District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party XTO Energy	OGRID 5380
Contact Name Shelby Pennington	Contact Telephone 281-723-9353
Contact email Shelby_Pennington@xtoenergy.com	Incident # *(assigned by OCD)* 1RP-4832 & 1RP-5340
Contact mailing address 6401 Holiday Hill Rd. Building 5 Midland TX 79707	

Location of Release Source

Latitude 32.57479°N Longitude -103.32164°W
(NAD 83 in decimal degrees to 5 decimal places)

Site Name EMSU Satellite #13	Site Type Flowline
Date Release Discovered 9/20/2017 & 1/07/2019	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
G	14	20S	36E	Lea

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

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) 34.06 bbls &332 bbls	Volume Recovered (bbls)0 bbls & 300 bbls
	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

The first release (1RP-4823) occurred due to the rupture of a north to south trending flowline. The second release (1RP-5340) occurred during remediation of the first release when a backhoe operator struck the east to west trending flowline.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The releases were greater than 25 bbls of liquid.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? A verbal notice was given to Olivia Yu by Shannon Walker for 1RP-4832 on the same day of the release. An email notice was given to Christina Hernandez and Jim Griswold by Shelby Pennington for 1RP-5340 the day following the release.	

Initial Response

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

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

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

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

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

Printed Name: Shelby Pennington Title: Environmental Coordinator

Signature: Shelby Pennington Date: 7/3/2019

email: Shelby_Pennington@xtoenergy.com Telephone: 281-723-9353

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	35 (ft bgs)
Did this release impact groundwater or surface water?	[X] Yes [ ] No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	[ ] Yes [X] 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 [X] No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	[ ] Yes [X] 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 [X] No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	[ ] Yes [X] No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	[ ] Yes [X] No
Are the lateral extents of the release within 300 feet of a wetland?	[ ] Yes [X] No
Are the lateral extents of the release overlying a subsurface mine?	[ ] Yes [X] No
Are the lateral extents of the release overlying an unstable area such as karst geology?	[ ] Yes [X] No
Are the lateral extents of the release within a 100-year floodplain?	[ ] Yes [X] No
Did the release impact areas **not** on an exploration, development, production, or storage site?	[ ] Yes [X] 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.***

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

Signature: Shelby Pennington Date: 7/3/2019

email: Shelby_Pennington@xtoenergy.com Telephone: 281-723-9353

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

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

Printed Name: Shelby Pennington Title: Environmental Coordinator

Signature: Shelby Pennington Date: 7/3/2019

email: Shelby_Pennington@xtoenergy.com Telephone: 281-723-9353

OCD Only

Received by: _____ Date: _____

- [ ] Approved
- [ ] Approved with Attached Conditions of Approval
- [ ] Denied
- [ ] Deferral Approved

Signature: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
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.***

[X] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] 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)

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

[X] 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: Shelby Pennington Title: Environmental Coordinator

Signature: Shelby Pennington Date: 7/3/2019

email: Shelby_Pennington@xtoenergy.com Telephone: 281-723-9353

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: _____

1RP-4832 and 1RP-5340
CLOSURE REPORT
EMSU B Satellite 13 Trunk Line Leak
Lea County, New Mexico

Latitude: 32° 34' 32.79"
Longitude: 103° 19' 19.06"

LAI Project No. 17-0193-01

July 1, 2019

Prepared for:
XTO Energy, Inc.
6401 Holiday Hill Road, Building 5
Midland, Texas 79707

Prepared by:
Larson & Associates, Inc.
507 North Marienfeld Street, Suite 205
Midland, Texas 79701

Mark J. Larson, P.G.
Certified Professional Geoscientist #10490

Rachel Owen
Sr. Geoscientist

This Page Intentionally Left Blank

Table of Contents

Figures

Tables

Appendices

1.0 INTRODUCTION

Larson & Associates, Inc., (LAI) has prepared this closure report on behalf of XTO Energy, Inc. (XTO) for submittal to the New Mexico Oil Conservation Division (OCD) District 1 for two (2) produced water spills from two (2) fiberglass trunk lines near the Eunice Monument South Unit (EMSU) B Satellite #13 (Site) located in Unit G (SW/4, NE/4), Section 14, Township 20 South, Range 37 East in Lea County, New Mexico. The geodetic position is North 32° 34' 32.79" and West 103° 19' 19.06". Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The first spill occurred on September 20, 2017, due to rupture in a north to south trending trunk line releasing approximately 34.06 barrels (bbl) of produced water with 0 bbl recovered. The release covered an area estimated at approximately 10 x 45 feet or about 450 square feet. Soil was excavated to approximately four (4) feet below ground surface (bgs) to repair the pipe. The second spill occurred during remediation of the first spill when an east to west trending 3 inch diameter fiberglass trunk line was struck with the excavator bucket causing approximately 332 bbl of produced water to flow into the completed excavation from the first spill. Approximately 300 bbl of produced water from the second spill was recovered. The surface owner is Jimmie T. Cooper. The mineral owner is the United States of America (US) administered by the Department of the Interior Bureau of Land Management (BLM).

On September 28, 2017, XTO submitted the C-141 for the first spill to OCD District 1 which assigned the release remediation permit number 1RP-4832. On January 9, 2019, XTO submitted the C-141 for the second spill to OCD District 1, which assigned remediation permit number 1RP-5340. Appendix A presents both C-141s. Appendix B presents regulatory communications.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,558 feet above mean sea level (MSL);
- The topography slopes towards the east and southeast;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as "Wink fine sand", consisting of approximately 12 inches of fine sand underlain by about 12 inches of sandy loam to approximately 60 inches derived from sedimentary rock;
- The upper geological unit is the Tertiary-age Blackwater Draw and Ogallala formations, in descending order, comprised of very fine to medium-grained quartz sand and gravel, with minor amount of silt and clay with indistinct to massive cross beds;
- The Ogallala formation is underlain by clay, silty clay, shale and sandstone of the Chinle formation (Triassic) and is about 300 feet thick;
- According to records from the U.S. Geological Survey (U.S.G.S.) and State of New Mexico Office of the State Engineer (OSE) the nearest fresh water well is located in Unit G (SW/4, NE/4), Section 14, Township 20 South, Range 36 East or about 410 feet southwest from the Site;
- Groundwater occurs at approximately 35 feet bgs.

1.3 Remediation Levels

The following remediation levels are based on closure criteria for soils impacted by a release as presented in Table 1 (19.15.29 NMAC):

- Benzene 10 mg/Kg

- BTEX 50 mg/Kg
- TPH 100 mg/Kg
- Chloride 600 mg/Kg

2.0 DELINEATION

On December 8 and 11, 2017, LAI personnel used a stainless steel hand auger to collect soil samples from the bottom of the excavation for repairing the pipe (HA-1) to approximately 9 feet bgs and sidewalls at approximately 2 feet bgs. Direct push technology (DPT) was used to collect soil samples at six (6) locations (DP-1 through DP-6) surrounding HA-1 between approximately 3 feet (DP-1) and 12 feet (DP-2) bgs. Permian Basin Environmental Lab (PBEL) analyzed the excavation (HA-1) samples for total petroleum hydrocarbons (TPH), including gasoline range organics (C6 – C12), diesel range organics (>C12 – C28) and oil range organics (>C28 – C35) by EPA SW-846 Method 8015 and chloride by EPA Method 300. The DPT (0 to 1 foot) samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA SW-846 Method 8021B, TPH and chloride.

On April 6 and 24, 2018, Scarborough Drilling Inc. (SDI), under supervision from LAI, used an air rotary rig and jam tube sampler to collect additional soil samples for chloride delineation at HA-1, DP-2, DP-5, DP-6, DP-7 and DP-9 through DP-13. Soil samples were collected every five (5) feet to total depth between approximately 25 feet (DP-2, DP-5 and DP-6) and 35 feet (DP-7, DP-9, and DP-10 through DP-13). PBEL analyzed the samples for chloride by EPA Method 300.

Benzene and BTEX were below the analytical method reporting limits. TPH was reported above the remediation level (100 mg/) in the bottom and sidewall samples from the excavation. Chloride exceeded the delineation limit (600 mg/kg) in the deepest samples at the following locations:

Boring	Depth	Chloride (mg/Kg)
HA-1	35	1,170
DP-2	25	735
DP-5	25	985
DP-6	25	685
DP-7	35	1,150
DP-11	35	1,770
DP-12	35	2,120

Table 1 presents the delineation soil sample analytical data summary. Appendix C presents the laboratory reports. Appendix D presents the boring logs.

On July 13, 2018, LAI, on behalf of XTO, submitted a delineation report and proposed remediation plan to OCD District 1. OCD District 1 approved the remediation plan on July 23, 2018, with the following comments and conditions:

- Please use different colors within a single map to facilitate interpretation and approval.
- Please clarify location of the 4' extended excavation relative to the other excavations as it is unclear. Will it be 10 ft north of the current excavation or 10 ft north of the proposed 12' extended excavation?

- Areas that show historic releases (DP-2, DP-6, DP-7, DP-9, DP-10, DP-11, DP-12, DP-13) must be remediated as well due to high mobility of chlorides.

Delineation completed and proposed remediation is approved with the following stipulations:

- Please note that both proposed monitoring wells are required, one up gradient and one down gradient from spill release location as noted. (Mr. Brad Billings, NMOCD Santa Fe, may have additional stipulations).
- Please be advised that all laboratory analyses (Benzene, BTEX, and TPH extended) are required for proposed 12' and 4' extended excavation confirmation bottom and sidewall sample locations; complete laboratory analyses will also be required for groundwater testing.
- Please address historical releases; please be advised to excavate to 4' at these (DP-2, DP-6, DP-7, DP-9, DP-10, DP-11, DP-12, DP-13) locations and collect sidewall samples as well.
- After proper placement of 20 mil liner and back filling, sample every 50 cubic yards.

BLM approved the delineation report and remediation plan on September 19, 2018. Appendix B presents regulatory communications.

3.0 REMEDIATION

3.1 Monitoring Wells and Groundwater Samples

On December 28, 2018, SDI, under supervision from LAI, used an air rotary rig and 5 inch bit to drill two (2) borings northwest (TMW-1) and southeast (TMW-2) of the release. The borings were drilled to 47.64 feet bgs (TMW-1) and 47.67 feet bgs (TMW-2) and completed with 2 inch schedule 40 threaded PVC and twenty (20) feet of well screen positioned between about 27 and 47 feet bgs. The well screens were surrounded with graded silica sand to about 3 feet above the screens. The remainder of the annulus above the sand and between the well and boring was filled with bentonite chips to about 2 feet bgs and hydrated with potable water. A locking steel cover was placed over the casing stickup measured at about 2.96 feet (TMW-1) and 2.98 feet (TMW-2) and anchored in concrete. Groundwater was gauged at approximately 36.55 and 37.00 feet bgs at the time of well completion and stabilized at 36.54 feet bgs (TMW-1) and 37.02 feet bgs (TMW-2), on January 2, 2019. Table 2 presents the monitoring well completion and gauging summary. Figure 4 presents an aerial drawing showing locations for TMW-1 and TMW-2. Appendix D presents the boring logs and well completion records. Appendix F presents the OSE well permit.

On January 2, 2019, LAI personnel developed the wells by pumping with an electric submersible pump. The pump was thoroughly decontaminated between wells by cleaning with a solution of potable water and laboratory-grade detergent (Alconox0®) and rinsed with distilled water. Polyethylene used for discharging groundwater was discarded between wells. Groundwater samples were collected with dedicated polyethylene bailers and carefully poured into laboratory containers that were sealed, labeled and submitted under preservation and chain of custody to DHL Analytical, a National Environmental Laboratory Accreditation Programs (NELAP) accredited laboratory located in Round Rock, Texas. DHL analyzed the samples for BTEX and chloride by EPA SW-846 Method 8021B and Method 300, respectively. BTEX was not reported above the analytical method reporting limits. Chloride was

reported at 637 milligrams per liter (mg/L) in well TMW-1 (up gradient) and 4,260 mg/L in well TMW-2 (down gradient). The chloride concentrations exceed the New Mexico Water Quality Control Commission (NMWQCC) domestic water quality standard (250 mg/L). Table 3 presents the groundwater analytical data summary. Appendix C presents laboratory report.

3.2 Soil Remediation

3.2.1 Initial Spill (1RP-4832) Remediation

On November 16, 2018, SDR Enterprises LLC (SDR), under supervision from LAI, excavated soil from the area encompassing HA-1 to approximately 10 feet bgs over an area measuring approximately 536 square feet. Between November 30, 2018 and December 3, 2018, the excavation was expanded to approximately 5,454 based on laboratory analysis of sidewall and bottom confirmation samples (S-1 through S-19). The excavation in the area of HA-1 was approximately 10 feet deep with the remaining excavation approximately 4 feet deep. Table 2 presents the confirmation sample analytical data summary. Figure 5 presents the excavation and confirmation sample locations. Appendix C presents the laboratory reports.

Soil was excavated around borings DP-2, DP-6, DP-7, DP-9, DP-10, DP-11, DP-12 and DP-13 for approximately 100 square feet around to the depth of 4 feet bgs. Sidewall confirmation samples were collected at approximately 2 feet bgs from each excavation and were analyzed for BTEX, TPH and chloride. Benzene, BTEX and TPH were no reported in the samples above the analytical method reporting limits. Chloride concentrations reported below OCD closure criteria of 600 mg/Kg, as presented in Table 1 (19.15.29 NMAC) in all samples. A 20 mil polyethylene liner was placed in the bottom of each excavation (DP-2, DP-6, DP-7, DP-9, DP-10, DP-11, DP-12 and DP-13) and covered with topsoil to ground surface and seeded according to surface owner (Jimmie Cooper) instructions. Table 2 presents the confirmation sample analytical data summary. Figure 5 presents the excavation and confirmation sample locations. Appendix C presents the laboratory reports.

On January 7, 2019, while expanding the main excavation (HA-1) west between sample locations S-13 and S-14, a 3 inch fiberglass trunk line thought to run from east to west turned northwest and was struck with the excavator bucket causing the second spill to occur. The second spill flowed east onto the surface of the 4-foot deep excavation and into the deeper excavation between about 6 and 12 feet deep. XTO requested a vacuum truck to recover approximately 300 bbl of the estimated 332 bbl spilled and visually contaminated soil was scraped from the surface of the 4-foot excavation. On January 11, 2019, XTO and LAI personnel met with OCD District 1 Environmental Specialist, Christina Hernandez, to discuss remediation of the initial spill and the resulting spill that occurred from the line strike. OCD agreed that no further remediation was necessary for the initial release but remediation was necessary for the second release on January 7, 2019. On January 28, 2019, the C-141 for the second spill was submitted to OCD District 1.

3.2.2 Second Spill (1RP-5340) Remediation

Due to confined space safety concerns and limited access it was decided to utilize vacuum extraction to remediate the oil and produced water impacted soil in the bottom of the deep excavation between approximately 6 and 12 feet bgs. On January 22 and 23, 1019, Oilfield Safety and Environmental Services (OFSES) was contracted to use an extended suction line and high vacuum to extract the oil and produced water impacted soil from the bottom of the deep excavation however this approached was abandoned due to additional safety concerns and equipment limitations.

On March 4 and 8, 2019, LAI personnel used stainless steels hand augers to collect soil samples from the bottom of the 4 foot excavation (S-1 through S-6) and deep excavation between approximately 6 and 12 feet (S-7 through S-14) to delineate the vertical extent of benzene, BTEX, TPH and chloride impact from the second release. PBEL analyzed the samples and reported benzene and BTEX below the OCD remediation levels in Table 1 (19.15.29 NMAC). TPH exceeded the remediation level (100 mg/Kg) in samples S-2 from the 4 foot deep excavation (455.3 mg/Kg) and ranged from 275 mg/Kg in sample S-14, 10 feet to 24,690 mg/Kg in sample S-12, 11 feet. TPH was delineated vertically to less than 100 mg/Kg. Chloride in the deepest samples from S-7 through S-14 ranged from 477 mg/Kg in sample S-13, 11 feet to 2,470 mg/Kg in sample S-12, 13 feet. Table 4a presents the delineation sample analytical data summary for the second release. Figure 6 presents the soil sample locations. Appendix C presents the laboratory reports.

On May 6, 2019, XTO shut-in the field for automation upgrades and removed the segment of 4 inch fiberglass line where the initial release occurred to allow access to safely complete the remediation. Between May 7 and 17, 2019, SDR, under supervision from LAI, excavated soil to about 6.5 feet bgs from the area of sample S-2, in the bottom and sides of the 4 foot deep excavation. Soil was excavated from the deep excavation between about 11 feet bgs (S-13 and S-14) to about 18 feet bgs (S-9 and S-11). Confirmation samples were collected from the bottom and sidewalls and were analyzed for BTEX, TPH and chloride. All bottom and sidewall samples confirm BTEX and TPH were remediated below the OCD closure criteria in Table 1 (19.15.29 NMAC). Chloride in the bottom samples ranged from 274 mg/Kg (S-12, 14 feet) to 2,650 mg/Kg (S-6, 4 feet). The highest chloride concentration reported in the sidewall samples was 3,450 mg/Kg from the south side at S-14, 5.5 feet bgs. Table 4a presents the confirmation sample analytical data summary for the second release. Figure 7 presents the excavation and soil sample locations. Appendix C presents the laboratory reports.

The deep excavation was backfilled to approximately 4 feet bgs with caliche acquired from the surface owner. On May 17, 2019, Akome Inc. installed a 20 mil thickness liner in the bottom of the 4 foot excavation measuring approximately 8,400 square feet. The liner was placed beneath the new segment of 4 inch fiberglass line and a 10 inch steel cement lined injection line. The lines were covered with clean sand prior to covering with caliche to approximately 1.5 feet bgs. The remainder of the excavation was filled with topsoil acquired from the surface owner. The Site will be seeded to the landowner's requirements. Approximately 1,636 cubic yards of caliche and 996 cubic yards of topsoil were used to fill the excavation. Table 5 presents the chloride analytical data summary for the backfill samples. Approximately 1,956 cubic yards of contaminated soil was disposed at Sundance Disposal located east of Eunice, New Mexico. Appendix G presents the waste manifests.

3.0 CLOSURE

XTO requests no further actions for soil remediation associated with 1RP-4832 and 1RP-5340.

4.0 GROUNDWTER ASSESSMENT

XTO proposes the following for assessing the groundwater impact.

4.1 EM-34 Conductivity Survey

An electromagnetic (EM) terrain conductivity survey will be performed to qualitatively assess the extent of groundwater impacted from chloride. The survey will be performed using an EM-34 terrain conductivity meter manufactured by Geonics Ltd., Mississauga, Ontario, Canada. The EM-34 detects

elevated conductivity in soil and groundwater relative to background which corresponds to elevated chloride in soil and groundwater. The depth of exploration is determined by the spatial separation between the transmitter and receiver coils and the orientation of the coils (i.e., horizontal (HD) or vertical dipole (VD)). The EM-34 has maximum depth of exploration capabilities of 0 to 24.6 feet bgs (HD) and 0 to 49.2 feet bgs (VD) with the 10-meter coil separation. The maximum response of the EM-34 in the HD mode occurs near the surface and decreases with depth. The maximum response of the EM-34 in the VD mode occurs at a depth equal to approximately 75 percent of the exploration depth or about 36.9 feet bgs in the 10 meter coil separation and is suited for detecting elevated chloride in groundwater at the Site. The results of the EM-34 survey will be used for selecting locations for installing down gradient monitoring wells.

4.2 Monitoring Wells

Locations for additional monitoring wells will be based on the results of the EM-34 terrain conductivity survey. Approximately 4 to 6 locations may be selected for installing monitoring wells to delineate the release. An application will be filed with the OSE to obtain a permit to install the wells. The wells will be drilled between about 45 and 50 feet bgs and completed with 2 inch schedule 40 PVC threaded casing and about 20 feet of factory slotted screen. The well screen will be placed above and below the groundwater level observed during drilling. The well screen will be surrounded with graded silica sand compatible with the screen slot size. The sand will be placed around the screen to a depth about 2 feet above the screen. The annulus above the sand to ground surface will be filled with bentonite chips and hydrated with potable water. The well will be secured with a locking cap. A State of New Mexico licensed driller will drill the wells with a truck mounted air rotary rig or equivalent rig. A State of New Mexico licensed professional land surveyor will survey the wells for location and elevation including top of casing and groundwater elevation referenced to the nearest USGS datum. Drill cuttings will be placed on the ground adjacent to the borings.

4.3 Groundwater Samples

The well will be developed by pumping with an electric submersible pump until groundwater is visibly clear of suspended solids. The purged water will be contained in a 55 gallon drum or in a portable tank and disposed in an OCD permitted disposal well. Groundwater samples will be collected following well development and analyzed by a NELAP certified laboratory for BTEX and chloride.

4.4 Hydraulic Conductivity (Slug) Testing

The wells will be tested for in-situ horizontal hydraulic conductivity by slug test method to assist with developing a groundwater remediation plan.

4.5 Report and Remediation Plan

A comprehensive report will be prepared with recommendation for remediation. The report will include maps showing the EM-34 survey results, monitoring well locations, boring logs, well completion diagrams, discussions of the plume boundaries, contaminant concentrations and recommendation for remediation.

Figures

Table 1
1RP-4832 and 1RP-5340
Delineation Soil Sample Analytical Data Summary
EMSU B Satellite 13 Trunk Line
XTO Energy, Inc.

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL			10	50				100	600
Excavation Soil Samples									
HA-1	4 - 5	12/11/2017	--	--	<29.4	66.1	<29.4	66.1	397
	5 - 6	12/11/2017	--	--	<27.8	<27.8	<27.8	<27.8	366
	6 - 7	12/11/2017	--	--	<27.2	637	132	769	633
	7 - 8	12/11/2017	--	--	36.0	1,150	233	1,409	786
	8 - 9	12/11/2017	--	--	<26.3	217	58.8	275.8	777
	10	04/24/2018	--	--	--	--	--	--	551
	15	04/24/2018	--	--	--	--	--	--	926
	20	04/24/2018	--	--	--	--	--	--	1070
	25	04/24/2018	--	--	--	--	--	--	469
	30	04/24/2018	--	--	--	--	--	--	859
	35	04/24/2018	--	--	--	--	--	--	1,170
SW-N	2	12/11/2017	--	--	<25.5	627	212	839	1,480
SW-S	2	12/11/2017	--	--	<26.0	134	40.6	174.6	1,480
SW-E	2	12/11/2017	--	--	<28.7	<28.7	<28.7	<28.7	1,590
SW-W	2	12/11/2017	--	--	<25.8	105	91.7	196	1,010
Diect Push Soil Samples									
DP-1	0 - 1	[12/08/2017	<0.00109	<0.00761	<27.2	<27.2	<27.2	<27.2	<1.09
	1 - 2	12/08/2017	--	--	<28.7	<28.7	<28.7	<28.7	<1.15
	2 - 3	12/08/2017	--	--	<28.1	<28.1	<28.1	<28.1	<1.12
DP-2	0 - 1	12/08/2017	<0.00105	<0.00737	<26.3	<26.3	<26.3	<26.3	<1.05
	1 - 2	12/08/2017	--	--	<28.4	<28.4	<28.4	<28.4	<1.14
	2 - 3	12/08/2017	--	--	<28.7	<28.7	<28.7	<28.7	<1.15
	3 - 4	12/08/2017	--	--	<28.4	<28.4	<28.4	<28.4	74.1
	4 - 6	12/08/2017	--	--	<26.0	<26.0	<26.0	<26.0	114
	6 - 8	12/08/2017	--	--	<26.3	<26.3	<26.3	<26.3	375
	8 - 10	12/08/2017	--	--	<26.9	<26.9	<26.9	<26.9	573
	10 - 12	12/08/2017	--	--	<28.7	<28.7	<28.7	<28.7	789
	15	04/06/2018	--	--	--	--	--	--	551
	20	04/06/2018	--	--	--	--	--	--	997
	25	04/06/2018	--	--	--	--	--	--	735
DP-3	0 - 1	12/08/2017	<0.00114	<0.00454	<28.4	<28.4	<28.4	<28.4	48.2
	1 - 2	12/08/2017	--	--	<27.2	<27.2	<27.2	<27.2	54.1
	2 - 3	12/08/2017	--	--	<28.1	<28.1	<28.1	<28.1	6.47
	3 - 4	12/08/2017	--	--	<27.8	<27.8	<27.8	<27.8	4.00
	4 - 6	12/08/2017	--	--	<27.8	<27.8	<27.8	<27.8	58.1

Table 1
1RP-4832 and 1RP-5340
Delineation Soil Sample Analytical Data Summary
EMSU B Satellite 13 Trunk Line
XTO Energy, Inc.

