

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# Inter-Office Shipment



**IOS Number** **42536**

Date/Time: 06/28/19 13:27
Lab# From: **Carlsbad**
Lab# To: **Midland**

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

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 629473-001 | S | BH01 | 06/27/19 08:47 | SW8015MOD_NM | TPH by SW8015 Mod | 07/05/19 | 07/12/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 629473-001 | S | BH01 | 06/27/19 08:47 | SW8021B | BTEX by EPA 8021B | 07/05/19 | 07/11/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 629473-001 | S | BH01 | 06/27/19 08:47 | E300_CL | Chloride by EPA 300 | 07/05/19 | 12/24/19 | JKR | CL | |
| 629473-002 | S | BH01A | 06/27/19 08:53 | SW8021B | BTEX by EPA 8021B | 07/05/19 | 07/11/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 629473-002 | S | BH01A | 06/27/19 08:53 | SW8015MOD_NM | TPH by SW8015 Mod | 07/05/19 | 07/12/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 629473-002 | S | BH01A | 06/27/19 08:53 | E300_CL | Chloride by EPA 300 | 07/05/19 | 12/24/19 | JKR | CL | |
| 629473-003 | S | BH02 | 06/27/19 11:45 | SW8021B | BTEX by EPA 8021B | 07/05/19 | 07/11/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 629473-003 | S | BH02 | 06/27/19 11:45 | SW8015MOD_NM | TPH by SW8015 Mod | 07/05/19 | 07/12/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 629473-003 | S | BH02 | 06/27/19 11:45 | E300_CL | Chloride by EPA 300 | 07/05/19 | 12/24/19 | JKR | CL | |
| 629473-004 | S | BH02A | 06/27/19 11:58 | SW8021B | BTEX by EPA 8021B | 07/05/19 | 07/11/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 629473-004 | S | BH02A | 06/27/19 11:58 | E300_CL | Chloride by EPA 300 | 07/05/19 | 12/24/19 | JKR | CL | |
| 629473-004 | S | BH02A | 06/27/19 11:58 | SW8015MOD_NM | TPH by SW8015 Mod | 07/05/19 | 07/12/19 | JKR | GRO-DRO PHCC10C28 PI | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Elizabeth McClellan

Date Relinquished: 06/28/2019

Received By: Brianna Teel

Date Received: 07/01/2019 07:26

Cooler Temperature: 0.6

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Midland

**IOS #:** 42536

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

**Sent By:** Elizabeth McClellan **Date Sent:** 06/28/2019 01:27 PM

**Received By:** Brianna Teel **Date Received:** 07/01/2019 07:26 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .6 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **N/A** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **N/A** | |
| #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: 07/01/2019

Brianna Teel

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 06/28/2019 12:00:00 PM

**Work Order #:** 629473

**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? | **No** | |
| #5 Custody Seals intact on sample bottles? | **No** | |
| #6*Custody Seals Signed and dated? | **N/A** | |
| #7 *Chain of Custody present? | **Yes** | |
| #8 Any missing/extra samples? | **No** | |
| #9 Chain of Custody signed when relinquished/ received? | **Yes** | |
| #10 Chain of Custody agrees with sample labels/matrix? | **Yes** | |
| #11 Container label(s) legible and intact? | **Yes** | |
| #12 Samples in proper container/ bottle? | **Yes** | |
| #13 Samples properly preserved? | **Yes** | |
| #14 Sample container(s) intact? | **Yes** | |
| #15 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #16 All samples received within hold time? | **Yes** | |
| #17 Subcontract of sample(s)? | **Yes** | Subbed to Xenco 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: 06/28/2019

**Checklist reviewed by:** Jessica Kramer Date: 07/02/2019

# Analytical Report 630596

## for

## LT Environmental, Inc.

**Project Manager: Dan Moir**

**Big Eddy Unit D1 #4 @COG Birdseye 32 St 1H**

**012919075**

**15-JUL-19**

Collected By: Client


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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

15-JUL-19

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

Reference: XENCO Report No(s): **630596**
**Big Eddy Unit D1 #4 @COG Birdseye 32 St 1H**
Project Address: Eddy County

**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) 630596. 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. 630596 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

# Sample Cross Reference 630596

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit D1 #4 @COG Birdseye 32 St 1H

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| SW01 | S | 07-10-19 15:00 | 0 - 1.5 ft | 630596-001 |
| FS01 | S | 07-10-19 15:03 | 2 ft | 630596-002 |

**Sample receipt non conformances and comments:**

None

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

None

**Analytical non conformances and comments:**

Batch: LBA-3095354 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 630596-001.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

# Certificate of Analysis Summary 630596

## LT Environmental, Inc., Arvada, CO

## Project Name: Big Eddy Unit D1 #4 @COG Birdseye 32 St 1H

**Project Id:** 012919075
**Contact:** Dan Moir
**Project Location:** Eddy County

**Date Received in Lab:** Thu Jul-11-19 12:48 pm
**Report Date:** 15-JUL-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 630596-001 | | 630596-002 | | | | | |
| | ***Field Id:*** | SW01 | | FS01 | | | | | |
| | ***Depth:*** | 0-1.5 ft | | 2- ft | | | | | |
| | ***Matrix:*** | SOIL | | SOIL | | | | | |
| | ***Sampled:*** | Jul-10-19 15:00 | | Jul-10-19 15:03 | | | | | |
| **BTEX by EPA 8021B SUB: T104704400-18-16** | ***Extracted:*** | Jul-12-19 16:35 | | Jul-12-19 16:35 | | | | | |
| | ***Analyzed:*** | Jul-14-19 09:20 | | Jul-14-19 09:43 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | | | | |
| Benzene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| Toluene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| Ethylbenzene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| m,p-Xylenes | | <0.00401 | 0.00401 | <0.00401 | 0.00401 | | | | |
| o-Xylene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| Total Xylenes | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| Total BTEX | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | | | | |
| **Chloride by EPA 300 SUB: T104704400-18-16** | ***Extracted:*** | Jul-12-19 16:00 | | Jul-12-19 16:00 | | | | | |
| | ***Analyzed:*** | Jul-12-19 16:56 | | Jul-12-19 17:00 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | | | | |
| Chloride | | 24.1 | 4.96 | 265 | 5.05 | | | | |
| **TPH by SW8015 Mod SUB: T104704400-18-16** | ***Extracted:*** | Jul-13-19 10:00 | | Jul-13-19 10:00 | | | | | |
| | ***Analyzed:*** | Jul-14-19 04:40 | | Jul-14-19 05:04 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | | | | |
| Gasoline Range Hydrocarbons (GRO) | | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Diesel Range Organics (DRO) | | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Motor Oil Range Hydrocarbons (MRO) | | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Total TPH | | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Total GRO-DRO | | <15.0 | 15.0 | <15.0 | 15.0 | | | | |





Jessica Kramer
Project Assistant

# Certificate of Analytical Results 630596

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit D1 #4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW01** | Matrix: | Soil | Date Received: | 07.11.19 12.48 |
| Lab Sample Id: | 630596-001 | Date Collected: | 07.10.19 15.00 | Sample Depth: | 0 - 1.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.12.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3095272 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **24.1** | 4.96 | mg/kg | 07.12.19 16.56 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.13.19 10.00 | Basis: | Wet Weight |
| Seq Number: | 3095299 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.14.19 04.40 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.14.19 04.40 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.14.19 04.40 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.14.19 04.40 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.14.19 04.40 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 101 | % | 70-135 | 07.14.19 04.40 | |
| o-Terphenyl | 84-15-1 | 100 | % | 70-135 | 07.14.19 04.40 | |

# Certificate of Analytical Results 630596

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit D1 #4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW01** | Matrix: | Soil | Date Received: | 07.11.19 12.48 |
| Lab Sample Id: | 630596-001 | Date Collected: | 07.10.19 15.00 | Sample Depth: | 0 - 1.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | AMB | Date Prep: | 07.12.19 16.35 | Basis: | Wet Weight |
| Seq Number: | 3095354 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.20 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.20 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.20 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00401 | 0.00401 | mg/kg | 07.14.19 09.20 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.20 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.20 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.20 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 168 | % | 70-130 | 07.14.19 09.20 | ** |
| 1,4-Difluorobenzene | 540-36-3 | 82 | % | 70-130 | 07.14.19 09.20 | |

# Certificate of Analytical Results 630596

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit D1 #4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS01** | Matrix: | Soil | Date Received: | 07.11.19 12.48 |
| Lab Sample Id: | 630596-002 | Date Collected: | 07.10.19 15.03 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.12.19 16.00 | Basis: | Wet Weight |
| Seq Number: | 3095272 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **265** | 5.05 | mg/kg | 07.12.19 17.00 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.13.19 10.00 | Basis: | Wet Weight |
| Seq Number: | 3095299 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.14.19 05.04 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.14.19 05.04 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.14.19 05.04 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.14.19 05.04 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.14.19 05.04 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 100 | % | 70-135 | 07.14.19 05.04 | |
| o-Terphenyl | 84-15-1 | 101 | % | 70-135 | 07.14.19 05.04 | |