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL			10	50				100	600
DP-4	0 - 1	12/08/2017	<0.00106	<0.00744	<26.6	<26.6	<26.6	<26.6	19.0
	1 - 2	12/08/2017	--	--	<26.0	<26.0	<26.0	<26.0	2.11
	2 - 3	12/08/2017	--	--	<26.9	<26.9	<26.9	<26.9	41.2
	3 - 4	12/08/2017	--	--	<27.8	<27.8	<27.8	<27.8	84.9
DP-5	0 - 1	12/08/2017	<0.00105	<0.00737	<26.3	69.5	<26.3	69.5	172
	1 - 2	12/08/2017	--	--	<26.6	<26.6	<26.6	<26.6	444
	2 - 3	12/08/2017	--	--	<28.7	<28.7	<28.7	<28.7	1,450
	3 - 4	12/08/2017	--	--	<29.1	<29.1	<29.1	<29.1	1,510
	5	04/06/2018	--	--	--	--	--	--	1,510
	10	04/06/2018	--	--	--	--	--	--	923
	15	04/06/2018	--	--	--	--	--	--	970
	20	04/06/2018	--	--	--	--	--	--	813
	25	04/06/2018	--	--	--	--	--	--	985
DP-6	0 - 1	12/08/2017	<0.00104	<0.00728	<26.0	<26.0	<26.0	<26.0	98.1
	1 - 2	12/08/2017	--	--	<25.8	<25.8	<25.8	<25.8	27.9
	2 - 3	12/08/2017	--	--	<27.8	<27.8	<27.8	<27.8	108
	3 - 4	12/08/2017	--	--	<27.8	<27.8	<27.8	<27.8	562
	5	04/06/2018	--	--	--	--	--	--	11.1
	10	11/16/2018	--	--	--	--	--	--	703
	15	04/06/2018	--	--	--	--	--	--	102
	20	04/06/2018	--	--	--	--	--	--	6.34
	25	04/06/2018	--	--	--	--	--	--	685
DP-7	0 - 1	12/11/2017	<0.00105	<0.00737	<26.3	<26.3	<26.3	<26.3	<1.05
	1 - 2	12/11/2017	--	--	<28.1	<28.1	<28.1	<28.1	138
	2 - 3	12/11/2017	--	--	<30.1	<30.1	<30.1	<30.1	440
	3 - 4	12/11/2017	--	--	<29.4	<29.4	<29.4	<29.4	162
	4 - 6	12/11/2017	--	--	<30.9	<30.9	<30.9	<30.9	18.2
	6 - 8	12/11/2017	--	--	<28.4	<28.4	<28.4	<28.4	485
	8 - 10	12/11/2017	--	--	<28.1	<28.1	<28.1	<28.1	799
	10 - 12	12/11/2017	--	--	<29.1	<29.1	<29.1	<29.1	1,140
	15	04/24/2018	--	--	--	--	--	--	942
	20	04/24/2018	--	--	--	--	--	--	1,470
	25	04/24/2018	--	--	--	--	--	--	967
	30	04/24/2018	--	--	--	--	--	--	1,970
	35	04/24/2018	--	--	--	--	--	--	1,150
DP-8	0 - 1	12/11/2017	<0.00102	<0.00714	<25.5	<25.5	<25.5	<25.5	<1.02
	1 - 2	12/11/2017	--	--	<25.5	<25.5	<25.5	<25.5	<1.02
	2 - 3	12/11/2017	--	--	<27.2	<27.2	<27.2	<27.2	5.38

Table 1
1RP-4832 and 1RP-5340
Delineation Soil Sample Analytical Data Summary
EMSU B Satellite 13 Trunk Line
XTO Energy, Inc.

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL			10	50				100	600
	3 - 4	12/11/2017	--	--	<28.4	<28.4	<28.4	<28.4	9.47
DP-9	0	04/24/2018	--	--	--	--	--	--	9.12
	5	04/24/2018	--	--	--	--	--	--	<1.08
	10	04/24/2018	--	--	--	--	--	--	69.8
	15	04/24/2018	--	--	--	--	--	--	157
	20	04/24/2018	--	--	--	--	--	--	174
	25	04/24/2018	--	--	--	--	--	--	436
	30	04/24/2018	--	--	--	--	--	--	404
	35	04/24/2018	--	--	--	--	--	--	171
DP-10	0	04/24/2018	--	--	--	--	--	--	44.3
	5	04/24/2018	--	--	--	--	--	--	6.11
	10	04/24/2018	--	--	--	--	--	--	855
	15	04/24/2018	--	--	--	--	--	--	464
	20	04/24/2018	--	--	--	--	--	--	907
	25	04/24/2018	--	--	--	--	--	--	730
	30	04/24/2018	--	--	--	--	--	--	707
	35	04/24/2018	--	--	--	--	--	--	149
DP-11	0	04/24/2018	--	--	--	--	--	--	5.16
	5	04/24/2018	--	--	--	--	--	--	70.4
	10	04/24/2018	--	--	--	--	--	--	703
	15	04/24/2018	--	--	--	--	--	--	754
	20	04/24/2018	--	--	--	--	--	--	1,290
	25	04/24/2018	--	--	--	--	--	--	784
	30	04/24/2018	--	--	--	--	--	--	457
	35	04/24/2018	--	--	--	--	--	--	1,770
DP-12	0	04/24/2018	--	--	--	--	--	--	8.86
	5	04/24/2018	--	--	--	--	--	--	3.4
	10	04/24/2018	--	--	--	--	--	--	255
	15	04/24/2018	--	--	--	--	--	--	1,040
	20	04/24/2018	--	--	--	--	--	--	872
	25	04/24/2018	--	--	--	--	--	--	1,110
	30	04/24/2018	--	--	--	--	--	--	1,460
	35	04/24/2018	--	--	--	--	--	--	2,120
DP-13	0	04/24/2018	--	--	--	--	--	--	23.9
	5	04/24/2018	--	--		--	--	--	451
	10	04/24/2018	--	--	--	--	--	--	275
	15	04/24/2018	--	--	--	--	--	--	327
	20	04/24/2018	--	--	--	--	--	--	513

Table 1
1RP-4832 and 1RP-5340
Delineation Soil Sample Analytical Data Summary
EMSU B Satellite 13 Trunk Line
XTO Energy, Inc.

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL			**10**	**50**				**100**	**600**
	25	04/24/2018	--	--	--	--	--	--	863
	30	04/24/2018	--	--	--	--	--	--	2,500
	35	04/24/2018	--	--	--	--	--	--	290

Notes: Laboratory analysis performed by Permian Basin Environmental Lab, Midland, Texas by EPA SW-846 Method 8015M (TPH) and Method 300 (chloride)
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
*: OCD delineation level
Denotes concentration exceeds RRAL (100 mg/Kg)
Denotes concentration exceeds OCD delineation level (250 mg/Kg)

Table 2
1RP-4832
Monitoring Well Completion and Gauging Summary
XTO Energy, Inc., EMSU B Satelite #13 Trunk Line
Lea County, New Mexico
N32° 34' 32.79" W103° 19' 19.06"

Well Information							Gauging Data		
Well ID	Date Drilled	Drilled Depth (feet bgs)	Well Depth (feet TOC)	Well Diameter (inches)	Screen Interval (feet bgs)	Casing Stickup (feet)	Date	Depth to Water (TOC)	Depth to Water (bgs)
TMW-1	12/28/2018	47.64	50.60	2	27.46 - 47.14	2.96	12/28/2018	39.51	36.55
							01/02/2019	39.50	36.54
TMW-2	12/28/2018	47.67	50.65	2	27.44 - 47.17	2.98	12/28/2018	39.98	37.00
							01/02/2019	40.00	37.02

Notes: well drilled and completed by Scarborough Drilling, Inc., Lamesa, Texas, and using constructed with 2-inch threaded schedule 40 PVC casing and screen
All values are in feet, unless otherwise noted.
bgs - below ground surface
TOC - top of casing

Table 3
1RP-4832 and 1RP-5340
Groundwater Sample Organic and Inorganic Analytical data Summary
EMSU B Satelite #13 Trunk Line Leak, XTO Energy, Inc.
Lea County, New Mexico

Sample ID	Date	Benzene	Toluene	Ethylbenzene	Xylenes	Chloride
NMWQCC Limit:		**0.01**	**0.75**	**0.75**	**0.62**	**250**
TMW-1	01/02/2019	<0.0008	<0.002	<0.002	<0.002	**637**
TMW-2	01/02/2019	<0.0008	<0.002	<0.002	<0.002	**4,260**

Notes: analysis performed by DHL Analytical, Round Rock, Texas by EPA SW-846 Mwthod 8021B (BTEX) and Method 300 (chloride)

All values reported in milligrams perlLiter - (mg/L) equivelent to parts per million (ppm).

Bold and highlighted denotes analyte reported at concentration above NMWQCC domestic water quality lir

Table 4
1RP-4832
Remediation Confirmation Soil Sample Analytical Data Summary
XTO Energy, Inc., EMSU Satellite #13 Produced Water Spill
Latitude: 32.575775° Longitude: -103.321961°
Lea County, New Mexico

Location	Sample	Location	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
Remediation Limit:						**10**	**50**				**100**	**600**
Excavation Samples												
HA-1	S-1	North (side)	6	11/30/2018	Excavated	--	--	<27.8	30.8	<27.8	**30.8**	1,020
		North (side)	6	12/05/2018	Excavated	<0.00110	<0.05	<27.5	<27.5	<27.5	<27.5	890
		North (side)	6	12/13/2018	Excavated	<0.00105	<0.5	477	509	<26.3	986	892
					Refer to Table 2A							
		North (side)	10	12/05/2018	Excavated	<0.00109	<0.03803	<27.2	<27.2	<27.2	<27.2	660
		North (side)	10	12/13/2018	Excavated	<0.00110	<0.03803	<27.5	<27.5	<27.5	<27.5	821
					Refer to Table 2A							
	S-2	East (side)	6	11/30/2018	In-Situ	--	--	<28.4	<28.4	<28.4	<28.4	526
		East (side)	10	12/05/2018	In-Situ	<0.00112	<0.05164	<28.1	56.0	<28.1	**56.0**	344
	S-3	South (side)	6	11/30/2018	Excavated	--	--	30.0	754	140	924	111
		South (side)	6	12/05/2018	In-Situ	<0.00108	<0.04956	<26.9	38.5	<26.9	**38.5**	119
		South (side)	10	12/05/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	96.1
	S-4	West (side)	6	11/30/2018	Excavated	--	--	<27.5	38.8	<27.5	**38.8**	40.1
		West (side)	10	12/05/2018	Excavated	<0.0211	<0.9681	<26.3	937	176	1,113	464
		West (side)	10	12/13/2018	In-Situ	<0.00111	<0.9681	<27.8	36.30	<27.8	**36.30**	1,110
	S-5	Northwest (side)	2	11/30/2018	Excavated	--	--	<26.3	<26.3	<26.3	<26.3	1,250
		Northwest (side)	2	12/05/2018	In-Situ	<0.00114	<0.05232	<28.4	<28.4	<28.4	<28.4	327
	S-6	Southwest (side)	2	11/30/2018	In-Situ	--	--	<25.3	<25.3	<25.3	<25.3	351
	S-7	Southeast (side)	2	12/04/2018	In-Situ	<0.00101	<0.04646	<25.3	<25.3	<25.3	<25.3	40.8
	S-8	Southeast (side)	2	12/04/2018	In-Situ	<0.00101	<0.04646	<25.3	<25.3	<25.3	<25.3	491
	S-9	South (side)	2	12/04/2018	Excavated	<0.00111	<0.05087	<27.8	<27.8	<27.8	<27.8	4,680
				12/13/2018	In-Situ	<0.00111	<0.05087	<27.8	<27.8	<27.8	<27.8	703
	S-10	Southwest (side)	2	12/04/2018	In-Situ	<0.00102	<0.04692	<25.5	<25.5	<25.5	<25.5	33.0
	S-11	Southwest (side)	2	12/04/2018	In-Situ	<0.00103	<0.04738	<25.8	<25.8	<25.8	<25.8	432
	S-12	Southwest (side)	2	12/04/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	5.27
	S-13	West (side)	2	12/04/2018	Excavted	<0.00108	<0.04956	<26.9	<26.9	<26.9	<26.9	761
		West (side)	2	12/13/2018	In-Situ	<0.00110	<0.04956	<27.5	<27.5	<27.5	<27.5	142
	S-14	Northwest (side)	2	12/04/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	<1.06
	S-15	Northwest (side)	2	12/04/2018	In-Situ	<0.00100	<0.046	<25.0	<25.0	<25.0	<25.0	<1.00
	S-16	Northwest (side)	2	12/04/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	<1.06

Table 4
1RP-4832
Remediation Confirmation Soil Sample Analytical Data Summary
XTO Energy, Inc., EMSU Satellite #13 Produced Water Spill
Latitude: 32.575775° Longitude: -103.321961°
Lea County, New Mexico

Location	Sample	Location	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
Remediation Limit:						**10**	**50**				**100**	**600**
	S-17	North (side)	2	12/04/2018	In-Situ	<0.00105	<0.04841	<26.3	<26.3	<26.3	<26.3	30.0
	S-18	Northeast (side)	2	12/04/2018	In-Situ	<0.00104	<0.04785	<26.0	<26.0	<26.0	<26.0	292
	S-19	Northeast (side)	2	12/04/2018	In-Situ	<0.00100	<0.046	<25.0	<25.0	<25.0	<25.0	43.7
	S-20	North (bottom)	12	12/05/2018	In-Situ	<0.00115	<0.0069	<28.7	<28.7	<28.7	<28.7	445
	S-21	North (side)	10	1/8/2019	In-Situ	<0.00115	<0.0069	<28.7	<28.7	<28.7	<28.7	445
DP-2	DP-2	North (side)	**2**	11/16/2018	In-Situ	<0.00110	<0.05	<27.5	<27.5	<27.5	<27.5	1.82
		East (side)	**2**	11/16/2018	In-Situ	<0.00116	<0.05347	<291.	<29.1	<29.1	<29.1	1.24
		South (side)	**2**	11/16/2018	In-Situ	<0.00104	<0.04785	<26.0	<26.0	<26.0	<26.0	4.24
		West (side)	**2**	11/16/2018	In-Situ	<0.00112	<0.05164	<28.1	<28.1	<28.1	<28.1	5.42
DP-6	DP-6	North (side)	2	11/16/2018	In-Situ	<0.00103	<0.04738	<25.8	<25.8	<25.8	<25.8	15.5
		East (side)	2	11/16/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	125
		South (side)	2	11/16/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	2.61
		West (side)	2	11/16/2018	In-Situ	<0.00105	<0.04841	<26.3	<26.3	<26.3	<26.3	15.1
DP-7	DP-7	North (side)	2	11/16/2018	In-Situ	<0.00114	<0.05232	<28.4	<28.4	<28.4	<28.4	<1.14
		East (side)	2	11/16/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	425
		South (side)	2	11/16/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	<1.06
		West (side)	2	11/16/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	6.03
DP-9	DP-9	North (side)	2	11/16/2018	In-Situ	<0.00111	<0.05087	<27.8	<27.8	<27.8	<27.8	<1.11
		East (side)	2	11/16/2018	In-Situ	<0.00119	<0.05474	<29.8	46.9	29.8	**76.7**	<1.19
		South (side)	2	11/16/2018	In-Situ	<0.00116	<0.05347	<29.1	<29.1	<29.1	<29.1	2.64
		West (side)	2	11/16/2018	In-Situ	<0.00116	<0.05347	<29.1	<29.1	<29.1	<29.1	<1.16
DP-10	DP-10	North (side)	2	11/16/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	<1.06
		East (side)	2	11/16/2018	In-Situ	<0.00109	<0.03803	<27.2	<27.2	<27.2	<27.2	<1.09
		South (side)	2	11/16/2018	In-Situ	<0.00108	<0.04956	<26.9	<26.9	<26.9	<26.9	<1.08
		West (side)	2	11/16/2018	In-Situ	<0.00104	<0.04785	<26.0	<26.0	<26.0	<26.0	<1.04

Table 4
1RP-4832
Remediation Confirmation Soil Sample Analytical Data Summary
XTO Energy, Inc., EMSU Satellite #13 Produced Water Spill
Latitude: 32.575775° Longitude: -103.321961°
Lea County, New Mexico

Location	Sample	Location	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
Remediation Limit:						**10**	**50**				**100**	**600**
DP-11	DP-11	North (side)	2	11/16/2018	In-Situ	<0.00110	<0.05	<27.5	<27.5	<27.5	<27.5	<1.10
		East (side)	2	11/16/2018	In-Situ	<0.00112	<0.05164	<28.1	<28.1	<28.1	<28.1	<1.12
		South (side)	2	11/16/2018	In-Situ	<0.00114	<0.05232	<28.4	<28.4	<28.4	<28.4	1.35
		West (side)	2	11/16/2018	In-Situ	<0.00114	<0.05232	<28.4	<28.4	<28.4	<28.4	<1.14
DP-12	DP-12	North (side)	2	11/16/2018	In-Situ	<0.00119	<0.05474	<29.8	<29.8	<29.8	<29.8	<1.19
		East (side)	2	11/16/2018	In-Situ	<0.00118	<0.05416	<29.4	<29.4	<29.4	<29.4	<1.18
		South (side)	2	11/16/2018	In-Situ	<0.00109	<0.03803	<27.2	<27.2	<27.2	<27.2	<1.09
		West (side)	2	11/16/2018	In-Situ	<0.00111	<0.05087	<27.8	<27.8	<27.8	<27.8	<1.11
DP-13	DP-13	North (side)	2	11/16/2018	In-Situ	<0.00108	<0.04956	<26.9	<26.9	<26.9	<26.9	56.1
		East (side)	2	11/16/2018	In-Situ	<0.00109	<0.05002	<27.2	<27.2	<27.2	<27.2	54.1
		South (side)	2	11/16/2018	In-Situ	<0.00108	<0.04956	<26.9	<26.9	<26.9	<26.9	2.49
		West (side)	2	11/16/2018	In-Situ	<0.00109	<0.05002	<27.2	<27.2	<27.2	<27.2	23.8

Notes: analysis performed by Permian Basin Environmental Lab, Midland, Texas, by EPA SW-846 Methods 8021B (BTEX), 8015M (TPH) and 300 (chloride).
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
Analyte concentration exceeds TPH closure criteria (Table) of 19.15.29 NMAC
Analyte concentration exceeds chloride closure criteria (Table) of 19.15.29 NMAC

Table 4a
1RP-4832 and 1RP-5340
Delineation Soil Sample Analytical Data Summary
EMSU Satellite #13 Produced Water Spill, XTO Energy, Inc.
Latitude: 32.575775° Longitude: -103.321961°
Lea County, New Mexico

Sample	Depth (Feet)	Position	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL					10	50				100	600
Excavation Soil Samples											
T-1	4.5	Bottom (W)	01/08/2019	Excavated	<0.00120	<0.05532	<30.1	<30.1	<30.1	<30.1	1,390
T-2	4.5	Bottom (W)	01/08/2019	Excavated	<0.00112	<0.05164	<28.1	39.9	<28.1	39.9	1,110
T-3	10.5	Bottom (W)	01/08/2019	Excavated	<0.00118	0.1111	66.2	337	52.1	455.3	1,200
S-1	4	Bottom	03/04/2019	In-situ	<0.00110	<0.0066	<27.5	<27.5	<27.5	<27.5	1,220
S-2	5	Bottom	03/04/2019	Excavated	<0.0233	<0.05582	<29.1	332	48.7	380.7	2,960
	6	Bottom	03/08/2019	Excavated	--	--	<27.8	104	<27.8	104	1,050
	6.5	Bottom	05/08/2029	In-situ	<0.00106	<0.00637	<26.6	<26.6	<26.6	<26.6	432
	3	Sidewall (N)	05/08/2029	In-situ	<0.00103	<0.00618	<25.8	72.3	<25.8	72.3	166
	3	Sidewall (S)	05/08/2029	In-situ	<0.00101	<0.00606	<25.3	<25.3	<25.3	<25.3	2.23
	3	Sidewall (W)	05/08/2029	In-situ	<0.00110	<0.0066	<27.5	<27.5	<27.5	<27.5	2.76
S-3	4	Bottom	03/04/2019	In-situ	<0.00122	<0.00732	<30.5	116	<30.5	116	1,260
S-4	4	Bottom	03/04/2019	In-situ	<0.00115	<0.0069	<28.7	<28.7	<28.7	<28.7	1,710
S-5	4	Bottom	03/04/2019	In-situ	<0.00112	<0.00673	<28.1	<28.1	<28.1	<28.1	2,430
S-6	4	Bottom	03/04/2019	In-situ	<0.00119	<0.00714	<29.8	36.9	<29.8	36.9	2,650
S-7	6	Bottom	03/04/2019	Excavated	<0.0222	<0.1332	244	4,100	580	4,924	1,210
	7	Bottom	03/08/2019	Excavated	--	--	54.5	89.3	<28.1	543.8	1,330
	12	Bottom	05/08/2019	Excavated	<0.00116	<0.00697	<29.1	<29.1	<29.1	<29.1	1,420
	17	Bottom	05/13/2019	In-situ	--	--	<36.8	<36.8	<36.8	<36.8	--
	6	Sidewall (S)	05/08/2019	In-situ	<0.00112	<0.00673	<28.1	<28.1	<28.1	<28.1	1,100
	9	Sidewall (S)	05/13/2019	In-situ	<0.00115	<0.0069	<28.7	<28.7	<28.7	<28.7	1,250
	6	Sidewall (N)	05/08/2019	In-situ	<0.00104	<0.00624	<26.0	<26.0	<26.0	<26.0	1,080

Table 4a
1RP-4832 and 1RP-5340
Delineation Soil Sample Analytical Data Summary
EMSU Satellite #13 Produced Water Spill, XTO Energy, Inc.
Latitude: 32.575775° Longitude: -103.321961°
Lea County, New Mexico

Sample	Depth (Feet)	Position	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL					10	50				100	600
	6	Sidewall (W)	05/13/2019	In-situ	<0.00114	<0.00683	<28.4	<28.4	<28.4	<28.4	1,240
	9	Sidewall (N)	05/13/2019	In-situ	<0.00110	<0.0066	<27.5	<27.5	<27.5	<27.5	765
S-8	10	Bottom	03/04/2019	Excavated	<0.0230	4.077	2,290	10,100	1,620	14,010	1,010
	11	Bottom	03/08/2019	Excavated	--	--	79.5	696	102	877.5	477
	12	Bottom	03/08/2019	Excavated	--	--	<29.4	72.5	<29.4	72.5	826
	13	Bottom	05/08/2019	In-situ	<0.00147	<0.00882	<36.8	<36.8	<36.8	<36.8	521
	6.5	Sidewall (N)	05/08/2019	In-situ	<0.00147	0.00191	<36.8	<36.8	<36.8	<36.8	606
	6.5	Sidewall (S)	05/08/2019	In-situ	<0.00137	<0.00795	<34.2	<34.2	<34.2	<34.2	590
S-9	11	Bottom	03/04/2019	Excavated	0.332	21.532	5,570	13,100	2,440	21,110	1,490
	12	Bottom	03/08/2019	Excavated	--	--	1,180	2,840	479	4,499	1,150
	13	Bottom	03/08/2019	Excavated	--	--	92.3	205	38.1	335.4	810
	18	Bottom	05/07/2019	In-situ	<0.00111	<0.00555	<27.8	<27.8	<27.8	<27.8	727
	9	Sidewall (E)	05/07/2019	In-situ	<0.00111	<0.00555	<27.8	61.0	<27.8	61.0	1,120
	9	Sidewall (W)	05/07/2019	In-situ	<0.00115	<0.0069	<28.7	<28.7	<28.7	<28.7	659
S-10	11	Bottom	03/04/2019	Excavated	0.118	7.925	1,720	5,640	943	8,303	1,840
	12	Bottom	03/08/2019	Excavated	--	--	533	1,100	186	1,819	888
	13	Bottom	03/08/2019	Excavated	--	--	30.2	41.5	<29.4	71.7	1,780
	16	Bottom	05/09/2019	In-situ	<0.00110	<0.0066	<27.5	<27.5	<27.5	<27.5	926
	8	Sidewall (S)	05/09/2019	In-situ	<0.00111	<0.00555	<27.8	<27.8	<27.8	<27.8	960
	8	Sidewall (W)	05/09/2019	In-situ	<0.00114	<0.00683	<28.4	<28.4	<28.4	<28.4	1,290
	8	Sidewall (N)	05/09/2019	In-situ	<0.00111	<0.00555	<27.8	<27.8	<27.8	<27.8	1,640
S-11	12	Bottom	03/04/2019	Excavated	<0.0241	4.597	1,400	5,130	902	7,432	1,750
	13	Bottom	03/08/2019	Excavated	--	--	304	1,070	164	1,538	1,580
	16	Bottom	03/08/2019	Excavated	--	--	1,010	3,470	530	5,010	2,190
	18	Bottom	05/09/2019	In-situ	<0.00111	<0.00555	<27.8	<27.8	<27.8	<27.8	449

Table 4a
1RP-4832 and 1RP-5340
Delineation Soil Sample Analytical Data Summary
EMSU Satellite #13 Produced Water Spill, XTO Energy, Inc.
Latitude: 32.575775° Longitude: -103.321961°
Lea County, New Mexico

Sample	Depth (Feet)	Position	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL					10	50				100	600
S-12	11	Bottom	03/04/2019	Excavated	<0.238	3.292	3,060	18,800	2,830	24,690	1,910
	12	Bottom	03/08/2019	Excavated	--	--	164	1,290	189	1,643	1,720
	13	Bottom	03/08/2019	Excavated	--	--	<32.9	57.3	<32.9	57.3	2,470
	14	Bottom	05/08/2019	In-situ	<0.00116	<0.00697	<29.1	<29.1	<29.1	<29.1	274
	7	Sidewall (N)	05/08/2019	In-situ	<0.00137	<0.00822	<34.2	<34.2	<34.2	<34.2	1,800
S-13	10	Bottom	03/04/2019	Excavated	<0.00109	<0.00109	<27.2	457	63.3	520.3	1,090
	11	Bottom	03/08/2019	Excavated	--	--	<30.1	<30.1	<30.1	<30.1	477
	11	Bottom	05/08/2019	Excavated	<0.00116	<0.00697	<29.1	<29.1	<29.1	<29.1	972
	12	Bottom	03/08/2019	In-situ	--	--	<29.1	<29.1	<29.1	<29.1	1,120
S-14	10	Bottom	03/04/2019	Excavated	<0.00109	<0.00109	<27.2	237	38.0	275	972
	11	Bottom	03/08/2019	In-situ	--	--	<27.2	<27.2	<27.2	<27.2	809
	11	Bottom	05/08/2019	In-situ	<0.00115	<0.0069	<28.7	<28.7	<28.7	<28.7	1,020
	5.5	Sidewall (N)	05/08/2019	In-situ	<0.00102	<0.00612	<25.5	<25.5	<25.5	<25.5	630
	5.5	Sidewall (S)	05/08/2019	In-situ	<0.0143	<0.09152	<357	<357	<357	<357	3,450
	5.5	Sidewall (E)	05/08/2019	In-situ	<0.00128	<0.00768	<32.1	<32.1	<32.1	<32.1	41.1

Notes: analysis performed by Permian Basin Laboratory, Midland, Texas by EPA SW-846 Methods 80121B (BTEX), 8015M (TPH) and 300 (chloride)
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
Highlighted denotes concentration exceeds TPH closure critieria standard (Table 1 19.15.29 NMAC)
Highlighted denotes concentration exceeds chloride closure critieria standard (Table 1 19.15.29 NMAC)

<27.8

Table 5
1RP-4832 and 1RP-5340
Backfill Soil Sample Analytical Data Summary
EMSU Satellite #13 Produced Water Leak, XTO Energy, Inc.,
Latitude: 32.575775° Longitude: -103.321961°
Lea County, New Mexico

Sample	Collection Date	Status	Chloride (mg/Kg)
RRAL			600
Backfill Caliche 1	6/4/19	In-Situ	7.95
Backfill Caliche 2	6/4/19	In-Situ	4.74
Backfill Caliche 3	6/4/19	In-Situ	<1.27
Backfill Caliche 4	6/4/19	In-Situ	<1.22
Backfill Caliche 5	6/4/19	In-Situ	1.23
Backfill Caliche 6	6/4/19	In-Situ	3.99
Backfill Caliche 7	6/4/19	In-Situ	11.6
Backfill Caliche 8	6/4/19	In-Situ	5.40
Backfill Caliche 9	6/4/19	In-Situ	2.64
Backfill Caliche 10	6/4/19	In-Situ	<1.12
Backfill Caliche 11	6/4/19	In-Situ	3.43
Backfill Caliche 12	6/4/19	In-Situ	<1.15
Backfill Caliche 13	6/4/19	In-Situ	2.04
Backfill Caliche 14	6/4/19	In-Situ	1.68
Backfill Caliche 15	6/4/19	In-Situ	2.77
Backfill Caliche 16	6/4/19	In-Situ	2.80
Backfill Topsoil 1	6/4/19	In-Situ	1.53
Backfill Topsoil 2	6/4/19	In-Situ	1.69
Backfill Topsoil 3	6/4/19	In-Situ	<1.15
Backfill Topsoil 4	6/4/19	In-Situ	1.24
Backfill Topsoil 5	6/4/19	In-Situ	3.68

Notes: analysis performed by Permian Basin Laboratory, Midland, Texas by EPA Method 300
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)

Tables

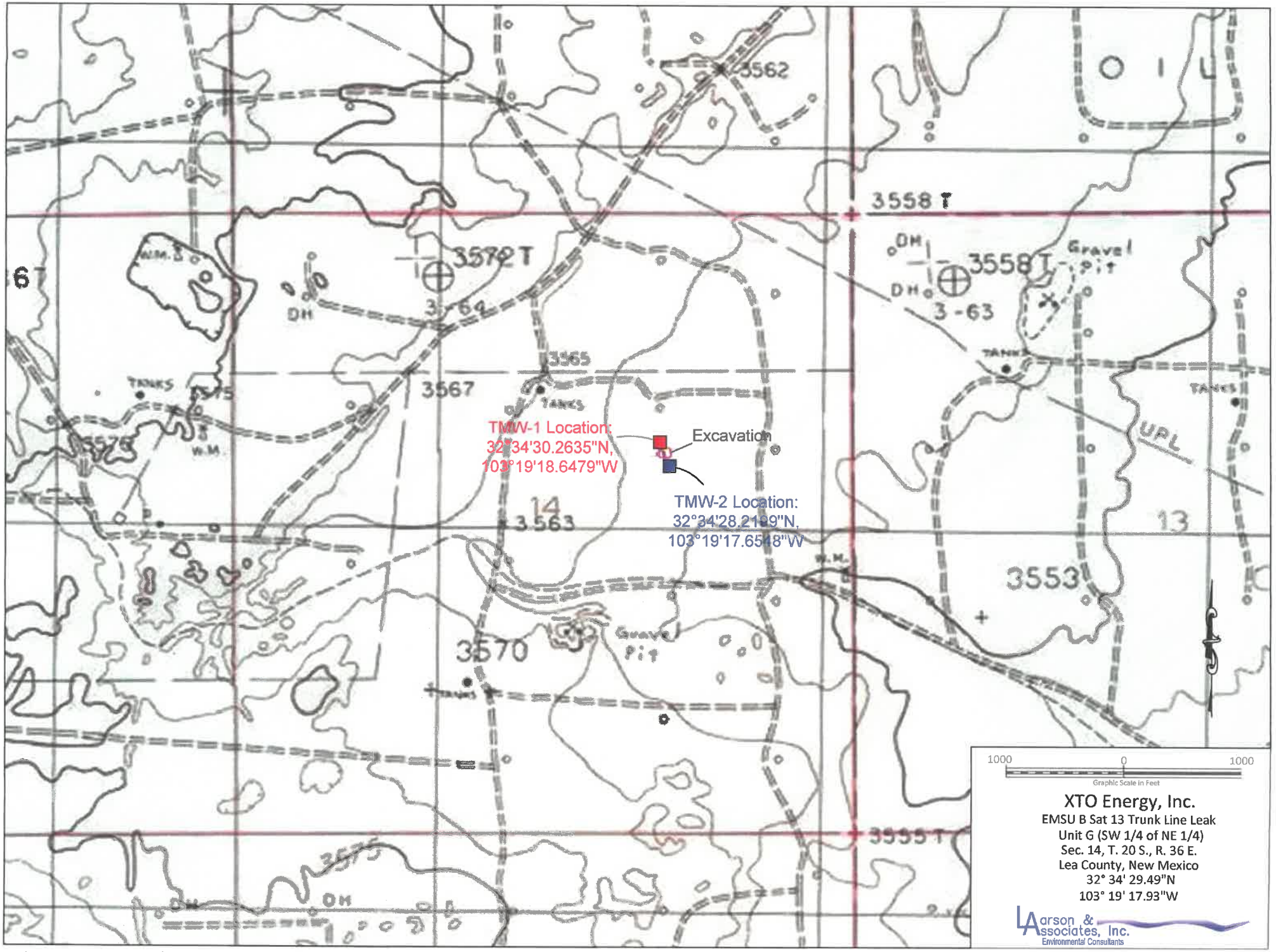


Figure 1 - Topographic Map Showing Monitoring Well Locations

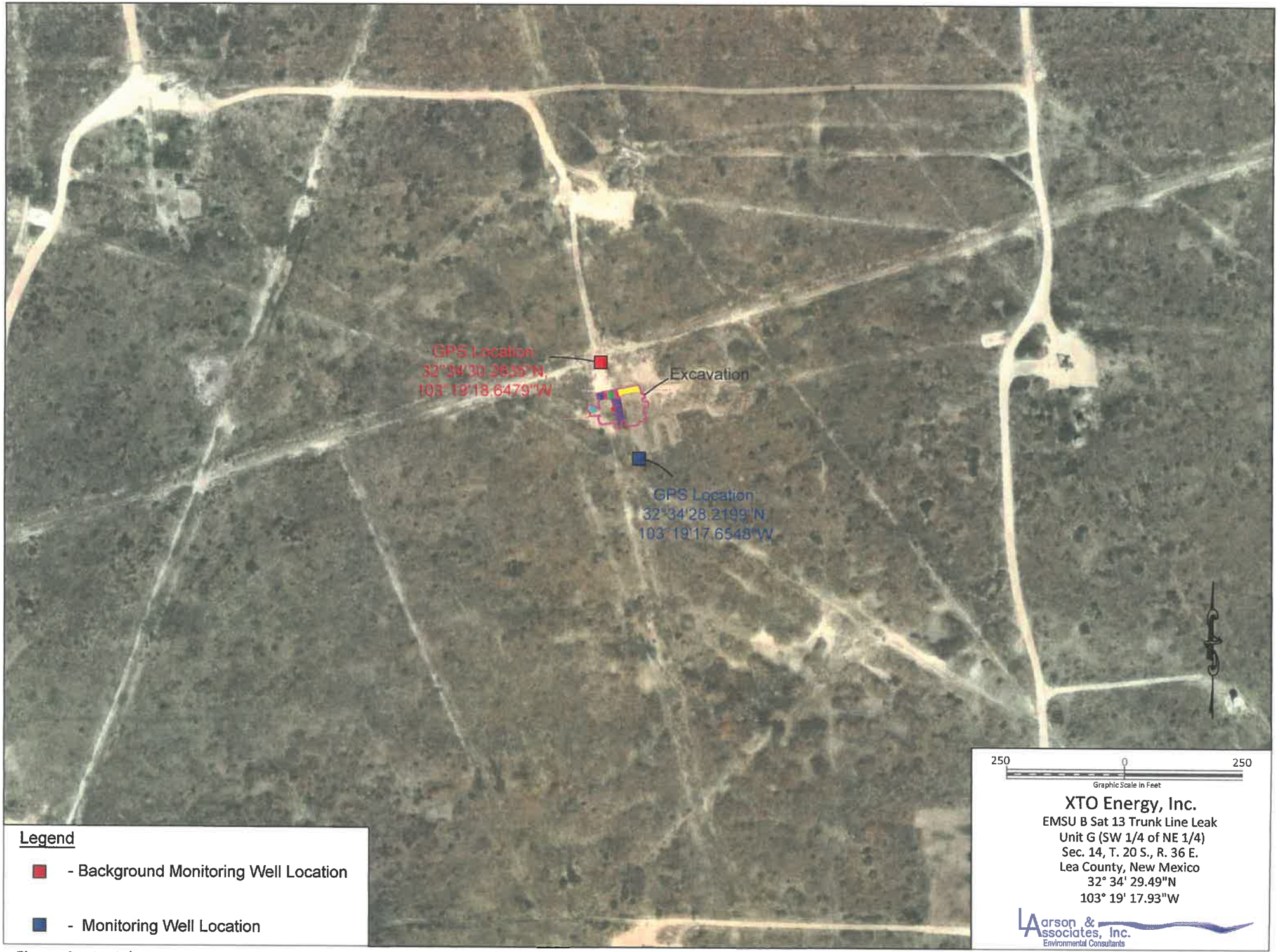


Figure 2 - Aerial Map

Figure 3 - Aerial Map Showing Delineation Soil Sample Locations and Excavation

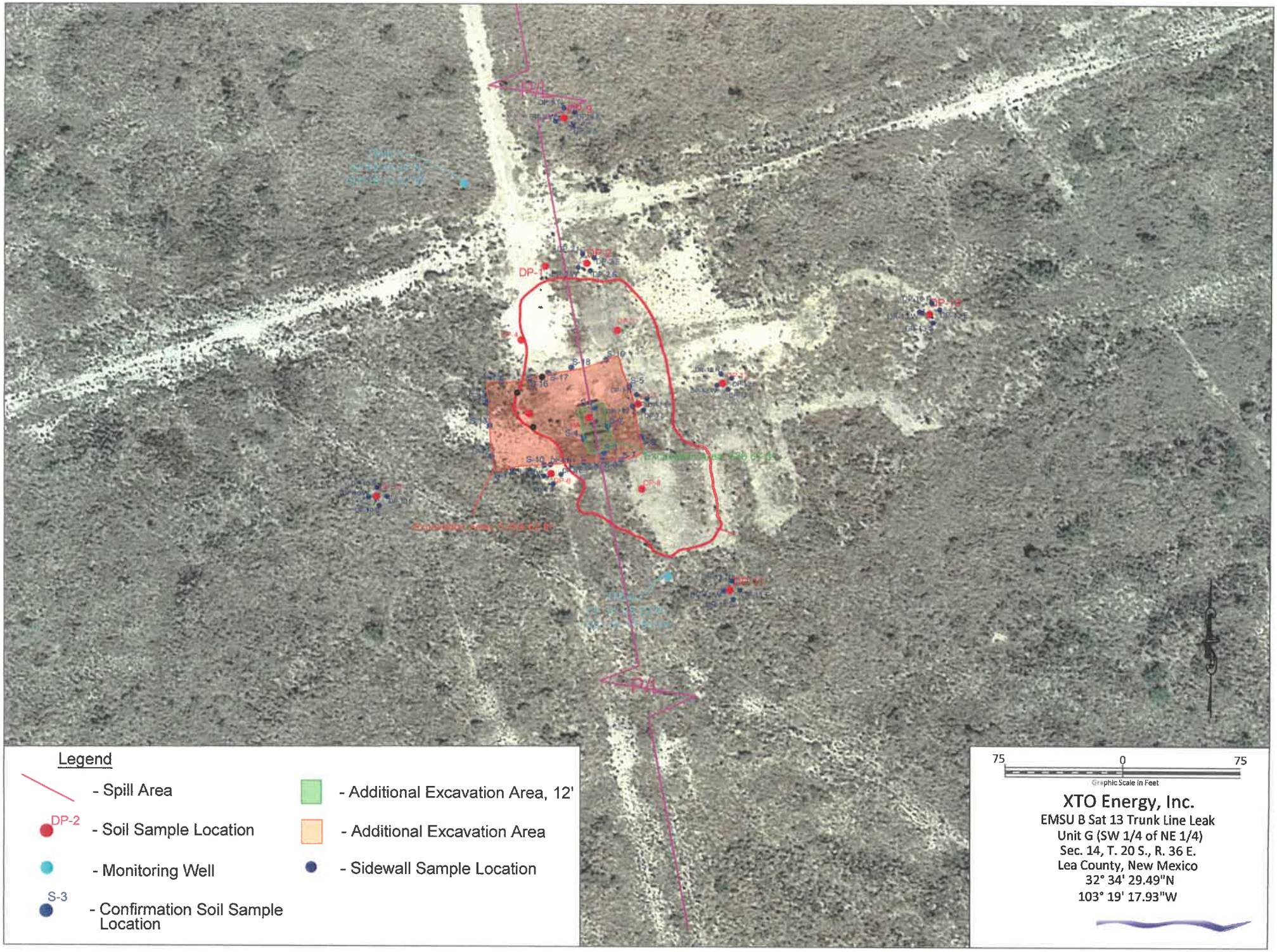


Figure 4 - Aerial Map Showing Excavation Areas and Confirmation Sample Locations

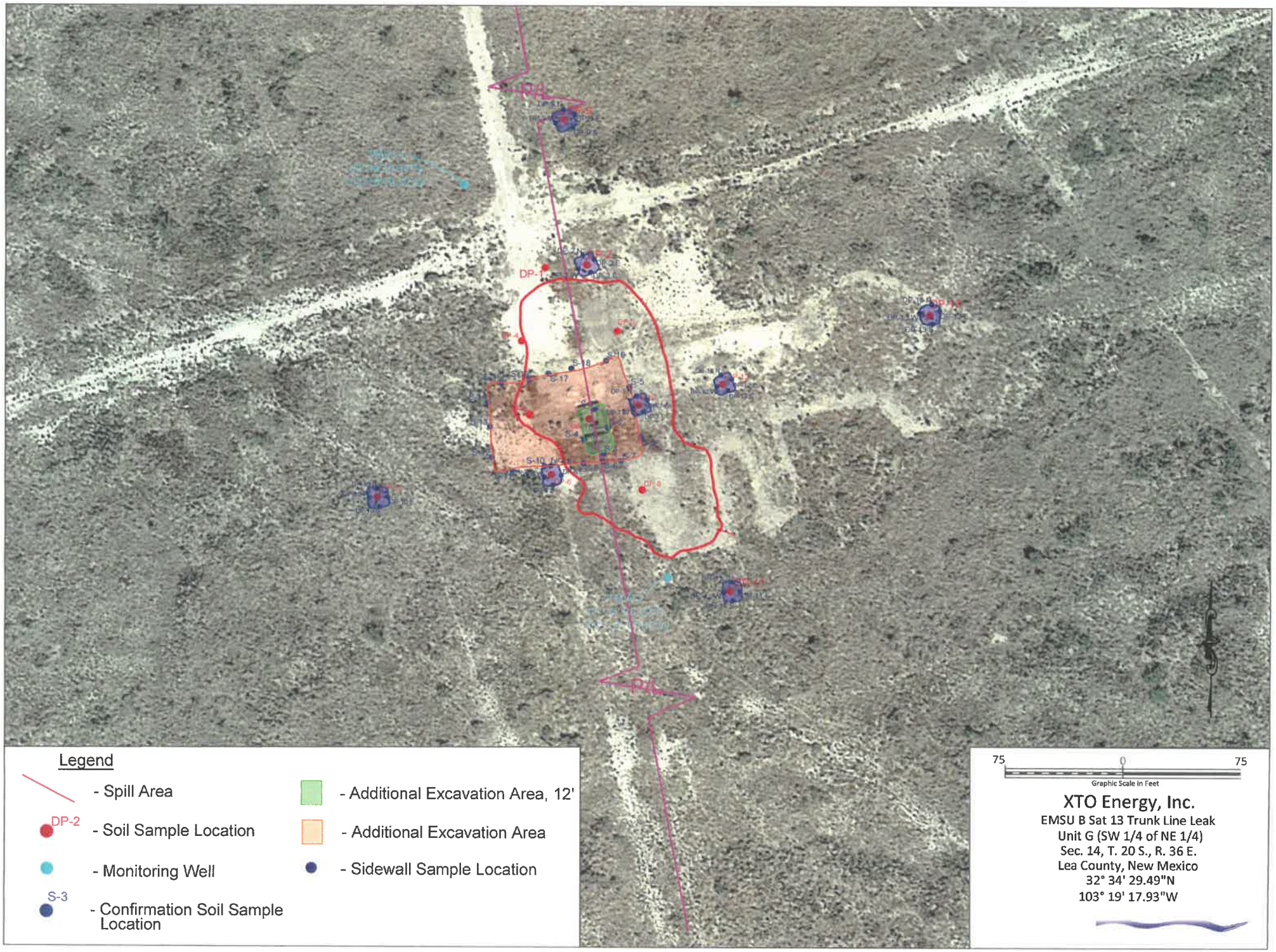
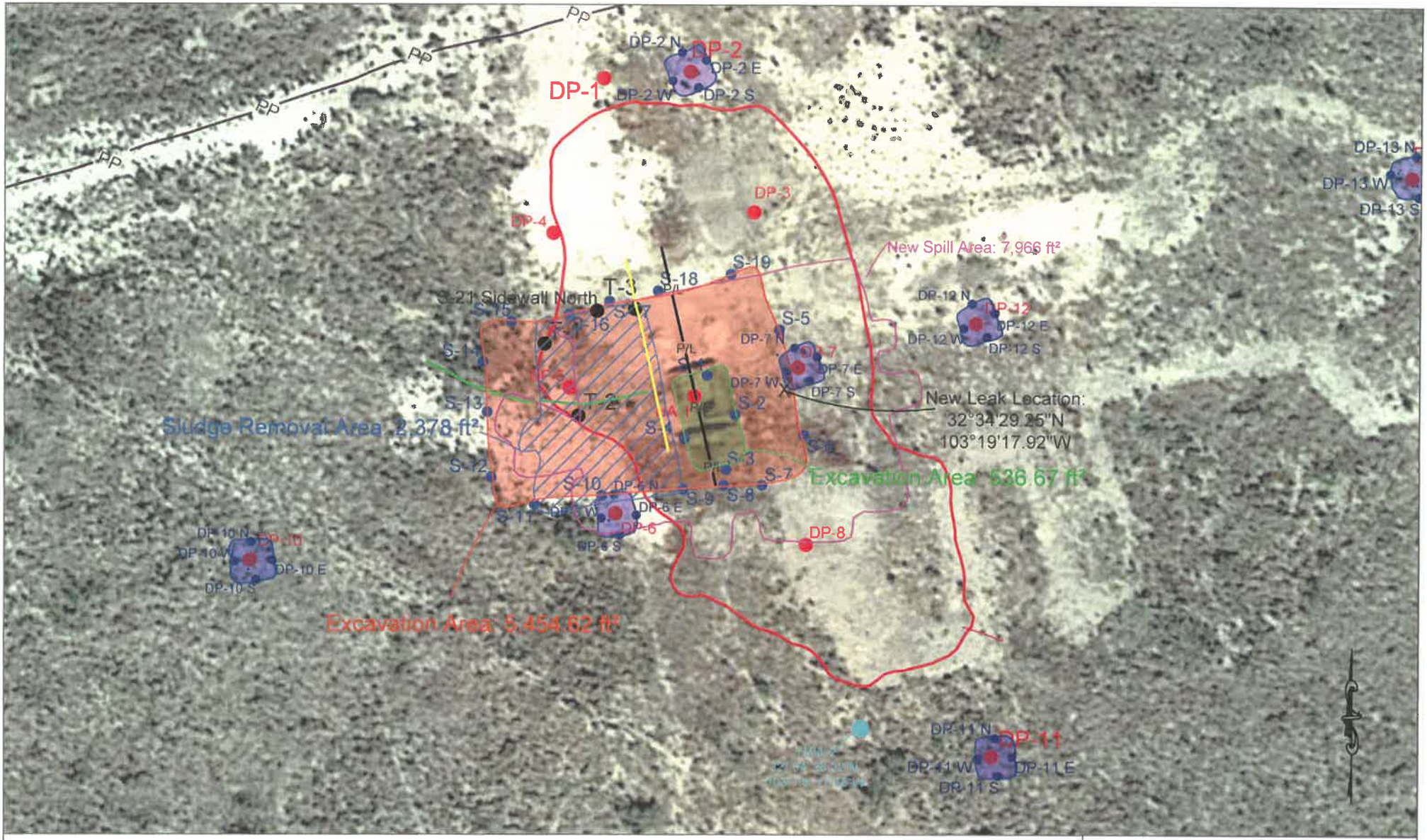


Figure 4 - Aerial Map Showing Excavation Areas and Confirmation Sample Locations



Legend

- Spill Area
- Excavation Area January, 09 2019
- DP-2 - Soil Sample Location
- Monitoring Well
- —P/L— - Exposed Pipeline
- S-3 - Confirmation Soil Sample Location
- Excavation Area
- Additional Excavation Area, 12'
- Additional Excavation Area
- Sidewall Sample Location
- Sludge Removal Area
- —PP— - Petroleum Pipeline
- Damaged Injecion Line
- White 8" Line
- X - New Leak Location