# Certificate of Analytical Results 630596

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit D1 #4 @COG Birdseye 32 St 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS01** | Matrix: | Soil | Date Received: | 07.11.19 12.48 |
| Lab Sample Id: | 630596-002 | Date Collected: | 07.10.19 15.03 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | AMB | Date Prep: | 07.12.19 16.35 | Basis: | Wet Weight |
| Seq Number: | 3095354 | | | SUB: | T104704400-18-16 |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.43 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.43 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.43 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00401 | 0.00401 | mg/kg | 07.14.19 09.43 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.43 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.43 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 07.14.19 09.43 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 86 | % | 70-130 | 07.14.19 09.43 | |
| 4-Bromofluorobenzene | 460-00-4 | 116 | % | 70-130 | 07.14.19 09.43 | |

# 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 630596

## LT Environmental, Inc.

Big Eddy Unit D1 #4 @COG Birdseye 32 St 1H

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3095272 Matrix: Solid Date Prep: 07.12.19
MB Sample Id: 7681970-1-BLK LCS Sample Id: 7681970-1-BKS LCSD Sample Id: 7681970-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.00 | 250 | 241 | 96 | 239 | 96 | 90-110 | 1 | 20 | mg/kg | 07.12.19 16:26 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3095272 Matrix: Soil Date Prep: 07.12.19
Parent Sample Id: 630566-005 MS Sample Id: 630566-005 S MSD Sample Id: 630566-005 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 53.6 | 250 | 302 | 99 | 301 | 99 | 90-110 | 0 | 20 | mg/kg | 07.12.19 17:49 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3095272 Matrix: Soil Date Prep: 07.12.19
Parent Sample Id: 630732-004 MS Sample Id: 630732-004 S MSD Sample Id: 630732-004 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.02 | 251 | 248 | 99 | 248 | 99 | 90-110 | 0 | 20 | mg/kg | 07.12.19 16:41 | |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3095299 Matrix: Solid Date Prep: 07.13.19
MB Sample Id: 7681985-1-BLK LCS Sample Id: 7681985-1-BKS LCSD Sample Id: 7681985-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <8.00 | 1000 | 1160 | 116 | 1150 | 115 | 70-135 | 1 | 20 | mg/kg | 07.13.19 21:28 | |
| Diesel Range Organics (DRO) | <8.13 | 1000 | 1120 | 112 | 1180 | 118 | 70-135 | 5 | 20 | mg/kg | 07.13.19 21:28 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 105 | | 97 | | 94 | | 70-135 | % | 07.13.19 21:28 |
| o-Terphenyl | 108 | | 104 | | 111 | | 70-135 | % | 07.13.19 21:28 |

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 630596

## LT Environmental, Inc.

Big Eddy Unit D1 #4 @COG Birdseye 32 St 1H

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3095299 Matrix: Soil Date Prep: 07.13.19
Parent Sample Id: 630566-032 MS Sample Id: 630566-032 S MSD Sample Id: 630566-032 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) | 9.89 | 997 | 1040 | 103 | 1070 | 106 | 70-135 | 3 | 20 | mg/kg | 07.13.19 22:41 | |
| Diesel Range Organics (DRO) | <8.10 | 997 | 1080 | 108 | 1070 | 107 | 70-135 | 1 | 20 | mg/kg | 07.13.19 22:41 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 96 | | 97 | | 70-135 | % | 07.13.19 22:41 |
| o-Terphenyl | 110 | | 107 | | 70-135 | % | 07.13.19 22:41 |

**Analytical Method:** **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3095354 Matrix: Solid Date Prep: 07.12.19
MB Sample Id: 7681939-1-BLK LCS Sample Id: 7681939-1-BKS

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 0.100 | 0.0727 | 73 | 70-130 | mg/kg | 07.14.19 06:55 | |
| Toluene | <0.00200 | 0.100 | 0.0982 | 98 | 70-130 | mg/kg | 07.14.19 06:55 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.111 | 111 | 70-130 | mg/kg | 07.14.19 06:55 | |
| m,p-Xylenes | <0.00101 | 0.200 | 0.221 | 111 | 70-130 | mg/kg | 07.14.19 06:55 | |
| o-Xylene | <0.00200 | 0.100 | 0.105 | 105 | 70-130 | mg/kg | 07.14.19 06:55 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 81 | | 85 | | 70-130 | % | 07.14.19 06:55 |
| 4-Bromofluorobenzene | 110 | | 109 | | 70-130 | % | 07.14.19 06:55 |

**Analytical Method:** **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3095354 Matrix: Soil Date Prep: 07.12.19
Parent Sample Id: 630761-001 MS Sample Id: 630761-001 S MSD Sample Id: 630761-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 0.100 | 0.0722 | 72 | 0.0727 | 73 | 70-130 | 1 | 35 | mg/kg | 07.14.19 07:18 | |
| Toluene | <0.00200 | 0.100 | 0.0963 | 96 | 0.0963 | 96 | 70-130 | 0 | 35 | mg/kg | 07.14.19 07:18 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.109 | 109 | 0.109 | 109 | 70-130 | 0 | 35 | mg/kg | 07.14.19 07:18 | |
| m,p-Xylenes | <0.00401 | 0.200 | 0.214 | 107 | 0.212 | 106 | 70-130 | 1 | 35 | mg/kg | 07.14.19 07:18 | |
| o-Xylene | <0.00200 | 0.100 | 0.101 | 101 | 0.101 | 101 | 70-130 | 0 | 35 | mg/kg | 07.14.19 07:18 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 86 | | 85 | | 70-130 | % | 07.14.19 07:18 |
| 4-Bromofluorobenzene | 116 | | 117 | | 70-130 | % | 07.14.19 07:18 |

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: 630596

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 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

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| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | Bill to: (if different) | Kyle Littrell |
| Company Name: | LT Environmental | Company Name: | XTO Energy |
| Address: | 3300 N-A Street | Address: | 3104 E Greene St |
| City, State ZIP: | Midland, TX 79705 | City, State ZIP: | Carlsbad, NM 88220 |
| Phone: | 432/236-3849 | Email: | fsmith@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: | Biggby unit D1 #4 @ COG Birdseye 32S 31E | Turn Around | |
| Project Number: | 012919075 | Routine | ☑ |
| Project Location | Eddy county | Rush: | |
| Sampler's Name: | Fatima Smith | Due Date: | |
| PO #: | 2RP-5423 | Quote #: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | (Yes) No | Wet Ice: | (Yes) No |
| Temperature (°C): | 2.8 | Thermometer ID | T-NM-007 |
| Received Intact: | (Yes) No | | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | -0.2 |
| Sample Custody Seals: | Yes (No) N/A | Total Containers: | 2 |

| Lab ID | Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | Pres. Code | TPH (EPA 8015) | BTEX (EPA 8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|
| | SW01 | S | 7/10/19 | 1500 | 0'-1.5' | 1 | | X | X | X |
| | FS01 | S | 7/10/19 | 1503 | 2' | 1 | | X | X | X |

**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

**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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| | Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|
| 1 | | | 07/11/19 @ 12:40 | 2 | | 7/11/19 12:48 |
| 3 | | | | 4 | | |
| 5 | | | | 6 | | |

Revised Date 022619 Rev. 2019.1

Final 1.000

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# Inter-Office Shipment



**IOS Number** **43265**

Date/Time: 07/11/19 14:49
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.: 775692882670

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 630596-001 | S | SW01 | 07/10/19 15:00 | SW8015MOD_NM | TPH by SW8015 Mod | 07/17/19 | 07/24/19 | JKR | GRO-DRO PHCC10C28 PI | |
| 630596-001 | S | SW01 | 07/10/19 15:00 | SW8021B | BTEX by EPA 8021B | 07/17/19 | 07/24/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 630596-001 | S | SW01 | 07/10/19 15:00 | E300_CL | Chloride by EPA 300 | 07/17/19 | 01/06/20 | JKR | CL | |
| 630596-002 | S | FS01 | 07/10/19 15:03 | SW8021B | BTEX by EPA 8021B | 07/17/19 | 07/24/19 | JKR | BR4FBZ BZ BZME EBZ X | |
| 630596-002 | S | FS01 | 07/10/19 15:03 | E300_CL | Chloride by EPA 300 | 07/17/19 | 01/06/20 | JKR | CL | |
| 630596-002 | S | FS01 | 07/10/19 15:03 | SW8015MOD_NM | TPH by SW8015 Mod | 07/17/19 | 07/24/19 | JKR | GRO-DRO PHCC10C28 PI | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Elizabeth McClellan

Date Relinquished: 07/11/2019

Received By: Brianna Teel

Date Received: 07/12/2019 11:42

Cooler Temperature: 0.4

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Midland

**IOS #:** 43265

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

**Sent By:** Elizabeth McClellan **Date Sent:** 07/11/2019 02:49 PM

**Received By:** Brianna Teel **Date Received:** 07/12/2019 11:42 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .4 | |
| #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: 07/12/2019