40 0 40
Graphic Scale In Feet

XTO Energy, Inc.
EMSU B Sat 13 Trunk Line Leak
Unit G (SW 1/4 of NE 1/4)
Sec. 14, T. 20 S., R. 36 E.
Lea County, New Mexico
32° 34' 29.49"N
103° 19' 17.93"W

Figure 5 - Aerial Map Showing Excavation and New Spill Area

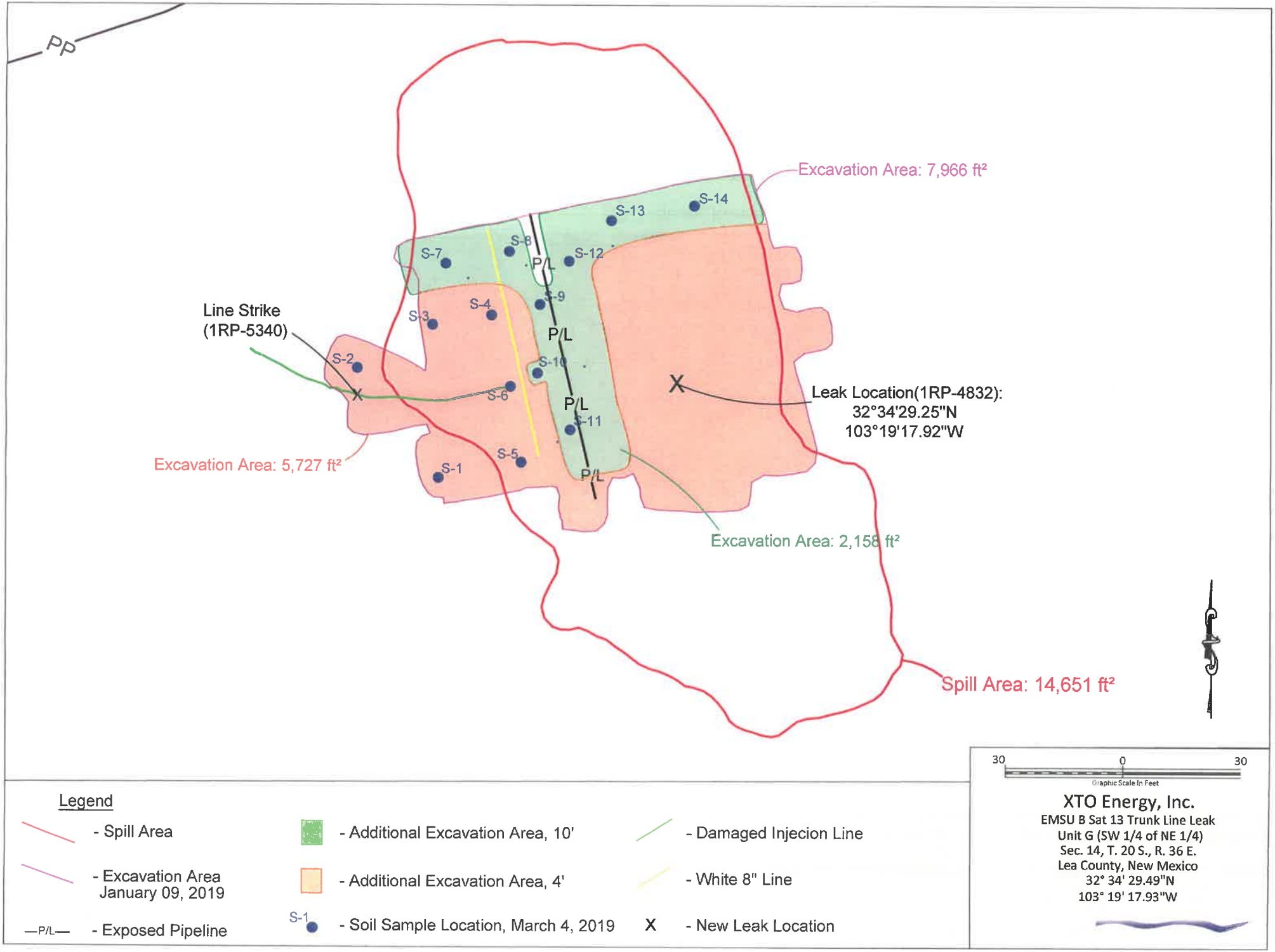


Figure 6 - Site Map Showing Excavation Areas and Soil Sample Locations

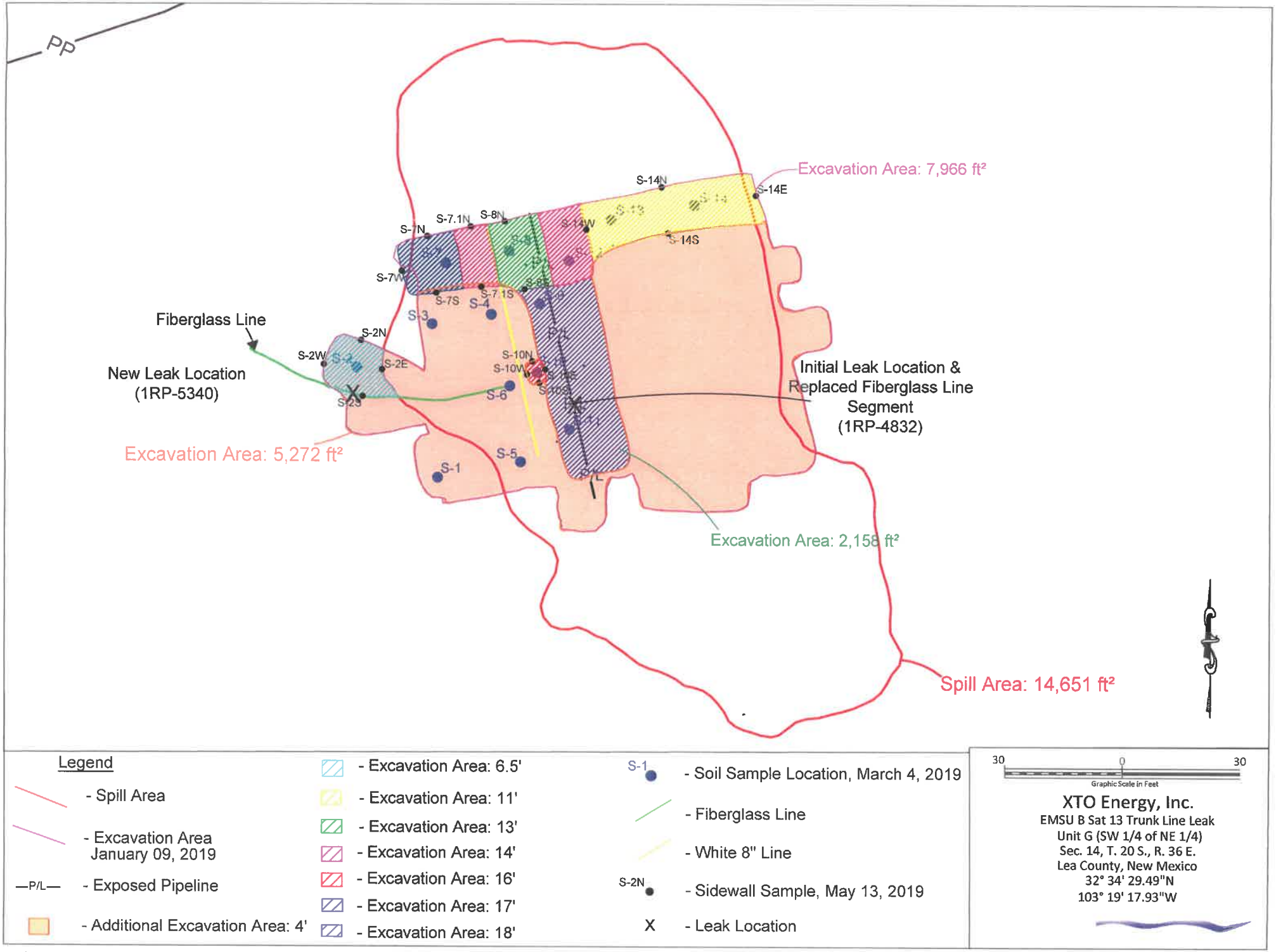


Figure 7 - Site Map Showing Excavation Areas and Soil Sample Locations

Appendix A

C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: XTO ENERGY INC.	Contact SHANNON WALKER
Address: 500 W. ILLINOIS SUITE 100 MIDLAND, TX 79701	Telephone No. 575-394-2089
Facility Name: EMSU B Satelite #13	Facility Type: Satellite

Surface Owner: Jimmie T. Cooper	Mineral Owner: BLM	API No. N/A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	14	20S	36E					

Latitude 32° 34' 32.79"N Longitude 103° 19' 19.06"W NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 34.06bbls	Volume Recovered:0bbls
Source of Release:4" FG Trunk line	Date and Hour of Occurrence: 09/20/2017	Date and Hour of Discovery 09/20/2017 @ 12:30 MT
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Olivia Yu	
By Whom? Shannon Walker	Date and Hour 09/20/2017	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

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

RECEIVED
By Olivia Yu at 1:35 pm, Sep 29, 2017

Describe Cause of Problem and Remedial Action Taken.*

Line rupture, no remedial action taken at this time. Larson and Associates have been assigned for remediation.
Estimated area affected: L45'x W10'x D4"

Describe Area Affected and Cleanup Action Taken.*
Pasture Land, no remediation has taken place as of this time.

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

Signature: Patricia Donald

Printed Name: Patricia Donald

Title: Regulatory Analyst

E-mail Address: Patricia_Donald@xtoenergy.com

Date: 09/28/2017 Phone:432-571-8220

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: ONJ

Approval Date: 9/29/2017 Expiration Date:

Conditions of Approval:
see attached directive

Attached ☑

* Attach Additional Sheets If Necessary

fOY1727249863 1RP-4832 nOY1727250040 pOY1727250266

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _9/29/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-4832__ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _10/29/2017_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

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	NCH1903648978
District RP	1RP-5340
Facility ID	fOY1727249863
Application ID	pCH1903649364

Release Notification

Responsible Party

Responsible Party XTO Energy	OGRID 5380
Contact Name Shelby Pennington	Contact Telephone 281-723-9353
Contact email shelby_pennington@xtoenergy.com	Incident # NCH1903648978 EMSU SATELLITE #13 @ FOY1727249863
Contact mailing address 6401 Holiday Hill Rd. Building 5 Midland TX 79707	

Location of Release Source

Latitude 32.5747917° N Longitude -103.3216444° W
(NAD 83 in decimal degrees to 5 decimal places)

Site Name EMSU Satellite #13	Site Type Flowline
Date Release Discovered 1/07/2019	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
G	14	20S	36E	Lea

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

Federal Minerals

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) 332 bbls	Volume Recovered (bbls) 300 bbls
	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 flowline was struck by a track hoe during soil remediation.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The release was a volume more than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Email to Christina Hernandez (OCD District 1) and Jim Griswold (OCD Santa Fe) by Shelby Pennington, 01/08/2019	

Initial Response

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

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

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

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

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

Printed Name: Shelby Pennington Title: Environmental Supervisor

Signature: Shelby G Pennington Date: 1/28/19

email: shelby_pennington@xtoenergy.com Telephone: 281-723-9353

OCD Only

Received by: RECEIVED By CHernandez at 1:37 pm, Feb 05, 2019 Date: _____

Appendix B

Regulatory Communications

From:	Tucker, Shelly
To:	Mark Larson
Cc:	Pennington, Shelby
Subject:	Re: [EXTERNAL] FW: 1RP-4832 - Delineation Report, EMSU B Satellite #13 Trunk Line Leak, XTO Energy, Inc., July 6, 2018
Date:	Wednesday, September 19, 2018 2:53:23 PM

BLM concurs with NMOCD.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Shelly J Tucker
Environmental Protection Specialist
O&G Spill/Release Coordinator

575.234.5905 - Direct
575.361.0084 - Cellular
575.234.6235 - Emergency Spill Number

stucker@blm.gov

Bureau of Land Management
620 E. Greene St
Carlsbad, NM 88220

***NOTE:** LPC Timing Stipulations - from **March 1st through June 15th**. Please plan remedial activities accordingly. Check for African Rue...treat (before it gets out of control).*

On Mon, Jul 23, 2018 at 4:46 PM Mark Larson <Mark@laenvironmental.com> wrote:

> Dear Ms. Tucker,
>
> Larson & Associates, Inc. (LAI), on behalf of XTO Energy, Inc. (XTO) requests approval from the US Bureau of Land Management (BLM) to complete remediation at the EMSU B Satellite 13 truck line produced water spill site, as approved below by OCD.
>
> Respectfully,
>
> Mark J. Larson, P.G.
>
> President/Sr. Hydrogeologist

507 N. Marienfeld St., Suite 205

Midland, Texas 79701

Office – 432-687-0901

Cell – 432- 556-8656

Fax – 432-687-0456

mark@laenvironmental.com

Logo

"Serving the Permian Basin Since 2000"

From: Hernandez, Christina, EMNRD [mailto:Christina.Hernandez@state.nm.us]
Sent: Monday, July 23, 2018 5:35 PM
To: Mark Larson; 'Tucker, Shelly'; Yu, Olivia, EMNRD
Cc: 'Pennington, Shelby'
Subject: RE: 1RP-4832 - Delineation Report, EMSU B Satellite #13 Trunk Line Leak, XTO Energy, Inc., July 6, 2018

Mr. Larson:

Like approval from BLM required.

Thanks,

Christina Hernandez

EMNRD-OCD

Environmental Specialist

1625 N. French Drive

Hobbs, NM 88240

575-393-6161 x111

Christina.Hernandez@state.nm.us

From: Hernandez, Christina, EMNRD
Sent: Monday, July 23, 2018 2:53 PM
To: 'Mark Larson' <Mark@laenvironmental.com>; 'Tucker, Shelly' <stucker@blm.gov>; Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: 'Pennington, Shelby' <Shelby_Pennington@xtoenergy.com>
Subject: RE: 1RP-4832 - Delineation Report, EMSU B Satellite #13 Trunk Line Leak, XTO Energy, Inc., July 6, 2018

Dear Mr. Larson:

Notes

- Please use different colors within a single map to facilitate interpretation and approval.
- Please clarify location of the 4' extended excavation relative to the other excavations as it is unclear. Will it be 10 ft north of the current excavation or 10 ft north of the proposed 12' extended excavation?
- Areas that show historic releases (DP-2, DP-6, DP-7, DP-9, DP-10, DP-11, DP-12, DP-13) must be remediated as well due to high mobility of chlorides.

Delineation completed and proposed remediation is approved with the following stipulations:

- Please note that both proposed monitoring wells are required, one up gradient and one down gradient from spill release location as noted. (Mr. Brad Billings, NMOCD Santa Fe, may have additional stipulations).
- Please be advised that all laboratory analyses (Benzene, BTEX, and TPH extended) are required for proposed 12' and 4' extended excavation confirmation bottom and sidewall sample locations; complete laboratory analyses will also be required for groundwater testing.
- Please address historical releases; please be advised to excavate to 4' at these (DP-2, DP-6, DP-7, DP-9, DP-10, DP-11, DP-12, DP-13) locations and collect sidewall samples as well.
- After proper placement of 20 mil liner and back filling, sample every 50 cubic yards.

Thanks,

Christina Hernandez

EMNRD-OCD

Environmental Specialist

1625 N. French Drive

Hobbs, NM 88240

575-393-6161 x111

Christina.Hernandez@state.nm.us

From: Mark Larson <Mark@laenvironmental.com>
Sent: Friday, July 13, 2018 3:03 PM
To: 'Tucker, Shelly' <stucker@blm.gov>; Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>; Hernandez, Christina, EMNRD <Christina.Hernandez@state.nm.us>

Cc: 'Pennington, Shelby' <Shelby_Pennington@xtoenergy.com>
Subject: FW: 1RP-4832 - Delineation Report, EMSU B Satellite #13 Trunk Line Leak, XTO Energy, Inc., July 6, 2018

Shelly,

Please accept my apology for not including you on the attached submittal to OCD District 1. Please contact Shelby Pennington with XTO at (432) 682-8873 or email Shelby_Pennington@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.

President/Sr. Project Manager

507 N. Marienfeld St., Suite 205

Midland, Texas 79701

(432) 687-0901 (O)

(432) 556-8656 (C)

Logo

www.LAEnvironmental.com

"Serving the Permian Basin Since 2000"

From: Mark Larson
Sent: Friday, July 13, 2018 4:00 PM

To: 'Yu, Olivia, EMNRD'; 'Christina.Hernandez@state.nm.us'
Cc: 'Pennington, Shelby'
Subject: Re: 1RP-4832 - Delineation Report, EMSU B Satellite #13 Trunk Line Leak, XTO Energy, Inc., July 6, 2018

Dear Ms. Yu and Ms. Hernandez,

Larson & Associates, Inc. (LAI), on behalf of XTO Energy, Inc. (XTO), submits the attached delineation report for a produced water leak from the EMSU Satellite #13 trunk line. XTO proposes the following remedial actions in response to the spill:

- Install one (1) monitoring well down gradient (south) of the spill constructed with 2 inch schedule 40 threaded PVC and fifteen (15) feet of well screen positioned between approximately 30 and 45 feet bgs;
- Collect groundwater samples for field (chloride) and laboratory (BTEX and chloride) analysis by EPA SW-846 Methods 8021B and Method 300, respectively;
- Install second temporary monitoring well up gradient (north) of spill if field chloride analysis demonstrate concentration greater than 250 milligrams per liter (mg/L) and construct similar to down gradient well;
- Expand excavation north, south and west between about 5 to 10 feet from current excavation boundary to depth of about 12 feet bgs and collect confirmation bottom sample at approximately 12 feet bgs (HA-1) and sidewalls (north, south, east and west) at approximately 2, 8 and 10 feet bgs and analyze for TPH by EPA SW-846 Method 8015M, including GRO (C6-C12), DRO (>C12-C28) and ODR (>C28-C35);
- Excavate additional soil from sidewalls and bottom as necessary to reduce TPH below 100 mg/Kg;
- Assuming no further soil excavation backfill excavation with caliche to approximately 4 feet bgs;
- Expand excavation to depth of approximately 4 feet bgs north (10 feet), south (5 feet), east (15 feet) and west (30 feet) and collect bottom (4 feet) and sidewall (2 feet) confirmation samples for laboratory analysis (TPH and chloride) by EPA SW-846 Method 8015M and Method 300, respectively, to confirm concentrations below 100 mg/Kg (TPH) and 250 mg/Kg (chloride);
- Expand excavation as needed (north, south, east and west) approximately 4 feet bgs until sidewall confirmation samples report TPH and chloride below 100 mg/Kg and 250 mg/kg, respectively;
- Assuming no further soil excavation install 20 mil thickness poly liner in bottom of excavation at approximately 4 feet bgs, backfill excavation with clean soil and seed to landowner specifications;
- Dispose of excavated soil at Sundance (Parabo) disposal.

Your approval of the delineation report and proposed remediation plan are appreciated. Please contact Shelby Pennington with XTO at (432) 682-8873 or email Shelby_Pennington@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.

President/Sr. Project Manager

507 N. Marienfeld St., Suite 205

Midland, Texas 79701

(432) 687-0901 (O)

(432) 556-8656 (C)

Logo

www.LAEnvironmental.com

"Serving the Permian Basin Since 2000"

From: Yu, Olivia, EMNRD [mailto:Olivia.Yu@state.nm.us]
Sent: Tuesday, November 28, 2017 1:06 PM
To: Mark Larson
Cc: 'Williams, Luke'; 'Donald, Patricia'
Subject: RE: 1RP-4832 - Delineation Plan, EMSU B Satellite #13 Trunk Line Leak, XTO Energy, Inc., October 15, 2017

Mr. Larson:

The proposed delineation report for 1RP-4832 is approved with these stipulations:

- Please note that based on the release outlined in Figure 3, there are 2 NMOSE wells (L04507 & L10135) within 1000 ft. of the GPS coordinates for the site.
- Delineate to 600 mg/kg chloride levels and maintained for 10 ft. further in depth.
- At least two depths for each sample location must have laboratory analyses: depth obtained and depth maintained permissible levels of chlorides, TPH extended, and BTEX. Include all pertinent field data.
- Please be advised that with average depth to groundwater < 50 ft. bgs, a temporary monitoring well may be required.
- In the subsequent delineation report, please include on one or more appropriately scaled maps: 1) the release area and pipeline trench outlined; 2) delineation and proposed confirmation sample locations demarcated with GPS coordinates; 3) and dimensions and depths of proposed excavations annotated.

Please confirm or inform if clarification is required.

Thanks,

Olivia Yu

Environmental Specialist

NMOCD, District I

Olivia.yu@state.nm.us

575-393-6161 x113

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Monday, November 27, 2017 2:41 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: 'Williams, Luke' <Luke_Williams@xtoenergy.com>; 'Donald, Patricia' <Patricia_Donald@xtoenergy.com>
Subject: FW: 1RP-4832 - Delineation Plan, EMSU B Satellite #13 Trunk Line Leak, XTO Energy, Inc., October 15, 2017

Hello Olivia,

This message is submitted on behalf of XTO Energy, Inc. (XTO) as a follow up to the email sent on October 19, 2017, conveying the delineation plan for 1RP-4832, and approval to delineate the spill according to the attached plan? Please contact Luke Williams with XTO at (432) 682-8873 or email Luke_Willaims@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.

President/Sr. Project Manager

507 N. Marienfeld St., Suite 205

Midland, Texas 79701

(432) 687-0901 (O)

(432) 556-8656 (C)

Logo

www.LAEnvironmental.com

"Serving the Permian Basin Since 2000"

From: Mark Larson
Sent: Thursday, October 19, 2017 5:44 PM

To: 'Yu, Olivia, EMNRD'
Cc: 'Williams, Luke'; Sarah Johnson
Subject: Re: 1RP-4832 - Delineation Plan, EMSU B Satellite #13 Trunk Line Leak, XTO Energy, Inc., October 15, 2017

Dear Ms. Yu,

Larson & Associates, Inc. (LAI), on behalf of XTO Energy, Inc. (XTO), submits the attached delineation plan for a produced water leak from the flow line from EMSU Satellite #13 trunk line. Please contact Luke Williams with XTO at (432) 682-8873 or email Luke_Willaims@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.