Brianna Teel

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 07/11/2019 12:48:00 PM

**Work Order #:** 630596

**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)? | 2.8 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received on ice? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **No** | |
| #5 Custody Seals intact on sample bottles? | **No** | |
| #6*Custody Seals Signed and dated? | **N/A** | |
| #7 *Chain of Custody present? | **Yes** | |
| #8 Any missing/extra samples? | **No** | |
| #9 Chain of Custody signed when relinquished/ received? | **Yes** | |
| #10 Chain of Custody agrees with sample labels/matrix? | **Yes** | |
| #11 Container label(s) legible and intact? | **Yes** | |
| #12 Samples in proper container/ bottle? | **Yes** | |
| #13 Samples properly preserved? | **Yes** | |
| #14 Sample container(s) intact? | **Yes** | |
| #15 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #16 All samples received within hold time? | **Yes** | |
| #17 Subcontract of sample(s)? | **Yes** | Subbed to Xenco 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: 07/11/2019

**Checklist reviewed by:** Jessica Kramer Date: 07/12/2019

# Analytical Report 630941

## for

## LT Environmental, Inc.

**Project Manager: Dan Moir**

**Big Eddy Unit 01#4 @ COG Birdseye 32st 1H**

**012919075**

**18-JUL-19**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

18-JUL-19

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

Reference: XENCO Report No(s): **630941**
**Big Eddy Unit 01#4 @ COG Birdseye 32st 1H**
Project Address: Eddy County

**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) 630941. 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. 630941 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

# Sample Cross Reference 630941

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit 01#4 @ COG Birdseye 32st 1H

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| SW02 | S | 07-11-19 13:02 | 0 - 1.5 ft | 630941-001 |
| SW03 | S | 07-11-19 16:41 | 0 - 1.5 ft | 630941-002 |
| SW04 | S | 07-11-19 12:23 | 0 - 1.5 ft | 630941-003 |

**Sample receipt non conformances and comments:**

None

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

None

**Analytical non conformances and comments:**

Batch: LBA-3095789 BTEX by EPA 8021B

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

# Certificate of Analysis Summary 630941

## LT Environmental, Inc., Arvada, CO

## Project Name: Big Eddy Unit 01#4 @ COG Birdseye 32st 1H

**Project Id:** 012919075
**Contact:** Dan Moir
**Project Location:** Eddy County

**Date Received in Lab:** Tue Jul-16-19 01:02 pm
**Report Date:** 18-JUL-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 630941-001 | | 630941-002 | | 630941-003 | | | | | |
| | ***Field Id:*** | SW02 | | SW03 | | SW04 | | | | | |
| | ***Depth:*** | 0-1.5 ft | | 0-1.5 ft | | 0-1.5 ft | | | | | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | | | | |
| | ***Sampled:*** | Jul-11-19 13:02 | | Jul-11-19 16:41 | | Jul-11-19 12:23 | | | | | |
| **BTEX by EPA 8021B** | ***Extracted:*** | Jul-16-19 15:51 | | Jul-16-19 15:51 | | Jul-16-19 15:51 | | | | | |
| | ***Analyzed:*** | Jul-17-19 07:23 | | Jul-17-19 07:43 | | Jul-18-19 09:57 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | |
| Benzene | | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | | | | |
| Toluene | | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | | | | |
| Ethylbenzene | | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | | | | |
| m,p-Xylenes | | <0.00400 | 0.00400 | <0.00402 | 0.00402 | <0.00396 | 0.00396 | | | | |
| o-Xylene | | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | | | | |
| Total Xylenes | | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | | | | |
| Total BTEX | | <0.00200 | 0.00200 | <0.00201 | 0.00201 | <0.00198 | 0.00198 | | | | |
| **Chloride by EPA 300** | ***Extracted:*** | Jul-17-19 08:30 | | Jul-17-19 08:30 | | Jul-17-19 08:30 | | | | | |
| | ***Analyzed:*** | Jul-17-19 09:37 | | Jul-17-19 09:42 | | Jul-17-19 09:47 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | |
| Chloride | | 491 | 4.97 | 692 | 4.95 | 2940 | 25.2 | | | | |
| **TPH by SW8015 Mod** | ***Extracted:*** | Jul-16-19 14:00 | | Jul-16-19 14:00 | | Jul-16-19 14:00 | | | | | |
| | ***Analyzed:*** | Jul-16-19 19:01 | | Jul-16-19 19:25 | | Jul-16-19 19:49 | | | | | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | | | | |
| Gasoline Range Hydrocarbons (GRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Diesel Range Organics (DRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Motor Oil Range Hydrocarbons (MRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Total TPH | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |
| Total GRO-DRO | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | |





Jessica Kramer
Project Assistant

# Certificate of Analytical Results 630941

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit 01#4 @ COG Birdseye 32st 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW02** | Matrix: | Soil | Date Received: | 07.16.19 13.02 |
| Lab Sample Id: | 630941-001 | Date Collected: | 07.11.19 13.02 | Sample Depth: | 0 - 1.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.17.19 08.30 | Basis: | Wet Weight |
| Seq Number: | 3095586 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **491** | 4.97 | mg/kg | 07.17.19 09.37 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.16.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3095591 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.16.19 19.01 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.16.19 19.01 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.16.19 19.01 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.16.19 19.01 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.16.19 19.01 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 85 | % | 70-135 | 07.16.19 19.01 | |
| o-Terphenyl | 84-15-1 | 84 | % | 70-135 | 07.16.19 19.01 | |

# Certificate of Analytical Results 630941

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit 01#4 @ COG Birdseye 32st 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW02** | Matrix: | Soil | Date Received: | 07.16.19 13.02 |
| Lab Sample Id: | 630941-001 | Date Collected: | 07.11.19 13.02 | Sample Depth: | 0 - 1.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.16.19 15.51 | Basis: | Wet Weight |
| Seq Number: | 3095789 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 07.17.19 07.23 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 07.17.19 07.23 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 07.17.19 07.23 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 07.17.19 07.23 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 07.17.19 07.23 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 07.17.19 07.23 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 07.17.19 07.23 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 114 | % | 70-130 | 07.17.19 07.23 | |
| 1,4-Difluorobenzene | 540-36-3 | 100 | % | 70-130 | 07.17.19 07.23 | |

# Certificate of Analytical Results 630941

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit 01#4 @ COG Birdseye 32st 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW03** | Matrix: | Soil | Date Received: | 07.16.19 13.02 |
| Lab Sample Id: | 630941-002 | Date Collected: | 07.11.19 16.41 | Sample Depth: | 0 - 1.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.17.19 08.30 | Basis: | Wet Weight |
| Seq Number: | 3095586 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **692** | 4.95 | mg/kg | 07.17.19 09.42 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.16.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3095591 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.16.19 19.25 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.16.19 19.25 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.16.19 19.25 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.16.19 19.25 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.16.19 19.25 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 88 | % | 70-135 | 07.16.19 19.25 | |
| o-Terphenyl | 84-15-1 | 87 | % | 70-135 | 07.16.19 19.25 | |

# Certificate of Analytical Results 630941

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit 01#4 @ COG Birdseye 32st 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW03** | Matrix: | Soil | Date Received: | 07.16.19 13.02 |
| Lab Sample Id: | 630941-002 | Date Collected: | 07.11.19 16.41 | Sample Depth: | 0 - 1.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.16.19 15.51 | Basis: | Wet Weight |
| Seq Number: | 3095789 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 07.17.19 07.43 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 07.17.19 07.43 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 07.17.19 07.43 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 07.17.19 07.43 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 07.17.19 07.43 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 07.17.19 07.43 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 07.17.19 07.43 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 99 | % | 70-130 | 07.17.19 07.43 | |
| 4-Bromofluorobenzene | 460-00-4 | 106 | % | 70-130 | 07.17.19 07.43 | |

# Certificate of Analytical Results 630941

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit 01#4 @ COG Birdseye 32st 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW04** | Matrix: | Soil | Date Received: | 07.16.19 13.02 |
| Lab Sample Id: | 630941-003 | Date Collected: | 07.11.19 12.23 | Sample Depth: | 0 - 1.5 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.17.19 08.30 | Basis: | Wet Weight |
| Seq Number: | 3095586 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2940** | 25.2 | mg/kg | 07.17.19 09.47 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.16.19 14.00 | Basis: | Wet Weight |
| Seq Number: | 3095591 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.16.19 19.49 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.16.19 19.49 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.16.19 19.49 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.16.19 19.49 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.16.19 19.49 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 87 | % | 70-135 | 07.16.19 19.49 | |
| o-Terphenyl | 84-15-1 | 92 | % | 70-135 | 07.16.19 19.49 | |

# Certificate of Analytical Results 630941

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit 01#4 @ COG Birdseye 32st 1H