President/Sr. Project Manager

507 N. Marienfeld St., Suite 205

Midland, Texas 79701

(432) 687-0901 (O)

(432) 556-8656 (C)

Logo

www.LAEnvironmental.com

"Serving the Permian Basin Since 2000"

Appendix C

Laboratory Reports

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Location: None Given

Lab Order Number: 8K19005

NELAP/TCEQ # T104704516-17-8

Report Date: 11/21/18

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP- 2 N (2')	8K19005-01	Soil	11/16/18 10:40	11-19-2018 11:40
DP- 2 E (2')	8K19005-02	Soil	11/16/18 10:41	11-19-2018 11:40
DP- 2 S (2')	8K19005-03	Soil	11/16/18 10:44	11-19-2018 11:40
DP- 2 W (2')	8K19005-04	Soil	11/16/18 10:45	11-19-2018 11:40
DP- 9 N (2')	8K19005-05	Soil	11/16/18 10:48	11-19-2018 11:40
DP- 9 E (2')	8K19005-06	Soil	11/16/18 10:50	11-19-2018 11:40
DP- 9 S (2')	8K19005-07	Soil	11/16/18 10:21	11-19-2018 11:40
DP- 9 W (2')	8K19005-08	Soil	11/16/18 10:53	11-19-2018 11:40
DP- 13 N (2')	8K19005-09	Soil	11/16/18 10:58	11-19-2018 11:40
DP- 13 E (2')	8K19005-10	Soil	11/16/18 11:00	11-19-2018 11:40
DP- 13 S (2')	8K19005-11	Soil	11/16/18 11:01	11-19-2018 11:40
DP- 13 W (2')	8K19005-12	Soil	11/16/18 11:02	11-19-2018 11:40
DP- 12 N (2')	8K19005-13	Soil	11/16/18 11:07	11-19-2018 11:40
DP- 12 E (2')	8K19005-14	Soil	11/16/18 11:09	11-19-2018 11:40
DP- 12 S (2')	8K19005-15	Soil	11/16/18 11:10	11-19-2018 11:40
DP- 12 W (2')	8K19005-16	Soil	11/16/18 11:12	11-19-2018 11:40
DP- 11 N (2')	8K19005-17	Soil	11/16/18 11:18	11-19-2018 11:40
DP- 11 E (2')	8K19005-18	Soil	11/16/18 11:20	11-19-2018 11:40
DP- 11 S (2')	8K19005-19	Soil	11/16/18 11:22	11-19-2018 11:40
DP- 11 W (2')	8K19005-20	Soil	11/16/18 11:23	11-19-2018 11:40
DP- 7 N (2')	8K19005-21	Soil	11/16/18 11:51	11-19-2018 11:40
DP- 7 E (2')	8K19005-22	Soil	11/16/18 11:53	11-19-2018 11:40
DP- 7 S (2')	8K19005-23	Soil	11/16/18 11:54	11-19-2018 11:40
DP- 7 W (2')	8K19005-24	Soil	11/16/18 11:56	11-19-2018 11:40
DP- 6 N (2')	8K19005-25	Soil	11/16/18 13:57	11-19-2018 11:40
DP- 6 E (2')	8K19005-26	Soil	11/16/18 13:59	11-19-2018 11:40
DP- 6 S (2')	8K19005-27	Soil	11/16/18 14:00	11-19-2018 11:40
DP- 6 W (2')	8K19005-28	Soil	11/16/18 14:03	11-19-2018 11:40
DP- 10 N (2')	8K19005-29	Soil	11/16/18 14:05	11-19-2018 11:40
DP- 10 E (2')	8K19005-30	Soil	11/16/18 14:06	11-19-2018 11:40
DP- 10 S (2')	8K19005-31	Soil	11/16/18 14:09	11-19-2018 11:40
DP- 10 W (2')	8K19005-32	Soil	11/16/18 14:11	11-19-2018 11:40

DP- 2 N (2')

8K19005-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Toluene	ND	0.0110	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Ethylbenzene	ND	0.00549	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0220	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (o)	ND	0.0110	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*119 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*88.4 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1.82**	1.10	mg/kg dry	1	P8K1914	11/19/18	11/20/18	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.2 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*117 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 2 E (2')

8K19005-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00116	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Toluene	ND	0.0116	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Ethylbenzene	ND	0.00581	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0233	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (o)	ND	0.0116	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*119 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*93.1 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1.24**	1.16	mg/kg dry	1	P8K1914	11/19/18	11/20/18	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.1	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*72.9 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*83.9 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	11/19/18	11/19/18	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

DP- 2 S (2')

8K19005-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00104	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Toluene	ND	0.0104	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Ethylbenzene	ND	0.00521	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0208	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (o)	ND	0.0104	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*120 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*95.4 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**4.24**	1.04	mg/kg dry	1	P8K1914	11/19/18	11/20/18	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*72.3 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*81.8 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	11/19/18	11/19/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 2 W (2')

8K19005-04 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00112	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Toluene	ND	0.0112	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Ethylbenzene	ND	0.00562	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0225	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (o)	ND	0.0112	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*119 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*90.0 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**5.42**	1.12	mg/kg dry	1	P8K1914	11/19/18	11/20/18	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.1	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*72.4 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*82.4 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	11/19/18	11/19/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 9 N (2')

8K19005-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00111	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Toluene	ND	0.0111	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Ethylbenzene	ND	0.00556	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0222	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (o)	ND	0.0111	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*90.0 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*118 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.11	mg/kg dry	1	P8K1914	11/19/18	11/20/18	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.8	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*63.6 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	*S-GC*
Surrogate: o-Terphenyl		*72.8 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	11/19/18	11/19/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 9 E (2')

8K19005-06 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00119	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Toluene	ND	0.0119	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Ethylbenzene	ND	0.00595	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0238	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (o)	ND	0.0119	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*130 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	*S-09*
Surrogate: 1,4-Difluorobenzene		*97.6 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.19	mg/kg dry	1	P8K1914	11/19/18	11/20/18	EPA 300.0	
% Moisture	**26.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.8	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	**46.9**	29.8	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	**29.8**	29.8	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*106 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*126 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**76.7**	29.8	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 9 S (2')

8K19005-07 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00116	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Toluene	ND	0.0116	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Ethylbenzene	ND	0.00581	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0233	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (o)	ND	0.0116	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*120 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*91.7 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.64**	1.16	mg/kg dry	1	P8K1914	11/19/18	11/20/18	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.1	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.6 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*111 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

DP- 9 W (2')

8K19005-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00116	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Toluene	ND	0.0116	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Ethylbenzene	ND	0.00581	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0233	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (o)	ND	0.0116	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*115 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*96.4 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.16	mg/kg dry	1	P8K1914	11/19/18	11/20/18	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.1	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.0 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*112 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 13 N (2')

8K19005-09 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Toluene	ND	0.0108	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Ethylbenzene	ND	0.00538	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0215	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Xylene (o)	ND	0.0108	mg/kg dry	1	P8K1910	11/19/18	11/19/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*108 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*87.7 %*	*75-125*		*P8K1910*	*11/19/18*	*11/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**56.1**	1.08	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*76.4 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*87.6 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	11/19/18	11/19/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 13 E (2')

8K19005-10 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0109	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00543	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0217	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0109	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*113 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*97.5 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**54.1**	1.09	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*101 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*119 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 13 S (2')

8K19005-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0108	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00538	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0215	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0108	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*88.8 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*104 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.49**	1.08	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*100 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*118 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 13 W (2')

8K19005-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0109	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00543	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0217	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0109	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*113 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*94.2 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**23.8**	1.09	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P8K1905	11/19/18	11/19/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*82.5 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*94.2 %*	*70-130*		*P8K1905*	*11/19/18*	*11/19/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	11/19/18	11/19/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 12 N (2')

8K19005-13 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00119	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0119	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00595	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0238	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0119	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*90.4 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*108 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.19	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.8	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	29.8	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	29.8	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*83.4 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*95.9 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	29.8	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 12 E (2')

8K19005-14 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00118	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0118	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00588	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0235	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0118	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*115 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*98.6 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.18	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.4	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.4 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*114 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

DP- 12 S (2')

8K19005-15 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0109	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00543	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0217	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0109	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*104 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*91.2 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.09	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*103 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*120 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 12 W (2')

8K19005-16 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00111	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0111	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00556	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0222	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0111	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*114 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*96.2 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.11	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.8	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	**42.4**	27.8	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	**36.8**	27.8	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*75.7 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*85.8 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**79.2**	27.8	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 11 N (2')

8K19005-17 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0110	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00549	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0220	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0110	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*94.8 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.10	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*107 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*126 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 11 E (2')

8K19005-18 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00112	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0112	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00562	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0225	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0112	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*94.7 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*120 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.12	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.1	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*80.9 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*93.0 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 11 S (2')

8K19005-19 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00114	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0114	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00568	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0227	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0114	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*108 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*97.6 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1.35**	1.14	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.4	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*90.2 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*103 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 11 W (2')

8K19005-20 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00114	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0114	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00568	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0227	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0114	mg/kg dry	1	P8K1910	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*113 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*92.0 %*	*75-125*		*P8K1910*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.14	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.4	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P8K1905	11/19/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*82.7 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*95.1 %*	*70-130*		*P8K1905*	*11/19/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	11/19/18	11/20/18	calc	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: XTO EMSU Sat 13 Project Number: 17-0193-01 Project Manager: Mark Larson	Fax: (432) 687-0456

DP- 7 N (2')

8K19005-21 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00114	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0114	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00568	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0227	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0114	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*88.9 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*119 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.14	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.4	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.0 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	11/20/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 7 E (2')

8K19005-22 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*96.2 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**425**	1.06	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*99.1 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*115 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	11/20/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 7 S (2')

8K19005-23 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*93.4 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.06	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*97.1 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*112 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	11/20/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 7 W (2')

8K19005-24 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*96.5 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**6.03**	1.06	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.2 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*111 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	11/20/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 6 N (2')

8K19005-25 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*113 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*94.9 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**15.5**	1.03	mg/kg dry	1	P8K1915	11/19/18	11/20/18	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*86.7 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*99.7 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	11/20/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 6 E (2')

8K19005-26 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*96.1 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**125**	1.06	mg/kg dry	1	P8K2006	11/20/18	11/20/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*92.5 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	11/20/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 6 S (2')

8K19005-27 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*92.7 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.61**	1.06	mg/kg dry	1	P8K2006	11/20/18	11/20/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.7 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*111 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	11/20/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 6 W (2')

8K19005-28 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0105	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00526	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0211	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0105	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*95.5 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**15.1**	1.05	mg/kg dry	1	P8K2006	11/20/18	11/20/18	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*91.8 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	11/20/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 10 N (2')

8K19005-29 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*94.8 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.06	mg/kg dry	1	P8K2006	11/20/18	11/20/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8K2010	11/20/18	11/20/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.2 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*107 %*	*70-130*		*P8K2010*	*11/20/18*	*11/20/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	11/20/18	11/20/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 10 E (2')

8K19005-30 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0109	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00543	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0217	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0109	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*120 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*94.4 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.09	mg/kg dry	1	P8K2006	11/20/18	11/20/18	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P8K2010	11/20/18	11/21/18	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P8K2010	11/20/18	11/21/18	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P8K2010	11/20/18	11/21/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.8 %*	*70-130*		*P8K2010*	*11/20/18*	*11/21/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P8K2010*	*11/20/18*	*11/21/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	11/20/18	11/21/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 10 S (2')

8K19005-31 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0108	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00538	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0215	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0108	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*94.7 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.08	mg/kg dry	1	P8K2006	11/20/18	11/20/18	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P8K2010	11/20/18	11/21/18	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P8K2010	11/20/18	11/21/18	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P8K2010	11/20/18	11/21/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.9 %*	*70-130*		*P8K2010*	*11/20/18*	*11/21/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*112 %*	*70-130*		*P8K2010*	*11/20/18*	*11/21/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	11/20/18	11/21/18	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

DP- 10 W (2')

8K19005-32 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00104	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Toluene	ND	0.0104	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Ethylbenzene	ND	0.00521	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (p/m)	ND	0.0208	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Xylene (o)	ND	0.0104	mg/kg dry	1	P8K1911	11/19/18	11/20/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*91.9 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P8K1911*	*11/19/18*	*11/20/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.04	mg/kg dry	1	P8K2006	11/20/18	11/20/18	EPA 300.0	
% Moisture	ND	0.1	%	1	P8K2003	11/20/18	11/20/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P8K2010	11/20/18	11/21/18	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P8K2010	11/20/18	11/21/18	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P8K2010	11/20/18	11/21/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.7 %*	*70-130*		*P8K2010*	*11/20/18*	*11/21/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*112 %*	*70-130*		*P8K2010*	*11/20/18*	*11/21/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	11/20/18	11/21/18	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8K1910 - General Preparation (GC)										
Blank (P8K1910-BLK1)				Prepared & Analyzed: 11/19/18						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 1,4-Difluorobenzene	*0.0533*		"	*0.0600*		*88.9*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0677*		"	*0.0600*		*113*	*75-125*			
LCS (P8K1910-BS1)				Prepared & Analyzed: 11/19/18						
Benzene	0.108	0.00100	mg/kg wet	0.100		108	70-130			
Toluene	0.110	0.0100	"	0.100		110	70-130			
Ethylbenzene	0.112	0.00500	"	0.100		112	70-130			
Xylene (p/m)	0.212	0.0200	"	0.200		106	70-130			
Xylene (o)	0.120	0.0100	"	0.100		120	70-130			
Surrogate: 1,4-Difluorobenzene	*0.0674*		"	*0.0600*		*112*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0682*		"	*0.0600*		*114*	*75-125*			
LCS Dup (P8K1910-BSD1)				Prepared & Analyzed: 11/19/18						
Benzene	0.102	0.00100	mg/kg wet	0.100		102	70-130	5.36	20	
Toluene	0.105	0.0100	"	0.100		105	70-130	4.20	20	
Ethylbenzene	0.103	0.00500	"	0.100		103	70-130	7.68	20	
Xylene (p/m)	0.214	0.0200	"	0.200		107	70-130	1.17	20	
Xylene (o)	0.118	0.0100	"	0.100		118	70-130	1.49	20	
Surrogate: 1,4-Difluorobenzene	*0.0645*		"	*0.0600*		*107*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0717*		"	*0.0600*		*120*	*75-125*			
Matrix Spike (P8K1910-MS1)	**Source: 8K19005-20**			Prepared: 11/19/18 Analyzed: 11/20/18						
Benzene	0.0809	0.00114	mg/kg dry	0.114	ND	71.2	80-120			QM-05
Toluene	0.0786	0.0114	"	0.114	ND	69.1	80-120			QM-05
Ethylbenzene	0.0824	0.00568	"	0.114	ND	72.5	80-120			QM-05
Xylene (p/m)	0.152	0.0227	"	0.227	ND	66.7	80-120			QM-05
Xylene (o)	0.0712	0.0114	"	0.114	ND	62.6	80-120			QM-05
Surrogate: 1,4-Difluorobenzene	*0.0754*		"	*0.0682*		*111*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0913*		"	*0.0682*		*134*	*75-125*			*S-GC*

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8K1910 - General Preparation (GC)										
Matrix Spike Dup (P8K1910-MSD1)	**Source: 8K19005-20**			Prepared: 11/19/18 Analyzed: 11/20/18						
Benzene	0.0936	0.00114	mg/kg dry	0.114	ND	82.4	80-120	14.5	20	
Toluene	0.0916	0.0114	"	0.114	ND	80.6	80-120	15.4	20	
Ethylbenzene	0.0953	0.00568	"	0.114	ND	83.9	80-120	14.5	20	
Xylene (p/m)	0.171	0.0227	"	0.227	ND	75.3	80-120	12.2	20	QM-05
Xylene (o)	0.0860	0.0114	"	0.114	ND	75.6	80-120	18.8	20	QM-05
Surrogate: 1,4-Difluorobenzene	*0.0782*		"	*0.0682*		*115*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0912*		"	*0.0682*		*134*	*75-125*			*S-GC*
Batch P8K1911 - General Preparation (GC)										
Blank (P8K1911-BLK1)				Prepared: 11/19/18 Analyzed: 11/20/18						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 4-Bromofluorobenzene	*0.0680*		"	*0.0600*		*113*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0550*		"	*0.0600*		*91.6*	*75-125*			
LCS (P8K1911-BS1)				Prepared: 11/19/18 Analyzed: 11/20/18						
Benzene	0.105	0.00100	mg/kg wet	0.100		105	70-130			
Toluene	0.107	0.0100	"	0.100		107	70-130			
Ethylbenzene	0.116	0.00500	"	0.100		116	70-130			
Xylene (p/m)	0.208	0.0200	"	0.200		104	70-130			
Xylene (o)	0.111	0.0100	"	0.100		111	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0639*		"	*0.0600*		*107*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0675*		"	*0.0600*		*112*	*75-125*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8K1911 - General Preparation (GC)										
LCS Dup (P8K1911-BSD1)				Prepared: 11/19/18 Analyzed: 11/20/18						
Benzene	0.105	0.00100	mg/kg wet	0.100		105	70-130	0.0666	20	
Toluene	0.109	0.0100	"	0.100		109	70-130	1.87	20	
Ethylbenzene	0.118	0.00500	"	0.100		118	70-130	1.61	20	
Xylene (p/m)	0.207	0.0200	"	0.200		104	70-130	0.261	20	
Xylene (o)	0.109	0.0100	"	0.100		109	70-130	2.24	20	
Surrogate: 4-Bromofluorobenzene	*0.0699*		"	*0.0600*		*117*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0651*		"	*0.0600*		*108*	*75-125*			
Matrix Spike (P8K1911-MS1)		**Source: 8K19005-32**		Prepared: 11/19/18 Analyzed: 11/20/18						
Benzene	0.0875	0.00104	mg/kg dry	0.104	ND	84.0	80-120			
Toluene	0.0868	0.0104	"	0.104	ND	83.3	80-120			
Ethylbenzene	0.0966	0.00521	"	0.104	ND	92.8	80-120			
Xylene (p/m)	0.188	0.0208	"	0.208	ND	90.1	80-120			
Xylene (o)	0.0917	0.0104	"	0.104	ND	88.0	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0692*		"	*0.0625*		*111*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0734*		"	*0.0625*		*118*	*75-125*			
Matrix Spike Dup (P8K1911-MSD1)		**Source: 8K19005-32**		Prepared: 11/19/18 Analyzed: 11/20/18						
Benzene	0.0901	0.00104	mg/kg dry	0.104	ND	86.5	80-120	2.91	20	
Toluene	0.0904	0.0104	"	0.104	ND	86.7	80-120	3.99	20	
Ethylbenzene	0.101	0.00521	"	0.104	ND	97.4	80-120	4.88	20	
Xylene (p/m)	0.189	0.0208	"	0.208	ND	90.7	80-120	0.703	20	
Xylene (o)	0.0889	0.0104	"	0.104	ND	85.3	80-120	3.05	20	
Surrogate: 4-Bromofluorobenzene	*0.0717*		"	*0.0625*		*115*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0684*		"	*0.0625*		*109*	*75-125*			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8K1914 - * DEFAULT PREP *** **										
Blank (P8K1914-BLK1)				Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	ND	1.00	mg/kg wet							
LCS (P8K1914-BS1)				Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	407	1.00	mg/kg wet	400		102	80-120			
LCS Dup (P8K1914-BSD1)				Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	408	1.00	mg/kg wet	400		102	80-120	0.209	20	
Duplicate (P8K1914-DUP1)		**Source: 8K16018-02**		Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	5650	26.6	mg/kg dry		5710			1.15	20	
Duplicate (P8K1914-DUP2)		**Source: 8K16021-04**		Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	9820	26.3	mg/kg dry		9850			0.332	20	
Matrix Spike (P8K1914-MS1)		**Source: 8K16018-02**		Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	8310	26.6	mg/kg dry	2660	5710	97.5	80-120			
Batch P8K1915 - * DEFAULT PREP *** **										
Blank (P8K1915-BLK1)				Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	ND	1.00	mg/kg wet							
LCS (P8K1915-BS1)				Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	407	1.00	mg/kg wet	400		102	80-120			
LCS Dup (P8K1915-BSD1)				Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	409	1.00	mg/kg wet	400		102	80-120	0.588	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8K1915 - * DEFAULT PREP *** **										
Duplicate (P8K1915-DUP1)	**Source: 8K19009-01**			Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	5660	11.9	mg/kg dry		5590			1.30	20	
Duplicate (P8K1915-DUP2)	**Source: 8K19005-16**			Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	ND	1.11	mg/kg dry		ND				20	
Matrix Spike (P8K1915-MS1)	**Source: 8K19009-01**			Prepared: 11/19/18 Analyzed: 11/20/18						
Chloride	6800	11.9	mg/kg dry	1190	5590	101	80-120			
Batch P8K2003 - * DEFAULT PREP *** **										
Blank (P8K2003-BLK1)				Prepared & Analyzed: 11/20/18						
% Moisture	ND	0.1	%							
Duplicate (P8K2003-DUP1)	**Source: 8K19005-21**			Prepared & Analyzed: 11/20/18						
% Moisture	14.0	0.1	%		12.0			15.4	20	
Duplicate (P8K2003-DUP2)	**Source: 8K19006-16**			Prepared & Analyzed: 11/20/18						
% Moisture	4.0	0.1	%		4.0			0.00	20	
Duplicate (P8K2003-DUP3)	**Source: 8K19009-03**			Prepared & Analyzed: 11/20/18						
% Moisture	15.0	0.1	%		15.0			0.00	20	
Batch P8K2006 - * DEFAULT PREP *** **										
Blank (P8K2006-BLK1)				Prepared & Analyzed: 11/20/18						
Chloride	ND	1.00	mg/kg wet							

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8K2006 - * DEFAULT PREP *****										
LCS (P8K2006-BS1)				Prepared & Analyzed: 11/20/18						
Chloride	409	1.00	mg/kg wet	400		102	80-120			
LCS Dup (P8K2006-BSD1)				Prepared & Analyzed: 11/20/18						
Chloride	407	1.00	mg/kg wet	400		102	80-120	0.471	20	
Duplicate (P8K2006-DUP1)	**Source: 8K19005-26**			Prepared & Analyzed: 11/20/18						
Chloride	128	1.06	mg/kg dry		125			1.77	20	
Duplicate (P8K2006-DUP2)	**Source: 8K19006-13**			Prepared: 11/20/18 Analyzed: 11/21/18						
Chloride	599	1.05	mg/kg dry		650			8.16	20	
Matrix Spike (P8K2006-MS1)	**Source: 8K19005-26**			Prepared & Analyzed: 11/20/18						
Chloride	657	1.06	mg/kg dry	532	125	99.9	80-120			

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8K1905 - TX 1005										
Blank (P8K1905-BLK1)				Prepared & Analyzed: 11/19/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*82.4*		"	*100*		*82.4*	*70-130*			
Surrogate: o-Terphenyl	*47.6*		"	*50.0*		*95.1*	*70-130*			
LCS (P8K1905-BS1)				Prepared & Analyzed: 11/19/18						
C6-C12	800	25.0	mg/kg wet	1000		80.0	75-125			
>C12-C28	1010	25.0	"	1000		101	75-125			
Surrogate: 1-Chlorooctane	*98.0*		"	*100*		*98.0*	*70-130*			
Surrogate: o-Terphenyl	*47.3*		"	*50.0*		*94.6*	*70-130*			
LCS Dup (P8K1905-BSD1)				Prepared & Analyzed: 11/19/18						
C6-C12	1070	25.0	mg/kg wet	1000		107	75-125	28.5	20	
>C12-C28	1220	25.0	"	1000		122	75-125	18.6	20	
Surrogate: 1-Chlorooctane	*120*		"	*100*		*120*	*70-130*			
Surrogate: o-Terphenyl	*56.9*		"	*50.0*		*114*	*70-130*			
Matrix Spike (P8K1905-MS1)	**Source: 8K19005-20**			Prepared: 11/19/18 Analyzed: 11/20/18						
C6-C12	906	28.4	mg/kg dry	1140	23.0	77.7	75-125			
>C12-C28	1000	28.4	"	1140	12.5	86.9	75-125			
Surrogate: 1-Chlorooctane	*122*		"	*114*		*107*	*70-130*			
Surrogate: o-Terphenyl	*57.5*		"	*56.8*		*101*	*70-130*			
Matrix Spike Dup (P8K1905-MSD1)	**Source: 8K19005-20**			Prepared: 11/19/18 Analyzed: 11/20/18						
C6-C12	908	28.4	mg/kg dry	1140	23.0	77.9	75-125	0.271	20	
>C12-C28	1010	28.4	"	1140	12.5	87.9	75-125	1.20	20	
Surrogate: 1-Chlorooctane	*121*		"	*114*		*107*	*70-130*			
Surrogate: o-Terphenyl	*57.5*		"	*56.8*		*101*	*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8K2010 - TX 1005										
Blank (P8K2010-BLK1)				Prepared & Analyzed: 11/20/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*106*		"	*100*		*106*	*70-130*			
Surrogate: o-Terphenyl	*61.6*		"	*50.0*		*123*	*70-130*			
LCS (P8K2010-BS1)				Prepared & Analyzed: 11/20/18						
C6-C12	940	25.0	mg/kg wet	1000		94.0	75-125			
>C12-C28	990	25.0	"	1000		99.0	75-125			
Surrogate: 1-Chlorooctane	*109*		"	*100*		*109*	*70-130*			
Surrogate: o-Terphenyl	*52.6*		"	*50.0*		*105*	*70-130*			
LCS Dup (P8K2010-BSD1)				Prepared & Analyzed: 11/20/18						
C6-C12	968	25.0	mg/kg wet	1000		96.8	75-125	2.92	20	
>C12-C28	1010	25.0	"	1000		101	75-125	2.15	20	
Surrogate: 1-Chlorooctane	*114*		"	*100*		*114*	*70-130*			
Surrogate: o-Terphenyl	*54.0*		"	*50.0*		*108*	*70-130*			
Matrix Spike (P8K2010-MS1)	**Source: 8K19009-01**			Prepared: 11/20/18 Analyzed: 11/21/18						
C6-C12	1100	29.8	mg/kg dry	1190	14.0	91.6	75-125			
>C12-C28	1230	29.8	"	1190	12.3	102	75-125			
Surrogate: 1-Chlorooctane	*133*		"	*119*		*112*	*70-130*			
Surrogate: o-Terphenyl	*62.9*		"	*59.5*		*106*	*70-130*			
Matrix Spike Dup (P8K2010-MSD1)	**Source: 8K19009-01**			Prepared: 11/20/18 Analyzed: 11/21/18						
C6-C12	1090	29.8	mg/kg dry	1190	14.0	90.0	75-125	1.78	20	
>C12-C28	1220	29.8	"	1190	12.3	101	75-125	0.744	20	
Surrogate: 1-Chlorooctane	*128*		"	*119*		*108*	*70-130*			
Surrogate: o-Terphenyl	*62.0*		"	*59.5*		*104*	*70-130*			

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
S-09	Surrogate recovery limits have been exceeded.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 11/21/2018