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW04** | Matrix: | Soil | Date Received: | 07.16.19 13.02 |
| Lab Sample Id: | 630941-003 | Date Collected: | 07.11.19 12.23 | Sample Depth: | 0 - 1.5 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.16.19 15.51 | Basis: | Wet Weight |
| Seq Number: | 3095789 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00198 | 0.00198 | mg/kg | 07.18.19 09.57 | U | 1 |
| Toluene | 108-88-3 | <0.00198 | 0.00198 | mg/kg | 07.18.19 09.57 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00198 | 0.00198 | mg/kg | 07.18.19 09.57 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00396 | 0.00396 | mg/kg | 07.18.19 09.57 | U | 1 |
| o-Xylene | 95-47-6 | <0.00198 | 0.00198 | mg/kg | 07.18.19 09.57 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00198 | 0.00198 | mg/kg | 07.18.19 09.57 | U | 1 |
| Total BTEX | | <0.00198 | 0.00198 | mg/kg | 07.18.19 09.57 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 92 | % | 70-130 | 07.18.19 09.57 | |
| 1,4-Difluorobenzene | 540-36-3 | 95 | % | 70-130 | 07.18.19 09.57 | |

# 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 630941

## LT Environmental, Inc.

Big Eddy Unit 01#4 @ COG Birdseye 32st 1H

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3095586 Matrix: Solid Date Prep: 07.17.19
MB Sample Id: 7682179-1-BLK LCS Sample Id: 7682179-1-BKS LCSD Sample Id: 7682179-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.00 | 250 | 242 | 97 | 240 | 96 | 90-110 | 1 | 20 | mg/kg | 07.17.19 08:39 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3095586 Matrix: Soil Date Prep: 07.17.19
Parent Sample Id: 630866-002 MS Sample Id: 630866-002 S MSD Sample Id: 630866-002 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 80.0 | 250 | 312 | 93 | 318 | 95 | 90-110 | 2 | 20 | mg/kg | 07.17.19 10:01 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3095586 Matrix: Soil Date Prep: 07.17.19
Parent Sample Id: 631001-001 MS Sample Id: 631001-001 S MSD Sample Id: 631001-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 7.74 | 253 | 257 | 99 | 257 | 99 | 90-110 | 0 | 20 | mg/kg | 07.17.19 08:53 | |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3095591 Matrix: Solid Date Prep: 07.16.19
MB Sample Id: 7682149-1-BLK LCS Sample Id: 7682149-1-BKS LCSD Sample Id: 7682149-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <8.00 | 1000 | 900 | 90 | 1000 | 100 | 70-135 | 11 | 20 | mg/kg | 07.16.19 10:14 | |
| Diesel Range Organics (DRO) | <8.13 | 1000 | 926 | 93 | 1070 | 107 | 70-135 | 14 | 20 | mg/kg | 07.16.19 10:14 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 86 | | 78 | | 85 | | 70-135 | % | 07.16.19 10:14 |
| o-Terphenyl | 96 | | 78 | | 97 | | 70-135 | % | 07.16.19 10:14 |

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 630941

## LT Environmental, Inc.

Big Eddy Unit 01#4 @ COG Birdseye 32st 1H

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3095591 Matrix: Soil Date Prep: 07.16.19
Parent Sample Id: 630267-001 MS Sample Id: 630267-001 S MSD Sample Id: 630267-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | 8.20 | 999 | 905 | 90 | 948 | 94 | 70-135 | 5 | 20 | mg/kg | 07.16.19 11:26 | |
| Diesel Range Organics (DRO) | 10.4 | 999 | 969 | 96 | 1030 | 102 | 70-135 | 6 | 20 | mg/kg | 07.16.19 11:26 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 77 | | 85 | | 70-135 | % | 07.16.19 11:26 |
| o-Terphenyl | 81 | | 82 | | 70-135 | % | 07.16.19 11:26 |

**Analytical Method:** **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3095789 Matrix: Solid Date Prep: 07.16.19
MB Sample Id: 7682121-1-BLK LCS Sample Id: 7682121-1-BKS LCSD Sample Id: 7682121-1-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 | 0.0991 | 99 | 0.0911 | 91 | 70-130 | 8 | 35 | mg/kg | 07.17.19 04:01 | |
| Toluene | <0.00200 | 0.100 | 0.0980 | 98 | 0.0898 | 90 | 70-130 | 9 | 35 | mg/kg | 07.17.19 04:01 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.110 | 110 | 0.102 | 102 | 70-130 | 8 | 35 | mg/kg | 07.17.19 04:01 | |
| m,p-Xylenes | <0.00400 | 0.200 | 0.221 | 111 | 0.210 | 105 | 70-130 | 5 | 35 | mg/kg | 07.17.19 04:01 | |
| o-Xylene | <0.00200 | 0.100 | 0.107 | 107 | 0.104 | 104 | 70-130 | 3 | 35 | mg/kg | 07.17.19 04:01 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | | 92 | | 95 | | 70-130 | % | 07.17.19 04:01 |
| 4-Bromofluorobenzene | 93 | | 99 | | 105 | | 70-130 | % | 07.17.19 04:01 |

**Analytical Method:** **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3095789 Matrix: Soil Date Prep: 07.16.19
Parent Sample Id: 630738-001 MS Sample Id: 630738-001 S MSD Sample Id: 630738-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 0.100 | 0.0867 | 87 | 0.0974 | 98 | 70-130 | 12 | 35 | mg/kg | 07.17.19 08:26 | |
| Toluene | <0.00200 | 0.100 | 0.0875 | 88 | 0.0996 | 100 | 70-130 | 13 | 35 | mg/kg | 07.17.19 08:26 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.0982 | 98 | 0.113 | 113 | 70-130 | 14 | 35 | mg/kg | 07.17.19 08:26 | |
| m,p-Xylenes | <0.00400 | 0.200 | 0.200 | 100 | 0.231 | 116 | 70-130 | 14 | 35 | mg/kg | 07.17.19 08:26 | |
| o-Xylene | <0.00200 | 0.100 | 0.0956 | 96 | 0.110 | 110 | 70-130 | 14 | 35 | mg/kg | 07.17.19 08:26 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 100 | | 99 | | 70-130 | % | 07.17.19 08:26 |
| 4-Bromofluorobenzene | 119 | | 125 | | 70-130 | % | 07.17.19 08:26 |

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

# Chain of Custody

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 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

Work Order No: 630941

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| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | Bill to: (if different) | Kyle Littrell |
| Company Name: | LT Environmental | Company Name: | XTO Energy |
| Address: | 3300 N-A Street | Address: | 3104 E Greene St |
| City, State ZIP: | Midland, TX 79705 | City, State ZIP: | Carlsbad, NM 88220 |
| Phone: | 432/236-3849 | Email: | fsmith@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: | Bigeddy unit D1#4@COG Birdseye 32St 1H | Turn Around | |
| Project Number: | 012919075 | Routine ☐ | |
| Project Location | Eddy county | Rush: 24 hrs | |
| Sampler's Name: | Fatima Smith | Due Date: 7/16/19 | |
| PO #: | 2RP-5423 | Quote #: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No |
| Temperature (°C): | 0.5 \| 0.3 | Thermometer ID: | VE |
| Received Intact: | (Yes) No | | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | -0.8 |
| Sample Custody Seals: | Yes (No) N/A | Total Containers: | |

| Lab ID | Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | Pres. Code | TPH (EPA 8015) | BTEX (EPA 8021) | Chloride (EPA 300.0) | Sample Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SW02 | S | 7/11/19 | 1302 | 0'-1.5' | 1 | | X | X | X | |
| | SW03 | S | 7/12/19 | 1641 | 0'-1.5' | 1 | | X | X | X | |
| | SW04 | S | 7/12/19 | 1223 | 0'-1.5' | 1 | | X | X | X | |

Fatima Smith

**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

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 | Fatima Smith | | 07/15/2019 11:00 | 2 | Cooler | 07/15/2019 11:55 |
| 3 | Cooler | Fed Ex | 7/15/2019 14:00 | 4 | BTEX | 7/16/19 1:30 |
| 5 | | | | 6 | | |

Revised Date 022619 Rev. 2019.1

Final 1.000

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# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** LT Environmental, Inc.