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

№ 0413

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 11/19/18 PAGE 1 OF 3

PO#: LAB WORK ORDER#: 8X19005

PROJECT LOCATION OR NAME: TO EMSU Sat 13

LAI PROJECT #: 17-0193-01 COLLECTOR: CB

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐	8081 PESTICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐	TCLP - PEST ☐	TOTAL METALS (RCRA) ☐	LEAD - TOTAL ☐	RCI ☐	TDS ☐	pH ☐	EXPLOSIVES ☐	CHLORIDE ☒	FIELD NOTES
DP-2 N (2')	01	11/16/18	10:40	S					X		X		X	X													X	
DP-2 E (2')	02		10:41																									
DP-2 S (2')	03		10:44																									
DP-2 W (2')	04		10:45																									
DP-9 N (2')	5		10:48																									
DP-9 E (2')	6		10:50																									
DP-9 S (2')	7		10:51																									
DP-9 W (2')	8		10:53																									
DP-13 N (2')	9		10:58																									
DP-13 E (2')	10		11:00																									
DP-13 S (2')	11		11:01																									
DP-13 W (2')	12		11:02																									
DP-12 N (2')	13		11:07																									
DP-12 E (2')	14		11:09																									
DP-12 S (2')	15		11:10																									
TOTAL									15		15		15	15													15	

RELINQUISHED BY:(Signature) DATE/TIME 11/19/18 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 11/19/18 11:40 RECEIVED BY: (Signature) Mussa Haddad

LABORATORY: PBEL

TURN AROUND TIME
NORMAL ☐
1 DAY ☐
2 DAY ☒
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 3.1 THERM#:
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Nº 0414

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 11/19/18 PAGE 2 OF 3

PO#: LAB WORK ORDER#: 8K19005

PROJECT LOCATION OR NAME: XTO EMSU Sat 13

LAI PROJECT #: 17-0193-01 COLLECTOR: CB

TRRP report? ☐ Yes ☒ No

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

TIME ZONE: Time zone/State: MST

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015	DIESEL - MOD 8015	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐	8081 PESTICIDES ☐	8082 PCBS ☐	PAH 8270 ☐ HOLDPAH ☐	8151 HERBICIDES ☐	TCLP - METALS (RCRA) ☐	TCLP - PEST ☐	TCLP VOC ☐	TOTAL METALS (RCRA) ☐	HERB ☐	Semi-VOC ☐	LEAD - TOTAL ☐	D.W. 200.8 ☐	OTHER LIST ☐	RCI ☐	TOX ☐	FLASHPOINT ☐	TCLP ☐	TDS ☐	TSS ☐	% MOISTURE ☐	CYANIDE ☐	pH ☐	HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐	PECHLORATE ☐	CHLORIDE	ANIONS ☐	ALKALINITY ☐	FIELD NOTES
DP-12 W (2')	16	11/16/18	11:17	S					X		X		X	X																														
DP-11 N (2')	17		11:18																																								
DP-11 E (2')	18		11:20																																								
DP-11 S (2')	19		11:22																																								
DP-11 W (2')	20		11:23																																								
DP-7 N (2')	21		11:51																																								
DP-7 E (2')	22		11:53																																								
DP-7 S (2')	23		11:54																																								
DP-7 W (2')	24		11:56																																								
DP-6 N (2')	25		13:57																																								
DP-6 E (2')	26		13:59																																								
DP-6 S (2')	27		14:00																																								
DP-6 W (2')	28		14:03																																								
DP-10 N (2')	29		14:05																																								
DP-10 E (2')	30		14:06																																								
TOTAL									15		15		15	15																														

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
	11/19/18	
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
	11/19/18 11:40	Miss Haddock
LABORATORY: PBEL		

TURN AROUND TIME
NORMAL ☐
1 DAY ☐
2 DAY ☒
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 2.1 THERM#: 42
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☐ HAND DELIVERED

№ 0415

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 11/19/18 PAGE 3 OF 3

PO#: LAB WORK ORDER#: 8K19005

PROJECT LOCATION OR NAME: XTO EMSU 30#13

LAI PROJECT #: 17-0193-01 COLLECTOR: CB

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐	8081 PESTICIDES ☐	PAH 8270 ☐ HOLDPAH ☐	8082 PCBS ☐	8151 HERBICIDES ☐	TBLP - METALS (RCRA) ☐	TCLP - PEST ☐	TCLP VOC ☐	TOTAL METALS (RCRA) ☐	HERB ☐	Semi-VOC ☐	LEAD - TOTAL ☐	OTHER LIST ☐	RCI ☐	TOX ☐	D.W. 200.8 ☐	TCLP ☐	TDS ☐	TSS ☐	FLASHPOINT ☐	% MOISTURE ☐	pH ☐	HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐	CYANIDE ☐	CHLORIDES ☒	PECHLORATE ☐	ANIONS ☐	ALKALINITY ☐	M300	FIELD NOTES
DP-10 S(2')	31	11/16/18	14:09	S					X		X			X	X																								X					
DP-10 W(2')	32	"	14:11	W					X		X			X	X																								X					
TOTAL																																													

RELINQUISHED BY:(Signature) DATE/TIME 11/19/18 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 11/19/18 11:40 RECEIVED BY: (Signature) Melissa Haddock

LABORATORY: PREL

TURN AROUND TIME
NORMAL ☐
1 DAY ☐
2 DAY ☒
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 3.1+1 3.7 THERM#: L2
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Location: None Given

Lab Order Number: 8L03002

NELAP/TCEQ # T104704516-17-8

Report Date: 12/04/18

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-1 (6')	8L03002-01	Soil	11/30/18 07:35	12-03-2018 10:14
S-2 (6')	8L03002-02	Soil	11/30/18 07:38	12-03-2018 10:14
S-3 (6')	8L03002-03	Soil	11/30/18 07:41	12-03-2018 10:14
S-4 (6')	8L03002-04	Soil	11/30/18 07:44	12-03-2018 10:14
S-5 (2')	8L03002-05	Soil	11/30/18 07:51	12-03-2018 10:14
S-6 (2')	8L03002-06	Soil	11/30/18 07:54	12-03-2018 10:14

S-1 (6')

8L03002-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1020**	5.56	mg/kg dry	5	P8L0304	12/03/18	12/04/18	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P8L0410	12/04/18	12/04/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.8	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C12-C28	**30.8**	27.8	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*116 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*129 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**30.8**	27.8	mg/kg dry	1	[CALC]	12/03/18	12/03/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 (6')

8L03002-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**526**	1.14	mg/kg dry	1	P8L0304	12/03/18	12/04/18	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P8L0410	12/04/18	12/04/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.4	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*114 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*126 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	12/03/18	12/03/18	calc	

S-3 (6')

8L03002-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**111**	1.08	mg/kg dry	1	P8L0304	12/03/18	12/04/18	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P8L0410	12/04/18	12/04/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**30.0**	26.9	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C12-C28	**754**	26.9	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C28-C35	**140**	26.9	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*104 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*116 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**924**	26.9	mg/kg dry	1	[CALC]	12/03/18	12/03/18	calc	

S-4 (6')

8L03002-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**40.1**	1.10	mg/kg dry	1	P8L0304	12/03/18	12/04/18	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P8L0410	12/04/18	12/04/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C12-C28	**38.8**	27.5	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*105 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*118 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**38.8**	27.5	mg/kg dry	1	[CALC]	12/03/18	12/03/18	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

S-5 (2')

8L03002-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1250**	10.5	mg/kg dry	10	P8L0304	12/03/18	12/04/18	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P8L0410	12/04/18	12/04/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*104 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*117 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	12/03/18	12/03/18	calc	

S-6 (2')

8L03002-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**351**	1.01	mg/kg dry	1	P8L0304	12/03/18	12/04/18	EPA 300.0	
% Moisture	**1.0**	0.1	%	1	P8L0410	12/04/18	12/04/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.3	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C12-C28	ND	25.3	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
>C28-C35	ND	25.3	mg/kg dry	1	P8L0404	12/03/18	12/03/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*101 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*115 %*	*70-130*		*P8L0404*	*12/03/18*	*12/03/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.3	mg/kg dry	1	[CALC]	12/03/18	12/03/18	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L0304 - * DEFAULT PREP *** **										
Blank (P8L0304-BLK1)				Prepared: 12/03/18 Analyzed: 12/04/18						
Chloride	ND	1.00	mg/kg wet							
LCS (P8L0304-BS1)				Prepared: 12/03/18 Analyzed: 12/04/18						
Chloride	ND	1.00	mg/kg wet	400			80-120			
LCS Dup (P8L0304-BSD1)				Prepared: 12/03/18 Analyzed: 12/04/18						
Chloride	ND	1.00	mg/kg wet	400			80-120		20	
Duplicate (P8L0304-DUP1)		**Source: 8L03002-01**		Prepared: 12/03/18 Analyzed: 12/04/18						
Chloride	ND	1.11	mg/kg dry		1020				20	
Duplicate (P8L0304-DUP2)		**Source: 8K28014-02**		Prepared: 12/03/18 Analyzed: 12/04/18						
Chloride	ND	1.20	mg/kg dry		ND				20	
Matrix Spike (P8L0304-MS1)		**Source: 8L03002-01**		Prepared: 12/03/18 Analyzed: 12/04/18						
Chloride	ND	1.11	mg/kg dry	1110	1020	NR	80-120			
Batch P8L0410 - * DEFAULT PREP *** **										
Blank (P8L0410-BLK1)				Prepared & Analyzed: 12/04/18						
% Moisture	ND	0.1	%							
Duplicate (P8L0410-DUP1)		**Source: 8L01001-20**		Prepared & Analyzed: 12/04/18						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P8L0410-DUP2)		**Source: 8L01001-47**		Prepared & Analyzed: 12/04/18						
% Moisture	4.0	0.1	%		4.0			0.00	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L0410 - * DEFAULT PREP *****										
Duplicate (P8L0410-DUP3)		**Source: 8L01001-74**		Prepared & Analyzed: 12/04/18						
% Moisture	13.0	0.1	%		11.0			16.7	20	
Duplicate (P8L0410-DUP4)		**Source: 8L01005-04**		Prepared & Analyzed: 12/04/18						
% Moisture	8.0	0.1	%		8.0			0.00	20	
Duplicate (P8L0410-DUP5)		**Source: 8L01009-02**		Prepared & Analyzed: 12/04/18						
% Moisture	6.0	0.1	%		9.0			40.0	20	
Duplicate (P8L0410-DUP6)		**Source: 8L01009-14**		Prepared & Analyzed: 12/04/18						
% Moisture	15.0	0.1	%		15.0			0.00	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L0404 - TX 1005										
Blank (P8L0404-BLK1)				Prepared & Analyzed: 12/03/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*113*		"	*100*		*113*	*70-130*			
Surrogate: o-Terphenyl	*61.7*		"	*50.0*		*123*	*70-130*			
LCS (P8L0404-BS1)				Prepared & Analyzed: 12/03/18						
C6-C12	1020	25.0	mg/kg wet	1000		102	75-125			
>C12-C28	1150	25.0	"	1000		115	75-125			
Surrogate: 1-Chlorooctane	*120*		"	*100*		*120*	*70-130*			
Surrogate: o-Terphenyl	*54.8*		"	*50.0*		*110*	*70-130*			
LCS Dup (P8L0404-BSD1)				Prepared & Analyzed: 12/03/18						
C6-C12	1040	25.0	mg/kg wet	1000		104	75-125	2.34	20	
>C12-C28	1190	25.0	"	1000		119	75-125	3.93	20	
Surrogate: 1-Chlorooctane	*126*		"	*100*		*126*	*70-130*			
Surrogate: o-Terphenyl	*57.2*		"	*50.0*		*114*	*70-130*			
Duplicate (P8L0404-DUP1)	**Source: 8K29009-14**			Prepared: 12/03/18 Analyzed: 12/04/18						
C6-C12	21.8	27.5	mg/kg dry		16.1			30.1	20	
>C12-C28	ND	27.5	"		13.2				20	
Surrogate: 1-Chlorooctane	*111*		"	*110*		*101*	*70-130*			
Surrogate: o-Terphenyl	*62.9*		"	*54.9*		*114*	*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 12/4/2018

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

№ 0417

CHAIN-OF-CUSTO

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

DATE: 12/ /18 PAGE 1 OF 1

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: XTO Salt 13

LAI PROJECT #: 17-0193-01 COLLECTOR: CB

Data Reported to:

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

#8103002

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐ TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 ☐ DIESEL - MOD 8015 ☐ 8015 ☐ ORO ☐ OIL - MOD 8015 ☐ VOC 8260 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8082 PCBS ☐ 8151 HERBICIDES ☐ TBLP - METALS (RCRA) ☐ TCLP VOC ☐ TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ TOTAL METALS (RCRA) ☐ D.W. 200.8 ☐ OTHER LIST ☐ LEAD - TOTAL ☐ TOX ☐ FLASHPOINT ☐ TCLP ☐ RCI ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ TDS ☐ pH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PECHLORATE ☐ CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐ M300	FIELD NOTES
S-1 (6')		11/30/18	7:35	S					X		X X X	X
S-2 (6')			7:38									
S-3 (6')			7:41									
S-4 (6')			7:44									
S-5 (2')			7:51									
S-6 (2')			7:54									
TOTAL												

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
12/3/18 10:14

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
12-3-18 10:14 Ashley Yeager

LABORATORY: PBEL

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐ Rush

LABORATORY USE ONLY: 17
RECEIVING TEMP: 2.2 THERM#:
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☒ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Location: None Given

Lab Order Number: 8L05001

NELAP/TCEQ # T104704516-17-8

Report Date: 12/07/18

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-7 (2')	8L05001-01	Soil	12/04/18 00:00	12-05-2018 09:00
S-8 (2')	8L05001-02	Soil	12/04/18 00:00	12-05-2018 09:00
S-9 (2')	8L05001-03	Soil	12/04/18 00:00	12-05-2018 09:00
S-10 (2')	8L05001-04	Soil	12/04/18 00:00	12-05-2018 09:00
S-11 (2')	8L05001-05	Soil	12/04/18 00:00	12-05-2018 09:00
S-12 (2')	8L05001-06	Soil	12/04/18 00:00	12-05-2018 09:00
S-13 (2')	8L05001-07	Soil	12/04/18 00:00	12-05-2018 09:00
S-14 (2')	8L05001-08	Soil	12/04/18 00:00	12-05-2018 09:00
S-15 (2')	8L05001-09	Soil	12/04/18 00:00	12-05-2018 09:00
S-16 (2')	8L05001-10	Soil	12/04/18 00:00	12-05-2018 09:00
S-17 (2')	8L05001-11	Soil	12/04/18 00:00	12-05-2018 09:00
S-18 (2')	8L05001-12	Soil	12/04/18 00:00	12-05-2018 09:00
S-19 (2')	8L05001-13	Soil	12/04/18 00:00	12-05-2018 09:00

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

S-7 (2')

8L05001-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00101	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0101	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00505	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0202	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0101	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*98.7 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*89.7 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**40.8**	1.01	mg/kg dry	1	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**1.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.3	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C12-C28	ND	25.3	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C28-C35	ND	25.3	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*107 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*114 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.3	mg/kg dry	1	[CALC]	12/05/18	12/05/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-8 (2')

8L05001-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00101	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0101	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00505	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0202	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0101	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*84.7 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*95.2 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**491**	1.01	mg/kg dry	1	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**1.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.3	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C12-C28	ND	25.3	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C28-C35	ND	25.3	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*91.4 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*99.3 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.3	mg/kg dry	1	[CALC]	12/05/18	12/05/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-9 (2')

8L05001-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00111	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0111	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00556	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0222	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0111	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*85.4 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*101 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**4680**	27.8	mg/kg dry	25	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.8	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*84.9 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*89.9 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	12/05/18	12/05/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-10 (2')

8L05001-04 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*98.0 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*84.2 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**33.0**	1.02	mg/kg dry	1	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*87.0 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*93.4 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	12/05/18	12/05/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-11 (2')

8L05001-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*100 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*88.5 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**432**	1.03	mg/kg dry	1	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*84.1 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*90.5 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	12/05/18	12/05/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-12 (2')

8L05001-06 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*79.6 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*93.3 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**5.27**	1.06	mg/kg dry	1	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*76.4 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*81.4 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	12/05/18	12/05/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-13 (2')

8L05001-07 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0108	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00538	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0215	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0108	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*89.6 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*101 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**761**	5.38	mg/kg dry	5	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P8L0513	12/05/18	12/05/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*78.7 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*85.6 %*	*70-130*		*P8L0513*	*12/05/18*	*12/05/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	12/05/18	12/05/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-14 (2')

8L05001-08 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*85.2 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*97.0 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.06	mg/kg dry	1	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*81.6 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*87.1 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	12/05/18	12/06/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-15 (2')

8L05001-09 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0100	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00500	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0200	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0100	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*87.0 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*98.8 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.00	mg/kg dry	1	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	ND	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.0	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C12-C28	ND	25.0	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C28-C35	ND	25.0	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*83.2 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*88.8 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.0	mg/kg dry	1	[CALC]	12/05/18	12/06/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-16 (2')

8L05001-10 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*83.9 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*98.6 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.06	mg/kg dry	1	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*86.4 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*95.1 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	12/05/18	12/06/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-17 (2')

8L05001-11 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0105	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00526	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0211	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0105	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*83.3 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*102 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**30.0**	1.05	mg/kg dry	1	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*87.6 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*94.6 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	12/05/18	12/06/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-18 (2')

8L05001-12 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00104	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0104	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00521	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0208	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0104	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*95.9 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*81.8 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**292**	10.4	mg/kg dry	10	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*80.0 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*86.5 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	12/05/18	12/06/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-19 (2')

8L05001-13 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Toluene	ND	0.0100	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Ethylbenzene	ND	0.00500	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (p/m)	ND	0.0200	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Xylene (o)	ND	0.0100	mg/kg dry	1	P8L0512	12/06/18	12/06/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*82.7 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*100 %*	*75-125*		*P8L0512*	*12/06/18*	*12/06/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**43.7**	1.00	mg/kg dry	1	P8L0517	12/05/18	12/06/18	EPA 300.0	
% Moisture	ND	0.1	%	1	P8L0605	12/06/18	12/06/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.0	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C12-C28	ND	25.0	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
>C28-C35	ND	25.0	mg/kg dry	1	P8L0513	12/05/18	12/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*85.2 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*73.2 %*	*70-130*		*P8L0513*	*12/05/18*	*12/06/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.0	mg/kg dry	1	[CALC]	12/05/18	12/06/18	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L0512 - General Preparation (GC)										
Blank (P8L0512-BLK1)				Prepared & Analyzed: 12/06/18						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 1,4-Difluorobenzene	*0.0544*		"	*0.0600*		*90.6*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0592*		"	*0.0600*		*98.7*	*75-125*			
LCS (P8L0512-BS1)				Prepared & Analyzed: 12/06/18						
Benzene	0.107	0.00100	mg/kg wet	0.100		107	70-130			
Toluene	0.0971	0.0100	"	0.100		97.1	70-130			
Ethylbenzene	0.113	0.00500	"	0.100		113	70-130			
Xylene (p/m)	0.194	0.0200	"	0.200		97.1	70-130			
Xylene (o)	0.112	0.0100	"	0.100		112	70-130			
Surrogate: 1,4-Difluorobenzene	*0.0608*		"	*0.0600*		*101*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0573*		"	*0.0600*		*95.6*	*75-125*			
LCS Dup (P8L0512-BSD1)				Prepared & Analyzed: 12/06/18						
Benzene	0.107	0.00100	mg/kg wet	0.100		107	70-130	0.711	20	
Toluene	0.0977	0.0100	"	0.100		97.7	70-130	0.626	20	
Ethylbenzene	0.110	0.00500	"	0.100		110	70-130	3.12	20	
Xylene (p/m)	0.190	0.0200	"	0.200		95.0	70-130	2.21	20	
Xylene (o)	0.105	0.0100	"	0.100		105	70-130	5.75	20	
Surrogate: 1,4-Difluorobenzene	*0.0590*		"	*0.0600*		*98.3*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0612*		"	*0.0600*		*102*	*75-125*			
Matrix Spike (P8L0512-MS1)	**Source: 8L05001-02**			Prepared & Analyzed: 12/06/18						
Benzene	0.0774	0.00101	mg/kg dry	0.101	ND	76.6	80-120			QM-05
Toluene	0.0679	0.0101	"	0.101	ND	67.2	80-120			QM-05
Ethylbenzene	0.0809	0.00505	"	0.101	ND	80.1	80-120			
Xylene (p/m)	0.121	0.0202	"	0.202	ND	59.8	80-120			QM-05
Xylene (o)	0.0644	0.0101	"	0.101	ND	63.7	80-120			QM-05
Surrogate: 1,4-Difluorobenzene	*0.0592*		"	*0.0606*		*97.6*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0596*		"	*0.0606*		*98.3*	*75-125*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L0512 - General Preparation (GC)										
Matrix Spike Dup (P8L0512-MSD1)	**Source: 8L05001-02**			Prepared & Analyzed: 12/06/18						
Benzene	0.0850	0.00101	mg/kg dry	0.101	ND	84.2	80-120	9.38	20	
Toluene	0.0730	0.0101	"	0.101	ND	72.3	80-120	7.30	20	QM-05
Ethylbenzene	0.0820	0.00505	"	0.101	ND	81.2	80-120	1.38	20	
Xylene (p/m)	0.120	0.0202	"	0.202	ND	59.3	80-120	0.916	20	QM-05
Xylene (o)	0.0619	0.0101	"	0.101	ND	61.3	80-120	3.92	20	QM-05
Surrogate: 4-Bromofluorobenzene	*0.0642*		"	*0.0606*		*106*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0632*		"	*0.0606*		*104*	*75-125*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L0517 - * DEFAULT PREP *** **										
Blank (P8L0517-BLK1)				Prepared: 12/05/18 Analyzed: 12/06/18						
Chloride	ND	1.00	mg/kg wet							
LCS (P8L0517-BS1)				Prepared: 12/05/18 Analyzed: 12/06/18						
Chloride	415	1.00	mg/kg wet	400		104	80-120			
LCS Dup (P8L0517-BSD1)				Prepared: 12/05/18 Analyzed: 12/06/18						
Chloride	404	1.00	mg/kg wet	400		101	80-120	2.81	20	
Duplicate (P8L0517-DUP1)		**Source: 8K28019-17**		Prepared: 12/05/18 Analyzed: 12/06/18						
Chloride	1200	27.5	mg/kg dry		1230			2.89	20	
Duplicate (P8L0517-DUP2)		**Source: 8L05001-04**		Prepared: 12/05/18 Analyzed: 12/06/18						
Chloride	37.3	1.02	mg/kg dry		33.0			12.4	20	
Matrix Spike (P8L0517-MS1)		**Source: 8K28019-17**		Prepared: 12/05/18 Analyzed: 12/06/18						
Chloride	4130	27.5	mg/kg dry	2750	1230	105	80-120			
Batch P8L0605 - * DEFAULT PREP *** **										
Blank (P8L0605-BLK1)				Prepared & Analyzed: 12/06/18						
% Moisture	ND	0.1	%							
Duplicate (P8L0605-DUP1)		**Source: 8L04021-02**		Prepared & Analyzed: 12/06/18						
% Moisture	19.0	0.1	%		15.0			23.5	20	
Duplicate (P8L0605-DUP2)		**Source: 8L04026-01**		Prepared & Analyzed: 12/06/18						
% Moisture	2.0	0.1	%		2.0			0.00	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L0513 - TX 1005										
Blank (P8L0513-BLK1)				Prepared & Analyzed: 12/05/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*89.7*		"	*100*		*89.7*	*70-130*			
Surrogate: o-Terphenyl	*49.3*		"	*50.0*		*98.7*	*70-130*			
LCS (P8L0513-BS1)				Prepared & Analyzed: 12/05/18						
C6-C12	862	25.0	mg/kg wet	1000		86.2	75-125			
>C12-C28	1030	25.0	"	1000		103	75-125			
Surrogate: 1-Chlorooctane	*105*		"	*100*		*105*	*70-130*			
Surrogate: o-Terphenyl	*46.8*		"	*50.0*		*93.6*	*70-130*			
LCS Dup (P8L0513-BSD1)				Prepared & Analyzed: 12/05/18						
C6-C12	905	25.0	mg/kg wet	1000		90.5	75-125	4.85	20	
>C12-C28	1080	25.0	"	1000		108	75-125	4.20	20	
Surrogate: 1-Chlorooctane	*110*		"	*100*		*110*	*70-130*			
Surrogate: o-Terphenyl	*48.3*		"	*50.0*		*96.6*	*70-130*			
Matrix Spike (P8L0513-MS1)	**Source: 8L05004-04**			Prepared: 12/05/18 Analyzed: 12/06/18						
C6-C12	875	26.9	mg/kg dry	1080	24.6	79.1	75-125			
>C12-C28	1040	26.9	"	1080	ND	97.0	75-125			
Surrogate: 1-Chlorooctane	*96.0*		"	*108*		*89.2*	*70-130*			
Surrogate: o-Terphenyl	*48.7*		"	*53.8*		*90.6*	*70-130*			
Matrix Spike Dup (P8L0513-MSD1)	**Source: 8L05004-04**			Prepared: 12/05/18 Analyzed: 12/06/18						
C6-C12	920	26.9	mg/kg dry	1080	24.6	83.3	75-125	5.16	20	
>C12-C28	1080	26.9	"	1080	ND	100	75-125	3.28	20	
Surrogate: 1-Chlorooctane	*97.2*		"	*108*		*90.4*	*70-130*			
Surrogate: o-Terphenyl	*50.6*		"	*53.8*		*94.1*	*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 12/7/2018