**Date/ Time Received:** 07/16/2019 01:02:00 PM

**Work Order #:** 630941

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

**Temperature Measuring device used : R8**

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

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

Analyst: PH Device/Lot#:

**Checklist completed by:** Brianna Teel Date: 07/16/2019

Brianna Teel

**Checklist reviewed by:** Jessica Kramer Date: 07/17/2019

Jessica Kramer

# Analytical Report 631734

## for

## LT Environmental, Inc.

**Project Manager: Dan Moir**

**Big Eddy Unit DI #4 @ Birdseye 325HH**

**012919075**

**24-JUL-19**

Collected By: Client



**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

24-JUL-19

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

Reference: XENCO Report No(s): **631734**
**Big Eddy Unit DI #4 @ Birdseye 325HH**
Project Address: Delaware Basin

**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) 631734. 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. 631734 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

# Sample Cross Reference 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| FS02 | S | 07-17-19 16:10 | 2 ft | 631734-001 |
| FS03 | S | 07-17-19 16:21 | 2 ft | 631734-002 |
| FS04 | S | 07-17-19 16:31 | 2 ft | 631734-003 |
| FS05 | S | 07-17-19 16:41 | 2 ft | 631734-004 |
| FS06 | S | 07-17-19 16:49 | 2 ft | 631734-005 |
| FS07 | S | 07-17-19 16:56 | 2 ft | 631734-006 |
| SW05 | S | 07-18-19 08:42 | 0 - 2 ft | 631734-007 |
| SW06 | S | 07-18-19 08:48 | 0 - 2 ft | 631734-008 |
| SW07 | S | 07-18-19 08:51 | 0 - 2 ft | 631734-009 |
| SW08 | S | 07-18-19 08:54 | 0 - 2 ft | 631734-010 |
| SW09 | S | 07-18-19 08:59 | 0 - 3 ft | 631734-011 |
| SW10 | S | 07-18-19 09:02 | 2 - 3 ft | 631734-012 |

**Sample receipt non conformances and comments:**

None

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

None

**Analytical non conformances and comments:**

Batch: LBA-3096349 BTEX by EPA 8021B

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

# Certificate of Analysis Summary 631734

## LT Environmental, Inc., Arvada, CO

## Project Name: Big Eddy Unit DI #4 @ Birdseye 325HH

**Project Id:** 012919075
**Contact:** Dan Moir
**Project Location:** Delaware Basin

**Date Received in Lab:** Tue Jul-23-19 12:15 pm
**Report Date:** 24-JUL-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 631734-001 | | 631734-002 | | 631734-003 | | 631734-004 | | 631734-005 | | 631734-006 | |
| | ***Field Id:*** | FS02 | | FS03 | | FS04 | | FS05 | | FS06 | | FS07 | |
| | ***Depth:*** | 2- ft | | 2- ft | | 2- ft | | 2- ft | | 2- ft | | 2- ft | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | ***Sampled:*** | Jul-17-19 16:10 | | Jul-17-19 16:21 | | Jul-17-19 16:31 | | Jul-17-19 16:41 | | Jul-17-19 16:49 | | Jul-17-19 16:56 | |
| **BTEX by EPA 8021B** | ***Extracted:*** | Jul-23-19 13:15 | | Jul-23-19 13:15 | | Jul-23-19 13:15 | | Jul-23-19 13:15 | | Jul-23-19 13:15 | | Jul-23-19 13:15 | |
| | ***Analyzed:*** | Jul-24-19 06:38 | | Jul-24-19 06:58 | | Jul-24-19 07:18 | | Jul-24-19 07:38 | | Jul-24-19 02:44 | | Jul-24-19 09:17 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Benzene | | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00202 | 0.00202 |
| Toluene | | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00202 | 0.00202 |
| Ethylbenzene | | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00202 | 0.00202 |
| m,p-Xylenes | | <0.00396 | 0.00396 | <0.00399 | 0.00399 | <0.00398 | 0.00398 | <0.00398 | 0.00398 | <0.00402 | 0.00402 | <0.00403 | 0.00403 |
| o-Xylene | | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00202 | 0.00202 |
| Total Xylenes | | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00202 | 0.00202 |
| Total BTEX | | <0.00198 | 0.00198 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00199 | 0.00199 | <0.00201 | 0.00201 | <0.00202 | 0.00202 |
| **Chloride by EPA 300** | ***Extracted:*** | Jul-23-19 14:20 | | Jul-23-19 14:20 | | Jul-23-19 14:20 | | Jul-23-19 14:20 | | Jul-23-19 14:20 | | Jul-23-19 14:20 | |
| | ***Analyzed:*** | Jul-23-19 17:38 | | Jul-23-19 17:44 | | Jul-23-19 17:50 | | Jul-23-19 17:57 | | Jul-23-19 18:03 | | Jul-23-19 18:22 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 1190 | 4.98 | 2890 | 25.0 | 2700 | 25.0 | 922 | 5.05 | 209 | 5.00 | 297 | 24.9 |
| **TPH by SW8015 Mod** | ***Extracted:*** | Jul-23-19 17:00 | | Jul-23-19 17:00 | | Jul-23-19 17:00 | | Jul-23-19 17:00 | | Jul-23-19 17:00 | | Jul-23-19 17:00 | |
| | ***Analyzed:*** | Jul-23-19 22:16 | | Jul-23-19 23:31 | | Jul-23-19 23:55 | | Jul-24-19 00:18 | | Jul-24-19 00:41 | | Jul-24-19 01:05 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |
| Diesel Range Organics (DRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |
| Motor Oil Range Hydrocarbons (MRO) | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |
| Total TPH | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |
| Total GRO-DRO | | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |





Jessica Kramer
Project Assistant

# Certificate of Analysis Summary 631734

## LT Environmental, Inc., Arvada, CO

## Project Name: Big Eddy Unit DI #4 @ Birdseye 325HH

**Project Id:** 012919075
**Contact:** Dan Moir
**Project Location:** Delaware Basin

**Date Received in Lab:** Tue Jul-23-19 12:15 pm
**Report Date:** 24-JUL-19
**Project Manager:** Jessica Kramer

| *Analysis Requested* | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 631734-007 | | 631734-008 | | 631734-009 | | 631734-010 | | 631734-011 | | 631734-012 | |
| | ***Field Id:*** | SW05 | | SW06 | | SW07 | | SW08 | | SW09 | | SW10 | |
| | ***Depth:*** | 0-2 ft | | 0-2 ft | | 0-2 ft | | 0-2 ft | | 0-3 ft | | 2-3 ft | |
| | ***Matrix:*** | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | ***Sampled:*** | Jul-18-19 08:42 | | Jul-18-19 08:48 | | Jul-18-19 08:51 | | Jul-18-19 08:54 | | Jul-18-19 08:59 | | Jul-18-19 09:02 | |
| **BTEX by EPA 8021B** | ***Extracted:*** | Jul-23-19 13:15 | | Jul-23-19 13:15 | | Jul-23-19 13:15 | | Jul-23-19 13:15 | | Jul-23-19 13:15 | | Jul-23-19 13:15 | |
| | ***Analyzed:*** | Jul-24-19 09:45 | | Jul-24-19 10:05 | | Jul-24-19 10:25 | | Jul-24-19 10:45 | | Jul-24-19 11:05 | | Jul-24-19 11:25 | |
| | ***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 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| Toluene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| Ethylbenzene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| m,p-Xylenes | | <0.00400 | 0.00400 | <0.00400 | 0.00400 | <0.00398 | 0.00398 | <0.00400 | 0.00400 | <0.00400 | 0.00400 | <0.00403 | 0.00403 |
| o-Xylene | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| Total Xylenes | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| Total BTEX | | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00199 | 0.00199 | <0.00200 | 0.00200 | <0.00200 | 0.00200 | <0.00202 | 0.00202 |
| **Chloride by EPA 300** | ***Extracted:*** | Jul-23-19 14:20 | | Jul-23-19 14:20 | | Jul-23-19 14:20 | | Jul-23-19 14:20 | | Jul-23-19 14:20 | | Jul-23-19 14:20 | |
| | ***Analyzed:*** | Jul-23-19 18:28 | | Jul-23-19 18:47 | | Jul-23-19 18:54 | | Jul-23-19 19:00 | | Jul-23-19 19:06 | | Jul-23-19 19:13 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Chloride | | 921 | 5.05 | 553 | 5.05 | 4620 | 25.0 | 1740 | 25.1 | 6440 | 49.5 | 1450 | 24.8 |
| **TPH by SW8015 Mod** | ***Extracted:*** | Jul-23-19 17:00 | | Jul-23-19 17:00 | | Jul-23-19 17:00 | | Jul-23-19 17:00 | | Jul-23-19 17:00 | | Jul-23-19 17:00 | |
| | ***Analyzed:*** | Jul-24-19 01:28 | | Jul-24-19 01:52 | | Jul-24-19 02:16 | | Jul-24-19 02:40 | | Jul-24-19 03:27 | | Jul-24-19 03:51 | |
| | ***Units/RL:*** | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL | mg/kg | RL |
| Gasoline Range Hydrocarbons (GRO) | | <15.0 | 15.0 | <14.9 | 14.9 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |
| Diesel Range Organics (DRO) | | <15.0 | 15.0 | 18.4 | 14.9 | <15.0 | 15.0 | <15.0 | 15.0 | 44.2 | 15.0 | 44.2 | 15.0 |
| Motor Oil Range Hydrocarbons (MRO) | | <15.0 | 15.0 | <14.9 | 14.9 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 |
| Total TPH | | <15.0 | 15.0 | 18.4 | 14.9 | <15.0 | 15.0 | <15.0 | 15.0 | 44.2 | 15.0 | 44.2 | 15.0 |
| Total GRO-DRO | | <15.0 | 15.0 | 18.4 | 14.9 | <15.0 | 15.0 | <15.0 | 15.0 | 44.2 | 15.0 | 44.2 | 15.0 |