Brent Barron, Laboratory Director/Technical Director

№ 0418

CHAIN-OF-CUSTODY

Page 21 of 21

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 12/5/18 PAGE 1 OF 1

PO#: LAB WORK ORDER#: 8L05001

PROJECT LOCATION OR NAME: XTO Salt 13

LAI PROJECT #: 17-0193-01 COLLECTOR: CB

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESSERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☒ | DIESEL - MOD 8015 ☒ | OIL - MOD 8015 ☒ | DRO | VOC 8260 ☐ | SVOC 8270 ☐ | PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ | 8082 PCBS ☐ | 8151 HERBICIDES ☐ | TBLP - METALS (RCRA) ☐ | TCLP - PEST ☐ HERB ☐ | TCLP VOC ☐ | TOTAL METALS (RCRA) ☐ | Semi-VOC ☐ | LEAD - TOTAL ☐ | D.W. 200.8 ☐ OTHER LIST ☐ | RCI ☐ | TOX ☐ | TCLP ☐ | TDS ☐ | TSS ☐ | FLASHPOINT ☐ | pH ☐ | % MOISTURE ☐ | HEXAVALENT CHROMIUM ☐ | CYANIDE ☐ | EXPLOSIVES ☐ | PECHLORATE ☐ | CHLORIDE ☒ | ANIONS ☐ | ALKALINITY ☐ | M300

	Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESSERVED	FIELD NOTES
1	S-7 (2')		12/4/18		S					X		
2	S-8 (2')											
3	S-9 (2')											
4	S-10 (2')											
5	S-11 (2')											
6	S-12 (2')											
7	S-13 (2')											
8	S-14 (2')											
9	S-15 (2')											
10	S-16 (2')											
11	S-17 (2')											
12	S-18 (2')											
13	S-19 (2')											
	TOTAL									13		

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)	DATE/TIME 12/5/18 9:00AM	RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)	DATE/TIME 12/5/18 9:00	RECEIVED BY: (Signature) Maddock	
LABORATORY: DBFL			

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐ RUSH

LABORATORY USE ONLY:
RECEIVING TEMP: -0.2 +1. THERM#: 1.2 L2
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☒ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Location: New Mexico

Lab Order Number: 8L17004

NELAP/TCEQ # T104704516-17-8

Report Date: 12/18/18

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-4 (10')	8L17004-01	Soil	12/13/18 10:12	12-17-2018 11:10
S-9 (2')	8L17004-02	Soil	12/13/18 10:43	12-17-2018 11:10
S-13 (2')	8L17004-03	Soil	12/13/18 11:08	12-17-2018 11:10
S-1 (10')	8L17004-04	Soil	12/13/18 11:53	12-17-2018 11:10
S-1 (6')	8L17004-05	Soil	12/13/18 11:55	12-17-2018 11:10

S-4 (10')

8L17004-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00111	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Toluene	ND	0.0111	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Ethylbenzene	ND	0.00556	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0222	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Xylene (o)	ND	0.0111	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*99.0 %*	*75-125*		*P8L1711*	*12/17/18*	*12/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*83.3 %*	*75-125*		*P8L1711*	*12/17/18*	*12/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1110**	5.56	mg/kg dry	5	P8L1713	12/17/18	12/18/18	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P8L1815	12/18/18	12/18/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.8	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
>C12-C28	**36.3**	27.8	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*97.2 %*	*70-130*		*P8L1705*	*12/17/18*	*12/18/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P8L1705*	*12/17/18*	*12/18/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**36.3**	27.8	mg/kg dry	1	[CALC]	12/17/18	12/18/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-9 (2')

8L17004-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00111	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Toluene	ND	0.0111	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Ethylbenzene	ND	0.00556	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0222	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Xylene (o)	ND	0.0111	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*98.1 %*	*75-125*		*P8L1711*	*12/17/18*	*12/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*83.8 %*	*75-125*		*P8L1711*	*12/17/18*	*12/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**703**	1.11	mg/kg dry	1	P8L1713	12/17/18	12/18/18	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P8L1815	12/18/18	12/18/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.8	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*92.8 %*	*70-130*		*P8L1705*	*12/17/18*	*12/18/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*101 %*	*70-130*		*P8L1705*	*12/17/18*	*12/18/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	12/17/18	12/18/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-13 (2')

8L17004-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Toluene	ND	0.0110	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Ethylbenzene	ND	0.00549	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0220	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Xylene (o)	ND	0.0110	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*85.6 %*	*75-125*		*P8L1711*	*12/17/18*	*12/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*101 %*	*75-125*		*P8L1711*	*12/17/18*	*12/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**142**	1.10	mg/kg dry	1	P8L1713	12/17/18	12/18/18	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P8L1815	12/18/18	12/18/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.1 %*	*70-130*		*P8L1705*	*12/17/18*	*12/18/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*103 %*	*70-130*		*P8L1705*	*12/17/18*	*12/18/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	12/17/18	12/18/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-1 (10')

8L17004-04 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Toluene	ND	0.0110	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Ethylbenzene	ND	0.00549	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0220	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Xylene (o)	ND	0.0110	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*82.3 %*	*75-125*		*P8L1711*	*12/17/18*	*12/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*97.0 %*	*75-125*		*P8L1711*	*12/17/18*	*12/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**821**	5.49	mg/kg dry	5	P8L1713	12/17/18	12/18/18	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P8L1815	12/18/18	12/18/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P8L1705	12/17/18	12/18/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*97.1 %*	*70-130*		*P8L1705*	*12/17/18*	*12/18/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*109 %*	*70-130*		*P8L1705*	*12/17/18*	*12/18/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	12/17/18	12/18/18	calc	

Larson & Associates, Inc.	Project: XTO Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-1 (6')

8L17004-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Toluene	ND	0.0105	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Ethylbenzene	ND	0.00526	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0211	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Xylene (o)	ND	0.0105	mg/kg dry	1	P8L1711	12/17/18	12/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*95.3 %*	*75-125*		*P8L1711*	*12/17/18*	*12/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*83.7 %*	*75-125*		*P8L1711*	*12/17/18*	*12/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**892**	5.26	mg/kg dry	5	P8L1713	12/17/18	12/18/18	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P8L1815	12/18/18	12/18/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**477**	26.3	mg/kg dry	1	P8L1705	12/17/18	12/17/18	TPH 8015M	
>C12-C28	**509**	26.3	mg/kg dry	1	P8L1705	12/17/18	12/17/18	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P8L1705	12/17/18	12/17/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*116 %*	*70-130*		*P8L1705*	*12/17/18*	*12/17/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*116 %*	*70-130*		*P8L1705*	*12/17/18*	*12/17/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**986**	26.3	mg/kg dry	1	[CALC]	12/17/18	12/17/18	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L1711 - General Preparation (GC)										
Blank (P8L1711-BLK1)				Prepared & Analyzed: 12/17/18						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 1,4-Difluorobenzene	*0.0500*		"	*0.0600*		*83.4*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0593*		"	*0.0600*		*98.9*	*75-125*			
LCS (P8L1711-BS1)				Prepared & Analyzed: 12/17/18						
Benzene	0.111	0.00100	mg/kg wet	0.100		111	70-130			
Toluene	0.109	0.0100	"	0.100		109	70-130			
Ethylbenzene	0.108	0.00500	"	0.100		108	70-130			
Xylene (p/m)	0.188	0.0200	"	0.200		94.2	70-130			
Xylene (o)	0.116	0.0100	"	0.100		116	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0621*		"	*0.0600*		*104*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0617*		"	*0.0600*		*103*	*75-125*			
LCS Dup (P8L1711-BSD1)				Prepared & Analyzed: 12/17/18						
Benzene	0.112	0.00100	mg/kg wet	0.100		112	70-130	1.05	20	
Toluene	0.111	0.0100	"	0.100		111	70-130	1.58	20	
Ethylbenzene	0.110	0.00500	"	0.100		110	70-130	1.50	20	
Xylene (p/m)	0.190	0.0200	"	0.200		95.0	70-130	0.819	20	
Xylene (o)	0.114	0.0100	"	0.100		114	70-130	1.44	20	
Surrogate: 4-Bromofluorobenzene	*0.0572*		"	*0.0600*		*95.4*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0615*		"	*0.0600*		*102*	*75-125*			
Matrix Spike (P8L1711-MS1)	**Source: 8L17004-01**			Prepared: 12/17/18 Analyzed: 12/18/18						
Benzene	0.0880	0.00111	mg/kg dry	0.111	ND	79.2	80-120			QM-07
Toluene	0.0862	0.0111	"	0.111	ND	77.5	80-120			QM-07
Ethylbenzene	0.0823	0.00556	"	0.111	ND	74.0	80-120			QM-07
Xylene (p/m)	0.141	0.0222	"	0.222	ND	63.4	80-120			QM-07
Xylene (o)	0.0778	0.0111	"	0.111	ND	70.1	80-120			QM-07
Surrogate: 1,4-Difluorobenzene	*0.0689*		"	*0.0667*		*103*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0662*		"	*0.0667*		*99.4*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L1711 - General Preparation (GC)										
Matrix Spike Dup (P8L1711-MSD1)	**Source: 8L17004-01**			Prepared: 12/17/18 Analyzed: 12/18/18						
Benzene	0.0993	0.00111	mg/kg dry	0.111	ND	89.4	80-120	12.0	20	
Toluene	0.103	0.0111	"	0.111	ND	93.1	80-120	18.2	20	
Ethylbenzene	0.0982	0.00556	"	0.111	ND	88.3	80-120	17.6	20	
Xylene (p/m)	0.187	0.0222	"	0.222	ND	84.2	80-120	28.3	20	R3
Xylene (o)	0.0974	0.0111	"	0.111	ND	87.6	80-120	22.3	20	R3
Surrogate: 1,4-Difluorobenzene	*0.0689*		"	*0.0667*		*103*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0781*		"	*0.0667*		*117*	*75-125*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L1713 - * DEFAULT PREP *** **										
Blank (P8L1713-BLK1)				Prepared: 12/17/18 Analyzed: 12/18/18						
Chloride	ND	1.00	mg/kg wet							
LCS (P8L1713-BS1)				Prepared: 12/17/18 Analyzed: 12/18/18						
Chloride	407	1.00	mg/kg wet	400		102	80-120			
LCS Dup (P8L1713-BSD1)				Prepared: 12/17/18 Analyzed: 12/18/18						
Chloride	408	1.00	mg/kg wet	400		102	80-120	0.00491	20	
Duplicate (P8L1713-DUP1)		Source: 8L17003-01		Prepared: 12/17/18 Analyzed: 12/18/18						
Chloride	237	1.18	mg/kg dry		218			8.36	20	
Duplicate (P8L1713-DUP2)		Source: 8L14009-09		Prepared: 12/17/18 Analyzed: 12/18/18						
Chloride	76.9	1.09	mg/kg dry		77.7			0.984	20	
Matrix Spike (P8L1713-MS1)		Source: 8L17003-01		Prepared: 12/17/18 Analyzed: 12/18/18						
Chloride	791	1.18	mg/kg dry	588	218	97.4	80-120			
Batch P8L1815 - * DEFAULT PREP *** **										
Blank (P8L1815-BLK1)				Prepared & Analyzed: 12/18/18						
% Moisture	ND	0.1	%							
Duplicate (P8L1815-DUP1)		Source: 8L17002-02		Prepared & Analyzed: 12/18/18						
% Moisture	14.0	0.1	%		14.0			0.00	20	
Duplicate (P8L1815-DUP2)		Source: 8L17006-15		Prepared & Analyzed: 12/18/18						
% Moisture	19.0	0.1	%		19.0			0.00	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L1815 - * DEFAULT PREP *****										
Duplicate (P8L1815-DUP3)		**Source: 8L17010-24**		Prepared & Analyzed: 12/18/18						
% Moisture	5.0	0.1	%		8.0			46.2	20	
Duplicate (P8L1815-DUP4)		**Source: 8L17010-33**		Prepared & Analyzed: 12/18/18						
% Moisture	4.0	0.1	%		4.0			0.00	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L1705 - TX 1005										
Blank (P8L1705-BLK1)				Prepared: 12/17/18 Analyzed: 12/18/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*0.00*		"	*100*			*70-130*			
Surrogate: o-Terphenyl	*0.00*		"	*50.0*			*70-130*			
LCS (P8L1705-BS1)				Prepared: 12/17/18 Analyzed: 12/18/18						
C6-C12	ND	25.0	mg/kg wet	1000			75-125			
>C12-C28	ND	25.0	"	1000			75-125			
Surrogate: 1-Chlorooctane	*0.00*		"	*100*			*70-130*			
Surrogate: o-Terphenyl	*0.00*		"	*50.0*			*70-130*			
LCS Dup (P8L1705-BSD1)				Prepared: 12/17/18 Analyzed: 12/18/18						
C6-C12	ND	25.0	mg/kg wet	1000			75-125		20	
>C12-C28	ND	25.0	"	1000			75-125		20	
Surrogate: 1-Chlorooctane	*0.00*		"	*100*			*70-130*			
Surrogate: o-Terphenyl	*0.00*		"	*50.0*			*70-130*			
Matrix Spike (P8L1705-MS1)	**Source: 8L17004-01**			Prepared: 12/17/18 Analyzed: 12/18/18						
C6-C12	ND	27.8	mg/kg dry	1110	11.0	NR	75-125			
>C12-C28	ND	27.8	"	1110	36.3	NR	75-125			
Surrogate: 1-Chlorooctane	*0.00*		"	*111*			*70-130*			
Surrogate: o-Terphenyl	*0.00*		"	*55.6*			*70-130*			
Matrix Spike Dup (P8L1705-MSD1)	**Source: 8L17004-01**			Prepared: 12/17/18 Analyzed: 12/18/18						
C6-C12	ND	27.8	mg/kg dry	1110	11.0	NR	75-125		20	
>C12-C28	ND	27.8	"	1110	36.3	NR	75-125		20	
Surrogate: 1-Chlorooctane	*0.00*		"	*111*			*70-130*			
Surrogate: o-Terphenyl	*0.00*		"	*55.6*			*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

R3	The RPD exceeded the acceptance limit due to sample matrix effects.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 12/18/2018

Brent Barron, Laboratory Director/Technical Director

№ 0421

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 12/17/18 PAGE 1 OF 1
PO#: LAB WORK ORDER#: 8L17004
PROJECT LOCATION OR NAME: XTO Sect. 13
LAI PROJECT #: 17-0193-01 COLLECTOR: CB

TRRP report? ☐ Yes ☒ No
TIME ZONE: Time zone/State: MST
S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER
8L17004

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☐ ☒ 8015	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ D.W. 200.8 ☐ OTHER LIST ☐	LEAD - TOTAL ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PERCHLORATE ☐	CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐ M300	FIELD NOTES
S-4 (10')	-01	12/13/18	10:12						X		X			X	X														X	
S-9 (2')	-02		10:43																											
S-13 (2')	-03		11:08																											
S-1 (10')	-04		11:53																											
S-1 (6')	-05		11:55																											
TOTAL									5		5			5	5														5	

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME 12/17/18 11:10 RECEIVED BY: (Signature)
LABORATORY: PBEL

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 3.8-4.8 THERM#: L1
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

DHL ANALYTICAL

January 09, 2019

Mark Larson
Larson & Associates
507 N. Marienfeld #205
Midland, TX 79701
TEL: (432) 687-0901
FAX (432) 687-0456

Order No.: 1901020

RE: EMSU Sat #13

Dear Mark Larson:

DHL Analytical, Inc. received 2 sample(s) on 1/4/2019 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative and all estimated uncertainties of results are within method specifications.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-18-21

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

-Nº 0476

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 1/3/19 PAGE 1 OF 1

PO#: LAB WORK ORDER#: 1901020

PROJECT LOCATION OR NAME: EMSU Sat #13

LAI PROJECT #: 17-0193-01 COLLECTOR: KO/TO

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl (Voas)	HNO3	H2SO4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☒ MTBE ☐ EPA SW-846	TRPH 418.1 ☐ TPH 1005 ☐ TPH-1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8082 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐	M300	FIELD NOTES
TMW-1	01	1/2/19	12:11	W	4	X			X		X																	X			3 Voas, 1 poly
TMW-2	02	1/2/19	13:15	W	4	X			X		X																	X			3 Voas, 1 poly
TOTAL																															

RELINQUISHED BY: (Signature)	DATE/TIME 1/3/19 8:35	RECEIVED BY: (Signature)	C.S.O.
RELINQUISHED BY: (Signature) C.S.O.	DATE/TIME 1/4/19 0858	RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	

LABORATORY: DHL

3

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 2.7°C THERM#: 78
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☒ CARRIER BILL # C.S.O.
☐ HAND DELIVERED

LSO

WWW.LSO.COM
Questions? Call 800-800-8984

Airbill No. LSO065XP

LSO065XP

1. To: Print Name (Person) | Phone (Important)

Company Name

Street Address (No P.O. Box or P.O. Box Zip Code*Deliveries)

Suite / Floor

City | State | Zip

2. From: Print Name (Person): [illegible] | Phone (Important): [illegible]

Company Name: LARSON & ASSOCIATES

Street Address: 507 NORTH MARIENFELD

Suite / Floor: 205

City: MIDLAND | State: TX | Zip: 79701

3. Service: Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.

- ☐ LSO Priority Overnight* By 10:30 a.m. to most cities
- ☐ LSO Early Overnight* By 8:30 a.m. select cities
- ☐ LSO Economy Next Day* By 3 p.m. to most cities
- ☐ LSO 2nd Day*
- ☐ LSO Ground
- ☐ LSO Saturday*
- ☐ Other _____

*Check commitment times and availability at www.lso.com

Assumed LSO Priority Overnight service unless otherwise noted.

☐ Deliver Without Delivery Signature (See Limits of Liability below)

_____
Release Signature

L_____ x W_____ x H_____

4. Package: Weight:

Your Company's Billing Reference Information

Ship Date: (mm/dd/yy) [illegible]

5. Payment:

FOR DRIVER USE ONLY

Driver Number _____

☐ Check here if LSO Supplies are used with LSO Ground Service.

Pick-up Location _____

Date: _____

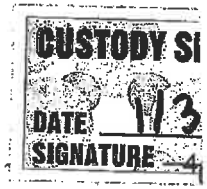
Time: _____

City Code:

© 1991-2017 LSO

072662

ILLEGIBLE HANDWRITING ON AIRBILL MAY DELAY TRANSIT TIMES OR RESULT IN NON-DELIVERY. LIMIT OF LIABILITY: We are not responsible for claims in excess of $100 for any reason unless you: 1) declare a greater value (not to exceed $25,000); 2) pay an additional fee; 3) and document your actual loss in a timely manner. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages. If you ask us to deliver a package without obtaining a delivery signature, you release us of all liability for claims resulting from such service. "Signature Required" service is only available when printing a label online at LSO.com. NO DELIVERY SIGNATURE WILL BE OBTAINED FOR LSO EARLY OVERNIGHT SERVICE. Packaging provided by LSO is for EXPRESS USE ONLY – NEVER TO BE USED FOR LSO GROUND Service. OVERSIZE RATES MAY APPLY. DELIVERY COMMITMENTS MAY VARY. ADDITIONAL FEES MAY APPLY. See LSO Service Guide for further details.



DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Larson & Associates | Date Received: 1/4/2019

Work Order Number 1901020 | Received by EL

Checklist completed by: _____ (Signature) 1/4/2019 (Date) | Reviewed by _____ (Initials) 1/4/2019 (Date)

Carrier name LoneStar

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	2.7 °C
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____
Water - ph>9 (S) or ph>10 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

DHL Analytical, Inc. **Date:** *09-Jan-19*

CLIENT: Larson & Associates
Project: EMSU Sat #13
Lab Order: 1901020

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition and E300.

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives except where noted in the following. For Anions analysis by method E300 the matrix spike and matrix spike duplicate recoveries were slightly above control limits for Chloride. These are flagged accordingly in the enclosed QC summary report. The "S" flag denotes spike recovery was outside control limits. The LCS was within control limits for this analyte. No further corrective actions were taken.

DHL Analytical, Inc.

Date: *09-Jan-19*

CLIENT:	Larson & Associates	**Client Sample ID:**	TMW-1
Project:	EMSU Sat #13	**Lab ID:**	1901020-01
Project No:	17-0193-01	**Collection Date:**	01/02/19 12:11 PM
Lab Order:	1901020	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE AROMATICS BY GC/MS		**SW8260C**					Analyst: **BTJ**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	01/08/19 12:30 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	01/08/19 12:30 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	01/08/19 12:30 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	01/08/19 12:30 PM
Surr: 1,2-Dichloroethane-d4	105	0	72-119		%REC	1	01/08/19 12:30 PM
Surr: 4-Bromofluorobenzene	98.3	0	76-119		%REC	1	01/08/19 12:30 PM
Surr: Dibromofluoromethane	98.4	0	85-115		%REC	1	01/08/19 12:30 PM
Surr: Toluene-d8	95.8	0	81-120		%REC	1	01/08/19 12:30 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JL**
Chloride	637	30.0	100		mg/L	100	01/04/19 01:43 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
	DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
	S	Spike Recovery outside control limits	N	Parameter not NELAC certified

DHL Analytical, Inc.