Jessica Kramer
Project Assistant

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS02** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-001 | Date Collected: | 07.17.19 16.10 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1190** | 4.98 | mg/kg | 07.23.19 17.38 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.23.19 22.16 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.23.19 22.16 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.23.19 22.16 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.23.19 22.16 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.23.19 22.16 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 100 | % | 70-135 | 07.23.19 22.16 | |
| o-Terphenyl | 84-15-1 | 109 | % | 70-135 | 07.23.19 22.16 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS02** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-001 | Date Collected: | 07.17.19 16.10 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00198 | 0.00198 | mg/kg | 07.24.19 06.38 | U | 1 |
| Toluene | 108-88-3 | <0.00198 | 0.00198 | mg/kg | 07.24.19 06.38 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00198 | 0.00198 | mg/kg | 07.24.19 06.38 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00396 | 0.00396 | mg/kg | 07.24.19 06.38 | U | 1 |
| o-Xylene | 95-47-6 | <0.00198 | 0.00198 | mg/kg | 07.24.19 06.38 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00198 | 0.00198 | mg/kg | 07.24.19 06.38 | U | 1 |
| Total BTEX | | <0.00198 | 0.00198 | mg/kg | 07.24.19 06.38 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 102 | % | 70-130 | 07.24.19 06.38 | |
| 4-Bromofluorobenzene | 460-00-4 | 106 | % | 70-130 | 07.24.19 06.38 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS03** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-002 | Date Collected: | 07.17.19 16.21 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2890** | 25.0 | mg/kg | 07.23.19 17.44 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.23.19 23.31 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.23.19 23.31 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.23.19 23.31 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.23.19 23.31 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.23.19 23.31 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 90 | % | 70-135 | 07.23.19 23.31 | |
| o-Terphenyl | 84-15-1 | 80 | % | 70-135 | 07.23.19 23.31 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS03** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-002 | Date Collected: | 07.17.19 16.21 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 07.24.19 06.58 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 07.24.19 06.58 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 07.24.19 06.58 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00399 | 0.00399 | mg/kg | 07.24.19 06.58 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 07.24.19 06.58 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 07.24.19 06.58 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 07.24.19 06.58 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 102 | % | 70-130 | 07.24.19 06.58 | |
| 4-Bromofluorobenzene | 460-00-4 | 106 | % | 70-130 | 07.24.19 06.58 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS04** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-003 | Date Collected: | 07.17.19 16.31 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2700** | 25.0 | mg/kg | 07.23.19 17.50 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.23.19 23.55 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.23.19 23.55 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.23.19 23.55 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.23.19 23.55 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.23.19 23.55 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 90 | % | 70-135 | 07.23.19 23.55 | |
| o-Terphenyl | 84-15-1 | 76 | % | 70-135 | 07.23.19 23.55 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS04** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-003 | Date Collected: | 07.17.19 16.31 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.18 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.18 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.18 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 07.24.19 07.18 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.18 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.18 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.18 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 103 | % | 70-130 | 07.24.19 07.18 | |
| 4-Bromofluorobenzene | 460-00-4 | 106 | % | 70-130 | 07.24.19 07.18 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS05** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-004 | Date Collected: | 07.17.19 16.41 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **922** | 5.05 | mg/kg | 07.23.19 17.57 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.24.19 00.18 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.24.19 00.18 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.24.19 00.18 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.24.19 00.18 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.24.19 00.18 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 102 | % | 70-135 | 07.24.19 00.18 | |
| o-Terphenyl | 84-15-1 | 100 | % | 70-135 | 07.24.19 00.18 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS05** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-004 | Date Collected: | 07.17.19 16.41 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.38 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.38 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.38 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 07.24.19 07.38 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.38 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.38 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 07.24.19 07.38 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 102 | % | 70-130 | 07.24.19 07.38 | |
| 4-Bromofluorobenzene | 460-00-4 | 108 | % | 70-130 | 07.24.19 07.38 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS06** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-005 | Date Collected: | 07.17.19 16.49 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **209** | 5.00 | mg/kg | 07.23.19 18.03 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.24.19 00.41 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.24.19 00.41 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.24.19 00.41 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.24.19 00.41 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.24.19 00.41 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 101 | % | 70-135 | 07.24.19 00.41 | |
| o-Terphenyl | 84-15-1 | 84 | % | 70-135 | 07.24.19 00.41 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS06** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-005 | Date Collected: | 07.17.19 16.49 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00201 | 0.00201 | mg/kg | 07.24.19 02.44 | U | 1 |
| Toluene | 108-88-3 | <0.00201 | 0.00201 | mg/kg | 07.24.19 02.44 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00201 | 0.00201 | mg/kg | 07.24.19 02.44 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00402 | 0.00402 | mg/kg | 07.24.19 02.44 | U | 1 |
| o-Xylene | 95-47-6 | <0.00201 | 0.00201 | mg/kg | 07.24.19 02.44 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00201 | 0.00201 | mg/kg | 07.24.19 02.44 | U | 1 |
| Total BTEX | | <0.00201 | 0.00201 | mg/kg | 07.24.19 02.44 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 106 | % | 70-130 | 07.24.19 02.44 | |
| 1,4-Difluorobenzene | 540-36-3 | 104 | % | 70-130 | 07.24.19 02.44 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS07** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-006 | Date Collected: | 07.17.19 16.56 | Sample Depth: | 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **297** | 24.9 | mg/kg | 07.23.19 18.22 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.24.19 01.05 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.24.19 01.05 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.24.19 01.05 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.24.19 01.05 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.24.19 01.05 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 93 | % | 70-135 | 07.24.19 01.05 | |
| o-Terphenyl | 84-15-1 | 94 | % | 70-135 | 07.24.19 01.05 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **FS07** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-006 | Date Collected: | 07.17.19 16.56 | Sample Depth: | 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00202 | 0.00202 | mg/kg | 07.24.19 09.17 | U | 1 |
| Toluene | 108-88-3 | <0.00202 | 0.00202 | mg/kg | 07.24.19 09.17 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00202 | 0.00202 | mg/kg | 07.24.19 09.17 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00403 | 0.00403 | mg/kg | 07.24.19 09.17 | U | 1 |
| o-Xylene | 95-47-6 | <0.00202 | 0.00202 | mg/kg | 07.24.19 09.17 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00202 | 0.00202 | mg/kg | 07.24.19 09.17 | U | 1 |
| Total BTEX | | <0.00202 | 0.00202 | mg/kg | 07.24.19 09.17 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 104 | % | 70-130 | 07.24.19 09.17 | |
| 4-Bromofluorobenzene | 460-00-4 | 111 | % | 70-130 | 07.24.19 09.17 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW05** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-007 | Date Collected: | 07.18.19 08.42 | Sample Depth: | 0 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **921** | 5.05 | mg/kg | 07.23.19 18.28 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.24.19 01.28 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.24.19 01.28 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.24.19 01.28 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.24.19 01.28 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.24.19 01.28 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 94 | % | 70-135 | 07.24.19 01.28 | |
| o-Terphenyl | 84-15-1 | 82 | % | 70-135 | 07.24.19 01.28 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW05** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-007 | Date Collected: | 07.18.19 08.42 | Sample Depth: | 0 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 07.24.19 09.45 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 07.24.19 09.45 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 07.24.19 09.45 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 07.24.19 09.45 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 07.24.19 09.45 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 07.24.19 09.45 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 07.24.19 09.45 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 107 | % | 70-130 | 07.24.19 09.45 | |
| 4-Bromofluorobenzene | 460-00-4 | 111 | % | 70-130 | 07.24.19 09.45 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW06** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-008 | Date Collected: | 07.18.19 08.48 | Sample Depth: | 0 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **553** | 5.05 | mg/kg | 07.23.19 18.47 | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <14.9 | 14.9 | mg/kg | 07.24.19 01.52 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **18.4** | 14.9 | mg/kg | 07.24.19 01.52 | | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <14.9 | 14.9 | mg/kg | 07.24.19 01.52 | U | 1 |
| **Total TPH** | PHC635 | **18.4** | 14.9 | mg/kg | 07.24.19 01.52 | | 1 |
| **Total GRO-DRO** | PHC628 | **18.4** | 14.9 | mg/kg | 07.24.19 01.52 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 93 | % | 70-135 | 07.24.19 01.52 | |
| o-Terphenyl | 84-15-1 | 99 | % | 70-135 | 07.24.19 01.52 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW06** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-008 | Date Collected: | 07.18.19 08.48 | Sample Depth: | 0 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.05 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.05 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.05 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 07.24.19 10.05 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.05 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.05 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.05 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 100 | % | 70-130 | 07.24.19 10.05 | |
| 4-Bromofluorobenzene | 460-00-4 | 100 | % | 70-130 | 07.24.19 10.05 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW07** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-009 | Date Collected: | 07.18.19 08.51 | Sample Depth: | 0 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **4620** | 25.0 | mg/kg | 07.23.19 18.54 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.24.19 02.16 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.24.19 02.16 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.24.19 02.16 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.24.19 02.16 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.24.19 02.16 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 99 | % | 70-135 | 07.24.19 02.16 | |
| o-Terphenyl | 84-15-1 | 100 | % | 70-135 | 07.24.19 02.16 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW07** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-009 | Date Collected: | 07.18.19 08.51 | Sample Depth: | 0 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00199 | 0.00199 | mg/kg | 07.24.19 10.25 | U | 1 |
| Toluene | 108-88-3 | <0.00199 | 0.00199 | mg/kg | 07.24.19 10.25 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00199 | 0.00199 | mg/kg | 07.24.19 10.25 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00398 | 0.00398 | mg/kg | 07.24.19 10.25 | U | 1 |
| o-Xylene | 95-47-6 | <0.00199 | 0.00199 | mg/kg | 07.24.19 10.25 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00199 | 0.00199 | mg/kg | 07.24.19 10.25 | U | 1 |
| Total BTEX | | <0.00199 | 0.00199 | mg/kg | 07.24.19 10.25 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 110 | % | 70-130 | 07.24.19 10.25 | |
| 1,4-Difluorobenzene | 540-36-3 | 103 | % | 70-130 | 07.24.19 10.25 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW08** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-010 | Date Collected: | 07.18.19 08.54 | Sample Depth: | 0 - 2 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1740** | 25.1 | mg/kg | 07.23.19 19.00 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.24.19 02.40 | U | 1 |
| Diesel Range Organics (DRO) | C10C28DRO | <15.0 | 15.0 | mg/kg | 07.24.19 02.40 | U | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.24.19 02.40 | U | 1 |
| Total TPH | PHC635 | <15.0 | 15.0 | mg/kg | 07.24.19 02.40 | U | 1 |
| Total GRO-DRO | PHC628 | <15.0 | 15.0 | mg/kg | 07.24.19 02.40 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 97 | % | 70-135 | 07.24.19 02.40 | |
| o-Terphenyl | 84-15-1 | 94 | % | 70-135 | 07.24.19 02.40 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW08** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-010 | Date Collected: | 07.18.19 08.54 | Sample Depth: | 0 - 2 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.45 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.45 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.45 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 07.24.19 10.45 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.45 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.45 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 07.24.19 10.45 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 100 | % | 70-130 | 07.24.19 10.45 | |
| 1,4-Difluorobenzene | 540-36-3 | 104 | % | 70-130 | 07.24.19 10.45 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW09** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-011 | Date Collected: | 07.18.19 08.59 | Sample Depth: | 0 - 3 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **6440** | 49.5 | mg/kg | 07.23.19 19.06 | | 10 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.24.19 03.27 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **44.2** | 15.0 | mg/kg | 07.24.19 03.27 | | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.24.19 03.27 | U | 1 |
| **Total TPH** | PHC635 | **44.2** | 15.0 | mg/kg | 07.24.19 03.27 | | 1 |
| **Total GRO-DRO** | PHC628 | **44.2** | 15.0 | mg/kg | 07.24.19 03.27 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 93 | % | 70-135 | 07.24.19 03.27 | |
| o-Terphenyl | 84-15-1 | 77 | % | 70-135 | 07.24.19 03.27 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW09** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-011 | Date Collected: | 07.18.19 08.59 | Sample Depth: | 0 - 3 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00200 | 0.00200 | mg/kg | 07.24.19 11.05 | U | 1 |
| Toluene | 108-88-3 | <0.00200 | 0.00200 | mg/kg | 07.24.19 11.05 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00200 | 0.00200 | mg/kg | 07.24.19 11.05 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00400 | 0.00400 | mg/kg | 07.24.19 11.05 | U | 1 |
| o-Xylene | 95-47-6 | <0.00200 | 0.00200 | mg/kg | 07.24.19 11.05 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00200 | 0.00200 | mg/kg | 07.24.19 11.05 | U | 1 |
| Total BTEX | | <0.00200 | 0.00200 | mg/kg | 07.24.19 11.05 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 540-36-3 | 105 | % | 70-130 | 07.24.19 11.05 | |
| 4-Bromofluorobenzene | 460-00-4 | 116 | % | 70-130 | 07.24.19 11.05 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW10** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-012 | Date Collected: | 07.18.19 09.02 | Sample Depth: | 2 - 3 ft |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | Chloride by EPA 300 | | | Prep Method: | E300P |
| Tech: | CHE | | | % Moisture: | |
| Analyst: | CHE | Date Prep: | 07.23.19 14.20 | Basis: | Wet Weight |
| Seq Number: | 3096273 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1450** | 24.8 | mg/kg | 07.23.19 19.13 | | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Analytical Method: | TPH by SW8015 Mod | | | Prep Method: | TX1005P |
| Tech: | DVM | | | % Moisture: | |
| Analyst: | ARM | Date Prep: | 07.23.19 17.00 | Basis: | Wet Weight |
| Seq Number: | 3096277 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | PHC610 | <15.0 | 15.0 | mg/kg | 07.24.19 03.51 | U | 1 |
| **Diesel Range Organics (DRO)** | C10C28DRO | **44.2** | 15.0 | mg/kg | 07.24.19 03.51 | | 1 |
| Motor Oil Range Hydrocarbons (MRO) | PHCG2835 | <15.0 | 15.0 | mg/kg | 07.24.19 03.51 | U | 1 |
| **Total TPH** | PHC635 | **44.2** | 15.0 | mg/kg | 07.24.19 03.51 | | 1 |
| **Total GRO-DRO** | PHC628 | **44.2** | 15.0 | mg/kg | 07.24.19 03.51 | | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 1-Chlorooctane | 111-85-3 | 94 | % | 70-135 | 07.24.19 03.51 | |
| o-Terphenyl | 84-15-1 | 74 | % | 70-135 | 07.24.19 03.51 | |

# Certificate of Analytical Results 631734

## LT Environmental, Inc., Arvada, CO

Big Eddy Unit DI #4 @ Birdseye 325HH

| | | | | | |
|---|---|---|---|---|---|
| Sample Id: | **SW10** | Matrix: | Soil | Date Received: | 07.23.19 12.15 |
| Lab Sample Id: | 631734-012 | Date Collected: | 07.18.19 09.02 | Sample Depth: | 2 - 3 ft |
| Analytical Method: | BTEX by EPA 8021B | | | Prep Method: | SW5030B |
| Tech: | ALG | | | % Moisture: | |
| Analyst: | FOV | Date Prep: | 07.23.19 13.15 | Basis: | Wet Weight |
| Seq Number: | 3096349 | | | | |

| Parameter | Cas Number | Result | RL | Units | Analysis Date | Flag | Dil |
|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.00202 | 0.00202 | mg/kg | 07.24.19 11.25 | U | 1 |
| Toluene | 108-88-3 | <0.00202 | 0.00202 | mg/kg | 07.24.19 11.25 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.00202 | 0.00202 | mg/kg | 07.24.19 11.25 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.00403 | 0.00403 | mg/kg | 07.24.19 11.25 | U | 1 |
| o-Xylene | 95-47-6 | <0.00202 | 0.00202 | mg/kg | 07.24.19 11.25 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.00202 | 0.00202 | mg/kg | 07.24.19 11.25 | U | 1 |
| Total BTEX | | <0.00202 | 0.00202 | mg/kg | 07.24.19 11.25 | U | 1 |

| Surrogate | Cas Number | % Recovery | Units | Limits | Analysis Date | Flag |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene | 460-00-4 | 100 | % | 70-130 | 07.24.19 11.25 | |
| 1,4-Difluorobenzene | 540-36-3 | 105 | % | 70-130 | 07.24.19 11.25 | |

# 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 631734

## LT Environmental, Inc.

Big Eddy Unit DI #4 @ Birdseye 325HH

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3096273 Matrix: Solid Date Prep: 07.23.19
MB Sample Id: 7682587-1-BLK LCS Sample Id: 7682587-1-BKS LCSD Sample Id: 7682587-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.00 | 250 | 249 | 100 | 249 | 100 | 90-110 | 0 | 20 | mg/kg | 07.23.19 16:16 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3096273 Matrix: Soil Date Prep: 07.23.19
Parent Sample Id: 631730-001 MS Sample Id: 631730-001 S MSD Sample Id: 631730-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.03 | 250 | 251 | 100 | 252 | 100 | 90-110 | 0 | 20 | mg/kg | 07.23.19 16:41 | |

**Analytical Method:** **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3096273 Matrix: Soil Date Prep: 07.23.19
Parent Sample Id: 631734-005 MS Sample Id: 631734-005 S MSD Sample Id: 631734-005 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 209 | 250 | 465 | 102 | 465 | 102 | 90-110 | 0 | 20 | mg/kg | 07.23.19 18:09 | |

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3096277 Matrix: Solid Date Prep: 07.23.19
MB Sample Id: 7682644-1-BLK LCS Sample Id: 7682644-1-BKS LCSD Sample Id: 7682644-1-BSD

| Parameter | MB Result | Spike Amount | LCS Result | LCS %Rec | LCSD Result | LCSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <8.00 | 1000 | 931 | 93 | 903 | 90 | 70-135 | 3 | 20 | mg/kg | 07.23.19 21:29 | |
| Diesel Range Organics (DRO) | <8.13 | 1000 | 1040 | 104 | 1050 | 105 | 70-135 | 1 | 20 | mg/kg | 07.23.19 21:29 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 81 | | 90 | | 94 | | 70-135 | % | 07.23.19 21:29 |
| o-Terphenyl | 78 | | 96 | | 106 | | 70-135 | % | 07.23.19 21:29 |

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 631734

## LT Environmental, Inc.

Big Eddy Unit DI #4 @ Birdseye 325HH

**Analytical Method:** **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3096277 Matrix: Soil Date Prep: 07.23.19
Parent Sample Id: 631734-001 MS Sample Id: 631734-001 S MSD Sample Id: 631734-001 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) | 10.8 | 998 | 1160 | 115 | 1160 | 115 | 70-135 | 0 | 20 | mg/kg | 07.24.19 07:51 | |
| Diesel Range Organics (DRO) | 14.7 | 998 | 1150 | 114 | 1090 | 108 | 70-135 | 5 | 20 | mg/kg | 07.24.19 07:51 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1-Chlorooctane | 101 | | 102 | | 70-135 | % | 07.24.19 07:51 |
| o-Terphenyl | 85 | | 92 | | 70-135 | % | 07.24.19 07:51 |

**Analytical Method:** **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3096349 Matrix: Solid Date Prep: 07.23.19
MB Sample Id: 7682601-1-BLK LCS Sample Id: 7682601-1-BKS LCSD Sample Id: 7682601-1-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 | 0.101 | 101 | 0.102 | 102 | 70-130 | 1 | 35 | mg/kg | 07.24.19 02:37 | |
| Toluene | <0.00200 | 0.100 | 0.0980 | 98 | 0.0987 | 99 | 70-130 | 1 | 35 | mg/kg | 07.24.19 02:37 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.114 | 114 | 0.114 | 114 | 70-130 | 0 | 35 | mg/kg | 07.24.19 02:37 | |
| m,p-Xylenes | <0.00400 | 0.200 | 0.233 | 117 | 0.234 | 117 | 70-130 | 0 | 35 | mg/kg | 07.24.19 02:37 | |
| o-Xylene | <0.00200 | 0.100 | 0.111 | 111 | 0.111 | 111 | 70-130 | 0 | 35 | mg/kg | 07.24.19 02:37 | |

| Surrogate | MB %Rec | MB Flag | LCS %Rec | LCS Flag | LCSD %Rec | LCSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 97 | | 99 | | 98 | | 70-130 | % | 07.24.19 02:37 |
| 4-Bromofluorobenzene | 102 | | 112 | | 110 | | 70-130 | % | 07.24.19 02:37 |

**Analytical Method:** **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3096349 Matrix: Soil Date Prep: 07.23.19
Parent Sample Id: 631730-001 MS Sample Id: 631730-001 S MSD Sample Id: 631730-001 SD

| Parameter | Parent Result | Spike Amount | MS Result | MS %Rec | MSD Result | MSD %Rec | Limits | %RPD | RPD Limit | Units | Analysis Date | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 0.100 | 0.0965 | 97 | 0.0938 | 94 | 70-130 | 3 | 35 | mg/kg | 07.24.19 01:03 | |
| Toluene | <0.00200 | 0.100 | 0.0884 | 88 | 0.0874 | 88 | 70-130 | 1 | 35 | mg/kg | 07.24.19 01:03 | |
| Ethylbenzene | <0.00200 | 0.100 | 0.0820 | 82 | 0.0794 | 80 | 70-130 | 3 | 35 | mg/kg | 07.24.19 01:03 | |
| m,p-Xylenes | <0.00400 | 0.200 | 0.160 | 80 | 0.159 | 80 | 70-130 | 1 | 35 | mg/kg | 07.24.19 01:03 | |
| o-Xylene | <0.00200 | 0.100 | 0.0763 | 76 | 0.0778 | 78 | 70-130 | 2 | 35 | mg/kg | 07.24.19 01:03 | |

| Surrogate | MS %Rec | MS Flag | MSD %Rec | MSD Flag | Limits | Units | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 100 | | 98 | | 70-130 | % | 07.24.19 01:03 |
| 4-Bromofluorobenzene | 92 | | 107 | | 70-130 | % | 07.24.19 01:03 |

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

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 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

Work Order No: 631734

www.xenco.com Page 1 of 2

| | | | |
|---|---|---|---|
| Project Manager: | Dan Moir | Bill to: (if different) | Kyle Littrell |
| Company Name: | LT Environmental | Company Name: | XTO Energy |
| Address: | 3300 N-A Street | Address: | 3104 E Greene St |
| City, State ZIP: | Midland, TX 79705 | City, State ZIP: | Carlsbad, NM 88220 |
| Phone: | 432/236-3849 | Email: | fsmith@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: | Big eddy unit DI # 4 @ CC Birdseye 32St M1 | Turn Around | |
| Project Number: | 012919075 | Routine ☐ | |
| Project Location | Eddy county | Rush: 2 days | |
| Sampler's Name: | Fatima Smith | Due Date: 7/25/19 | |
| PO #: | 2RP-5423 | Quote #: | |

**SAMPLE RECEIPT**

| | | | |
|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No |
| Temperature (°C): | 3.3/3.1 | Thermometer ID | R8 |
| Received Intact: | (Yes) No | | |
| Cooler Custody Seals: | Yes No (N/A) | Correction Factor: | -0.2 |
| Sample Custody Seals: | Yes No (N/A) | Total Containers: | |

**ANALYSIS REQUEST**

| Lab ID | Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | Pres. Code | TPH (EPA 8015) | BTEX (EPA 8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|
| | FS02 | S | 7/17/19 | 1610 | 2' | 1 | | X | X | X |
| | FS03 | | | 1621 | 2' | 1 | | | | |
| | FS04 | | | 1631 | 2' | 1 | | | | |
| | FS05 | | | 1641 | 2' | 1 | | | | |
| | FS06 | | | 1649 | 3' | 1 | | | | |
| | FS07 | | | 1656 | 3' | 1 | | | | |
| | SW05 | | 7/18/19 | 0842 | 0-2' | 1 | | | | |
| | SW06 | | | 0848 | 0-2' | 1 | | | | |
| | SW07 | | | 0851 | 0-2' | 1 | | | | |
| | SW08 | | | 0854 | 0-2' | 1 | | | | |

**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

**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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| | Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|
| 1 | | | 07/22/2019 9:25 | 2 | | 07/22/2019 10:10 |
| 3 | | Fed Ex | 7/22/19 14:00 | 4 | | 7/23/19 1215 |
| 5 | | | | 6 | | |

Revised Date 022619 Rev. 2019.1

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# Chain of Custody

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 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 Page 2 of 2

**Work Order No:** 631734

| | | | |
|---|---|---|---|
| **Project Manager:** | Dan Moir | **Bill to: (if different)** | Kyle Littrell |
| **Company Name:** | LT Environmental | **Company Name:** | XTO Energy |
| **Address:** | 3300 N-A Street | **Address:** | 3104 E Greene St |
| **City, State ZIP:** | Midland, TX 79705 | **City, State ZIP:** | Carlsbad, NM 88220 |
| **Phone:** | 432/236-3849 | **Email:** | fsmith@lteny.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:** | Big eddy unit D 1#4@200 Bird's eye 32St 1H | **Turn Around** | |
| **Project Number:** | 012919075 | Routine ☐ | |
| **Project Location** | Eddy county | Rush: 2 days | |
| **Sampler's Name:** | Fatima Smith | Due Date: 7/25/19 | |
| **PO #:** | 2RP-5423 | **Quote #:** | |

| **SAMPLE RECEIPT** | | | |
|---|---|---|---|
| **Temperature (°C):** | 3.3/3.1 | **Temp Blank:** | Yes (No) |
| **Received Intact:** | (Yes) No | **Thermometer ID** | R8 |
| **Cooler Custody Seals:** | Yes No (N/A) | **Correction Factor:** | -0.2 |
| **Sample Custody Seals:** | Yes No (N/A) | **Total Containers:** | |

**Wet Ice:** (Yes) No

**Pres. Code**

**Number of Containers**

**ANALYSIS REQUEST**

| Lab ID | Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | TPH (EPA 8015) | BTEX (EPA 8021) | Chloride (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|
| | SW09 | S | 7/18/19 | 0859 | 0-3' | 1 | X | X | X |
| | SW10 | S | 7/18/19 | 0902 | 0-3' | 1 | X | X | X |

**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

**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 | | | 07/22/2019 9:25 | 2 | | 07/22/2019 10:5 |
| 3 | | Fed Ex | 7/22/19 14:00 | 4 | | 7/23/19 12:5 |
| 5 | | | | 6 | | |

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