Date: *09-Jan-19*

CLIENT:	Larson & Associates	**Client Sample ID:**	TMW-2
Project:	EMSU Sat #13	**Lab ID:**	1901020-02
Project No:	17-0193-01	**Collection Date:**	01/02/19 01:15 PM
Lab Order:	1901020	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE AROMATICS BY GC/MS		**SW8260C**					Analyst: **BTJ**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	01/08/19 12:55 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	01/08/19 12:55 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	01/08/19 12:55 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	01/08/19 12:55 PM
Surr: 1,2-Dichloroethane-d4	106	0	72-119		%REC	1	01/08/19 12:55 PM
Surr: 4-Bromofluorobenzene	98.9	0	76-119		%REC	1	01/08/19 12:55 PM
Surr: Dibromofluoromethane	98.9	0	85-115		%REC	1	01/08/19 12:55 PM
Surr: Toluene-d8	95.7	0	81-120		%REC	1	01/08/19 12:55 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JL**
Chloride	4260	30.0	100		mg/L	100	01/04/19 02:09 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
	DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
	S	Spike Recovery outside control limits	N	Parameter not NELAC certified

DHL Analytical, Inc. **Date:** *09-Jan-19*

CLIENT: Larson & Associates
Work Order: 1901020
Project: EMSU Sat #13

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_190108A

The QC data in batch 88894 applies to the following samples: 1901020-01A, 1901020-02A

Sample ID **LCS-88894**	Batch ID: **88894**	TestNo: **SW8260C**	Units: **mg/L**
SampType: **LCS**	Run ID: **GCMS3_190108A**	Analysis Date: **1/8/2019 9:54:00 AM**	Prep Date: **1/8/2019**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0439	0.00200	0.0464	0	94.7	81	122			
Ethylbenzene	0.0487	0.00600	0.0464	0	105	73	127			
Toluene	0.0442	0.00600	0.0464	0	95.2	77	122			
Total Xylenes	0.148	0.00600	0.139	0	106	80	121			
Surr: 1,2-Dichloroethane-d4	51.7		50.00		103	72	119			
Surr: 4-Bromofluorobenzene	49.3		50.00		98.7	76	119			
Surr: Dibromofluoromethane	48.5		50.00		97.1	85	115			
Surr: Toluene-d8	48.4		50.00		96.7	81	120			

Sample ID **MB-88894**	Batch ID: **88894**	TestNo: **SW8260C**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS3_190108A**	Analysis Date: **1/8/2019 10:20:00 AM**	Prep Date: **1/8/2019**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.000800	0.00200								
Ethylbenzene	<0.00200	0.00600								
Toluene	<0.00200	0.00600								
Total Xylenes	<0.00200	0.00600								
Surr: 1,2-Dichloroethane-d4	52.0		50.00		104	72	119			
Surr: 4-Bromofluorobenzene	49.7		50.00		99.4	76	119			
Surr: Dibromofluoromethane	48.8		50.00		97.6	85	115			
Surr: Toluene-d8	48.1		50.00		96.2	81	120			

Sample ID **1901030-03AMS**	Batch ID: **88894**	TestNo: **SW8260C**	Units: **mg/L**
SampType: **MS**	Run ID: **GCMS3_190108A**	Analysis Date: **1/8/2019 3:52:00 PM**	Prep Date: **1/8/2019**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0412	0.00200	0.0464	0	88.8	81	122			
Ethylbenzene	0.0465	0.00600	0.0464	0	100	73	127			
Toluene	0.0410	0.00600	0.0464	0	88.3	77	122			
Total Xylenes	0.142	0.00600	0.139	0	102	80	121			
Surr: 1,2-Dichloroethane-d4	51.9		50.00		104	72	119			
Surr: 4-Bromofluorobenzene	48.9		50.00		97.9	76	119			
Surr: Dibromofluoromethane	48.8		50.00		97.7	85	115			
Surr: Toluene-d8	47.1		50.00		94.3	81	120			

Sample ID **1901030-03AMSD**	Batch ID: **88894**	TestNo: **SW8260C**	Units: **mg/L**
SampType: **MSD**	Run ID: **GCMS3_190108A**	Analysis Date: **1/8/2019 4:18:00 PM**	Prep Date: **1/8/2019**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Larson & Associates
Work Order: 1901020
Project: EMSU Sat #13

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_190108A

Sample ID **1901030-03AMSD**	Batch ID: **88894**	TestNo: **SW8260C**	Units: **mg/L**
SampType: **MSD**	Run ID: **GCMS3_190108A**	Analysis Date: **1/8/2019 4:18:00 PM**	Prep Date: **1/8/2019**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0418	0.00200	0.0464	0	90.1	81	122	1.45	20	
Ethylbenzene	0.0481	0.00600	0.0464	0	104	73	127	3.23	20	
Toluene	0.0419	0.00600	0.0464	0	90.3	77	122	2.23	20	
Total Xylenes	0.146	0.00600	0.139	0	105	80	121	2.78	20	
Surr: 1,2-Dichloroethane-d4	51.6		50.00		103	72	119	0	0	
Surr: 4-Bromofluorobenzene	48.7		50.00		97.4	76	119	0	0	
Surr: Dibromofluoromethane	48.1		50.00		96.1	85	115	0	0	
Surr: Toluene-d8	47.0		50.00		94.1	81	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Larson & Associates
Work Order: 1901020
Project: EMSU Sat #13

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_190104A

The QC data in batch 88876 applies to the following samples: 1901020-01B, 1901020-02B

Sample ID	MB-88876	Batch ID:	88876	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC2_190104A	Analysis Date:	1/4/2019 11:00:05 AM	Prep Date:	1/4/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<0.300	1.00								

Sample ID	LCS-88876	Batch ID:	88876	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC2_190104A	Analysis Date:	1/4/2019 11:13:05 AM	Prep Date:	1/4/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.3	1.00	10.00	0	103	90	110			

Sample ID	LCSD-88876	Batch ID:	88876	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC2_190104A	Analysis Date:	1/4/2019 11:26:05 AM	Prep Date:	1/4/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.4	1.00	10.00	0	104	90	110	0.680	20	

Sample ID	1901020-01BMS	Batch ID:	88876	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_190104A	Analysis Date:	1/4/2019 12:11:58 PM	Prep Date:	1/4/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	23400	1000	20000	764.8	113	90	110			S

Sample ID	1901020-01BMSD	Batch ID:	88876	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC2_190104A	Analysis Date:	1/4/2019 12:24:58 PM	Prep Date:	1/4/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	23200	1000	20000	764.8	112	90	110	0.918	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: EMSU B Sat 13 Trunk Line/Lea Co NM

Project Number: 19-0193-01

Location: Lea Co, NM

Lab Order Number: 9C05001

NELAP/TCEQ # T104704516-18-9

Report Date: 03/06/19

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: EMSU B Sat 13 Trunk Line/Lea Co NM
Project Number: 19-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-1	9C05001-01	Soil	03/04/19 14:22	03-05-2019 08:44
S-2	9C05001-02	Soil	03/04/19 14:25	03-05-2019 08:44
S-3	9C05001-03	Soil	03/04/19 14:30	03-05-2019 08:44
S-4	9C05001-04	Soil	03/04/19 14:31	03-05-2019 08:44
S-5	9C05001-05	Soil	03/04/19 14:33	03-05-2019 08:44
S-6	9C05001-06	Soil	03/04/19 14:44	03-05-2019 08:44
S-7	9C05001-07	Soil	03/04/19 14:50	03-05-2019 08:44
S-8	9C05001-08	Soil	03/04/19 14:55	03-05-2019 08:44
S-9	9C05001-09	Soil	03/04/19 15:00	03-05-2019 08:44
S-10	9C05001-10	Soil	03/04/19 15:05	03-05-2019 08:44
S-11	9C05001-11	Soil	03/04/19 15:10	03-05-2019 08:44
S-12	9C05001-12	Soil	03/04/19 15:18	03-05-2019 08:44
S-13	9C05001-13	Soil	03/04/19 15:20	03-05-2019 08:44
S-14	9C05001-14	Soil	03/04/19 15:25	03-05-2019 08:44

S-1

9C05001-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	ND	0.00110	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*97.1 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*74.9 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	*S-09*
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1220**	5.49	mg/kg dry	5	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.2 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*122 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	03/05/19	03/05/19	calc	

S-2

9C05001-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.0233	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	ND	0.0233	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	ND	0.0233	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	ND	0.0465	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	ND	0.0233	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*69.0 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	*S-09*
Surrogate: 4-Bromofluorobenzene		*85.4 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2960**	11.6	mg/kg dry	10	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.1	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**332**	29.1	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	**48.7**	29.1	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*102 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*127 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**381**	29.1	mg/kg dry	1	[CALC]	03/05/19	03/05/19	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: EMSU B Sat 13 Trunk Line/Lea Co NM
Project Number: 19-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

S-3

9C05001-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00122	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	ND	0.00122	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	ND	0.00122	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	ND	0.00244	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	ND	0.00122	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*68.0 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	*S-09*
Surrogate: 4-Bromofluorobenzene		*95.8 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1260**	6.10	mg/kg dry	5	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**18.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	30.5	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**116**	30.5	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	ND	30.5	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.0 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*118 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**116**	30.5	mg/kg dry	1	[CALC]	03/05/19	03/05/19	calc	

Larson & Associates, Inc.	Project: EMSU B Sat 13 Trunk Line/Lea Co NM	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-4

9C05001-04 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00115	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	ND	0.00115	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	ND	0.00115	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	ND	0.00230	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	ND	0.00115	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*78.3 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1710**	11.5	mg/kg dry	10	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.7	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	ND	28.7	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*87.3 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*107 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.7	mg/kg dry	1	[CALC]	03/05/19	03/05/19	calc	

S-5

9C05001-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00112	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	ND	0.00112	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	ND	0.00112	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	ND	0.00225	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	ND	0.00112	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*102 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*77.4 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2430**	11.2	mg/kg dry	10	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.1	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*102 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*127 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	03/05/19	03/05/19	calc	

Larson & Associates, Inc.	Project: EMSU B Sat 13 Trunk Line/Lea Co NM	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-6

9C05001-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00119	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	ND	0.00119	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	ND	0.00119	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	ND	0.00238	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	ND	0.00119	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*75.6 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2650**	11.9	mg/kg dry	10	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.8	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**36.9**	29.8	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	ND	29.8	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*102 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*127 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**36.9**	29.8	mg/kg dry	1	[CALC]	03/05/19	03/05/19	calc	

Larson & Associates, Inc.	Project: EMSU B Sat 13 Trunk Line/Lea Co NM	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-7

9C05001-07 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.0222	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	ND	0.0222	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	ND	0.0222	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	ND	0.0444	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	ND	0.0222	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*69.1 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	*S-09*
Surrogate: 4-Bromofluorobenzene		*95.9 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1210**	5.56	mg/kg dry	5	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**244**	139	mg/kg dry	5	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**4100**	139	mg/kg dry	5	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	**580**	139	mg/kg dry	5	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.2 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*124 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**4920**	139	mg/kg dry	5	[CALC]	03/05/19	03/05/19	calc	

S-8

9C05001-08 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.0230	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	**0.113**	0.0230	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	**0.514**	0.0230	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	**2.15**	0.0460	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	**1.30**	0.0230	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*89.0 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1010**	5.75	mg/kg dry	5	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**2290**	287	mg/kg dry	10	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**10100**	287	mg/kg dry	10	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	**1620**	287	mg/kg dry	10	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*116 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*112 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**14000**	287	mg/kg dry	10	[CALC]	03/05/19	03/05/19	calc	

S-9

9C05001-09 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.332**	0.0247	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	**2.13**	0.0247	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	**4.27**	0.0247	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	**9.74**	0.0494	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	**5.06**	0.0247	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*99.3 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*113 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1490**	6.17	mg/kg dry	5	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**19.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**5570**	309	mg/kg dry	10	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**13100**	309	mg/kg dry	10	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	**2440**	309	mg/kg dry	10	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*124 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*108 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**21100**	309	mg/kg dry	10	[CALC]	03/05/19	03/05/19	calc	

S-10

9C05001-10 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.118**	0.0238	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	**0.727**	0.0238	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	**1.26**	0.0238	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	**3.95**	0.0476	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	**1.87**	0.0238	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*90.4 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*103 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1840**	11.9	mg/kg dry	10	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**1720**	149	mg/kg dry	5	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**5640**	149	mg/kg dry	5	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	**943**	149	mg/kg dry	5	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*116 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**8290**	149	mg/kg dry	5	[CALC]	03/05/19	03/05/19	calc	

Larson & Associates, Inc.	Project: EMSU B Sat 13 Trunk Line/Lea Co NM	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-11

9C05001-11 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.0241	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	**0.343**	0.0241	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	**0.554**	0.0241	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	**2.46**	0.0482	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	**1.24**	0.0241	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*92.9 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*95.0 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1750**	6.02	mg/kg dry	5	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**17.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**1400**	151	mg/kg dry	5	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**5130**	151	mg/kg dry	5	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	**902**	151	mg/kg dry	5	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*109 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*116 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**7440**	151	mg/kg dry	5	[CALC]	03/05/19	03/05/19	calc	

Larson & Associates, Inc.	Project: EMSU B Sat 13 Trunk Line/Lea Co NM	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-12

9C05001-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.0238	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	**0.226**	0.0238	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	**0.376**	0.0238	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	**1.41**	0.0476	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	**1.28**	0.0238	mg/kg dry	20	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*92.6 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*89.5 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1910**	11.9	mg/kg dry	10	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**3060**	298	mg/kg dry	10	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**18800**	298	mg/kg dry	10	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	**2830**	298	mg/kg dry	10	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*113 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**24700**	298	mg/kg dry	10	[CALC]	03/05/19	03/05/19	calc	

Larson & Associates, Inc.	Project: EMSU B Sat 13 Trunk Line/Lea Co NM	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-13

9C05001-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	ND	0.00109	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*106 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*80.1 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1090**	5.43	mg/kg dry	5	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**457**	27.2	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	**63.3**	27.2	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*102 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*127 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**521**	27.2	mg/kg dry	1	[CALC]	03/05/19	03/05/19	calc	

S-14

9C05001-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Toluene	ND	0.00109	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P9C0517	03/05/19	03/05/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*77.2 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*97.1 %*	*75-125*		*P9C0517*	*03/05/19*	*03/05/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**972**	5.43	mg/kg dry	5	P9C0504	03/05/19	03/06/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9C0605	03/06/19	03/06/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C12-C28	**237**	27.2	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
>C28-C35	**38.0**	27.2	mg/kg dry	1	P9C0505	03/05/19	03/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*101 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*124 %*	*70-130*		*P9C0505*	*03/05/19*	*03/05/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**275**	27.2	mg/kg dry	1	[CALC]	03/05/19	03/05/19	calc	

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C0517 - General Preparation (GC)										
Blank (P9C0517-BLK1)				Prepared & Analyzed: 03/05/19						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	*0.0445*		"	*0.0600*		*74.2*	*75-125*			*S-09*
Surrogate: 4-Bromofluorobenzene	*0.0558*		"	*0.0600*		*93.0*	*75-125*			
LCS (P9C0517-BS1)				Prepared & Analyzed: 03/05/19						
Benzene	0.105	0.00100	mg/kg wet	0.100		105	70-130			
Toluene	0.103	0.00100	"	0.100		103	70-130			
Ethylbenzene	0.0861	0.00100	"	0.100		86.1	70-130			
Xylene (p/m)	0.197	0.00200	"	0.200		98.4	70-130			
Xylene (o)	0.109	0.00100	"	0.100		109	70-130			
Surrogate: 1,4-Difluorobenzene	*0.0643*		"	*0.0600*		*107*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0634*		"	*0.0600*		*106*	*75-125*			
LCS Dup (P9C0517-BSD1)				Prepared & Analyzed: 03/05/19						
Benzene	0.110	0.00100	mg/kg wet	0.100		110	70-130	4.32	20	
Toluene	0.106	0.00100	"	0.100		106	70-130	2.98	20	
Ethylbenzene	0.0866	0.00100	"	0.100		86.6	70-130	0.579	20	
Xylene (p/m)	0.197	0.00200	"	0.200		98.7	70-130	0.320	20	
Xylene (o)	0.113	0.00100	"	0.100		113	70-130	3.22	20	
Surrogate: 4-Bromofluorobenzene	*0.0658*		"	*0.0600*		*110*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0646*		"	*0.0600*		*108*	*75-125*			
Calibration Blank (P9C0517-CCB1)				Prepared & Analyzed: 03/05/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0612*		"	*0.0600*		*102*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0473*		"	*0.0600*		*78.8*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C0517 - General Preparation (GC)										
Calibration Blank (P9C0517-CCB2)				Prepared & Analyzed: 03/05/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0646*		"	*0.0600*		*108*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0518*		"	*0.0600*		*86.4*	*75-125*			
Calibration Check (P9C0517-CCV1)				Prepared & Analyzed: 03/05/19						
Benzene	0.110	0.00100	mg/kg wet	0.100		110	80-120			
Toluene	0.101	0.00100	"	0.100		101	80-120			
Ethylbenzene	0.117	0.00100	"	0.100		117	80-120			
Xylene (p/m)	0.183	0.00200	"	0.200		91.6	80-120			
Xylene (o)	0.111	0.00100	"	0.100		111	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0645*		"	*0.0600*		*107*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0623*		"	*0.0600*		*104*	*75-125*			
Calibration Check (P9C0517-CCV2)				Prepared & Analyzed: 03/05/19						
Benzene	0.119	0.00100	mg/kg wet	0.100		119	80-120			
Toluene	0.112	0.00100	"	0.100		112	80-120			
Ethylbenzene	0.120	0.00100	"	0.100		120	80-120			
Xylene (p/m)	0.203	0.00200	"	0.200		102	80-120			
Xylene (o)	0.119	0.00100	"	0.100		119	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0664*		"	*0.0600*		*111*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0655*		"	*0.0600*		*109*	*75-125*			
Calibration Check (P9C0517-CCV3)				Prepared: 03/05/19 Analyzed: 03/06/19						
Benzene	0.113	0.00100	mg/kg wet	0.100		113	80-120			
Toluene	0.104	0.00100	"	0.100		104	80-120			
Ethylbenzene	0.120	0.00100	"	0.100		120	80-120			
Xylene (p/m)	0.191	0.00200	"	0.200		95.3	80-120			
Xylene (o)	0.118	0.00100	"	0.100		118	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0572*		"	*0.0600*		*95.4*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0619*		"	*0.0600*		*103*	*75-125*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: EMSU B Sat 13 Trunk Line/Lea Co NM
Project Number: 19-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C0517 - General Preparation (GC)										
Matrix Spike (P9C0517-MS1)	**Source: 9C05001-03**			Prepared & Analyzed: 03/05/19						
Benzene	0.0424	0.00122	mg/kg dry	0.122	ND	34.8	80-120			QM-05
Toluene	0.0401	0.00122	"	0.122	ND	32.9	80-120			QM-05
Ethylbenzene	0.0455	0.00122	"	0.122	ND	37.3	80-120			QM-05
Xylene (p/m)	0.0761	0.00244	"	0.244	ND	31.2	80-120			QM-05
Xylene (o)	0.0350	0.00122	"	0.122	ND	28.7	80-120			QM-05
Surrogate: 1,4-Difluorobenzene	*0.0808*		"	*0.0732*		*110*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0897*		"	*0.0732*		*123*	*75-125*			
Matrix Spike Dup (P9C0517-MSD1)	**Source: 9C05001-03**			Prepared & Analyzed: 03/05/19						
Benzene	0.0218	0.00122	mg/kg dry	0.122	ND	17.9	80-120	64.2	20	QM-05
Toluene	0.0138	0.00122	"	0.122	ND	11.3	80-120	97.7	20	QM-05
Ethylbenzene	0.00617	0.00122	"	0.122	ND	5.06	80-120	152	20	QM-05
Xylene (p/m)	0.00862	0.00244	"	0.244	ND	3.54	80-120	159	20	QM-05
Xylene (o)	0.00354	0.00122	"	0.122	ND	2.90	80-120	163	20	QM-05
Surrogate: 4-Bromofluorobenzene	*0.0786*		"	*0.0732*		*107*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0682*		"	*0.0732*		*93.2*	*75-125*			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C0504 - * DEFAULT PREP *** **										
Blank (P9C0504-BLK1)				Prepared: 03/05/19 Analyzed: 03/06/19						
Chloride	ND	1.00	mg/kg wet							
LCS (P9C0504-BS1)				Prepared: 03/05/19 Analyzed: 03/06/19						
Chloride	ND	1.00	mg/kg wet	400			80-120			
LCS Dup (P9C0504-BSD1)				Prepared: 03/05/19 Analyzed: 03/06/19						
Chloride	ND	1.00	mg/kg wet	400			80-120		20	
Duplicate (P9C0504-DUP1)		**Source: 9C05001-01**		Prepared: 03/05/19 Analyzed: 03/06/19						
Chloride	1170	5.49	mg/kg dry		1220			3.87	20	
Duplicate (P9C0504-DUP2)		**Source: 9C05001-11**		Prepared: 03/05/19 Analyzed: 03/06/19						
Chloride	1750	6.02	mg/kg dry		1750			0.0137	20	
Matrix Spike (P9C0504-MS1)		**Source: 9C05001-01**		Prepared: 03/05/19 Analyzed: 03/06/19						
Chloride	2340	5.49	mg/kg dry	1100	1220	102	80-120			
Batch P9C0605 - * DEFAULT PREP *** **										
Blank (P9C0605-BLK1)				Prepared & Analyzed: 03/06/19						
% Moisture	ND	0.1	%							
Duplicate (P9C0605-DUP1)		**Source: 9C04002-26**		Prepared & Analyzed: 03/06/19						
% Moisture	15.0	0.1	%		16.0			6.45	20	
Duplicate (P9C0605-DUP2)		**Source: 9C05002-05**		Prepared & Analyzed: 03/06/19						
% Moisture	7.0	0.1	%		8.0			13.3	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: EMSU B Sat 13 Trunk Line/Lea Co NM
Project Number: 19-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C0605 - * DEFAULT PREP *****										
Duplicate (P9C0605-DUP3)		**Source: 9C05010-06**		Prepared & Analyzed: 03/06/19						
% Moisture	5.0	0.1	%		5.0			0.00	20	
Duplicate (P9C0605-DUP4)		**Source: 9C05014-06**		Prepared & Analyzed: 03/06/19						
% Moisture	18.0	0.1	%		12.0			40.0	20	
Duplicate (P9C0605-DUP5)		**Source: 9C05016-13**		Prepared & Analyzed: 03/06/19						
% Moisture	12.0	0.1	%		13.0			8.00	20	
Duplicate (P9C0605-DUP6)		**Source: 9C05017-16**		Prepared & Analyzed: 03/06/19						
% Moisture	17.0	0.1	%		17.0			0.00	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: EMSU B Sat 13 Trunk Line/Lea Co NM
Project Number: 19-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C0505 - TX 1005										
Blank (P9C0505-BLK1)				Prepared & Analyzed: 03/05/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*103*		"	*100*		*103*	*70-130*			
Surrogate: o-Terphenyl	*64.1*		"	*50.0*		*128*	*70-130*			
LCS (P9C0505-BS1)				Prepared & Analyzed: 03/05/19						
C6-C12	1090	25.0	mg/kg wet	1000		109	75-125			
>C12-C28	942	25.0	"	1000		94.2	75-125			
Surrogate: 1-Chlorooctane	*117*		"	*100*		*117*	*70-130*			
Surrogate: o-Terphenyl	*60.6*		"	*50.0*		*121*	*70-130*			
LCS Dup (P9C0505-BSD1)				Prepared & Analyzed: 03/05/19						
C6-C12	1060	25.0	mg/kg wet	1000		106	75-125	2.92	20	
>C12-C28	920	25.0	"	1000		92.0	75-125	2.29	20	
Surrogate: 1-Chlorooctane	*112*		"	*100*		*112*	*70-130*			
Surrogate: o-Terphenyl	*59.8*		"	*50.0*		*120*	*70-130*			
Calibration Blank (P9C0505-CCB1)				Prepared & Analyzed: 03/05/19						
C6-C12	11.4		mg/kg wet							
>C12-C28	10.7		"							
Surrogate: 1-Chlorooctane	*126*		"	*100*		*126*	*70-130*			
Surrogate: o-Terphenyl	*78.1*		"	*50.0*		*156*	*70-130*			*S-09*
Calibration Blank (P9C0505-CCB2)				Prepared & Analyzed: 03/05/19						
C6-C12	5.15		mg/kg wet							
>C12-C28	17.2		"							
Surrogate: 1-Chlorooctane	*129*		"	*100*		*129*	*70-130*			
Surrogate: o-Terphenyl	*79.2*		"	*50.0*		*158*	*70-130*			*S-09*

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: EMSU B Sat 13 Trunk Line/Lea Co NM
Project Number: 19-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C0505 - TX 1005										
Calibration Check (P9C0505-CCV1)				Prepared & Analyzed: 03/05/19						
C6-C12	963	25.0	mg/kg wet	1000		96.3	85-115			
>C12-C28	898	25.0	"	1000		89.8	85-115			
Surrogate: 1-Chlorooctane	*214*		"	*200*		*107*	*70-130*			
Surrogate: o-Terphenyl	*110*		"	*100*		*110*	*70-130*			
Calibration Check (P9C0505-CCV2)				Prepared & Analyzed: 03/05/19						
C6-C12	1000	25.0	mg/kg wet	1000		100	85-115			
>C12-C28	893	25.0	"	1000		89.3	85-115			
Surrogate: 1-Chlorooctane	*224*		"	*200*		*112*	*70-130*			
Surrogate: o-Terphenyl	*118*		"	*100*		*118*	*70-130*			

Notes and Definitions

S-09	Surrogate recovery limits have been exceeded.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 3/6/2019

Brent Barron, Laboratory Director/Technical Director

№ 0278

CHAIN-OF-CUSTOD

Page 25 of 25

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

DATE: 3-5-2019 PAGE 1 OF

PO#: LAB WORK ORDER#: 9C0500

PROJECT LOCATION OR NAME: Embu b Sat 13 / Lea Co. N

LAI PROJECT #: 19-0193-01 COLLECTOR:

Data Reported to:

TRRP report? ☐ Yes ☑ No

TIME ZONE: Time zone/State: MTn / NM

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

9C05001

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO3	H2SO4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☑	DIESEL - MOD 8015 ☑	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐	8081 PESTICIDES ☐	PAH 8270 ☐ HOLDPAH ☐	8082 PCBS ☐	8151 HERBICIDES ☐	TCLP - METALS (RCRA) ☐	TCLP - PEST ☐	TCLP VOC ☐	TOTAL METALS (RCRA) ☐	HERB ☐	Semi-VOC ☐	LEAD - TOTAL ☐	OTHER LIST ☐	RCI ☐	TOX ☐	D.W. 200.8 ☐	TCLP ☐	TDS ☐	TSS ☐	FLASHPOINT ☐	pH ☐	% MOISTURE ☐	HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐	CYANIDE ☐	CHLORIDES ☑	PECHLORATE ☐	ANIONS ☐	ALKALINITY ☐	FIELD NOTES
S-1	-01	3/4/19	14:27	S	1				✓		✓		✓	✓	✓																														
S-2	-02		14:25		1				✓		✓		✓	✓	✓																														
S-3	-03		14:30		1				✓		✓		✓	✓	✓																														
S-4	-04		14:31		1				✓		✓		✓	✓	✓																														Sepl Samp 14:37
S-5	-05		14:33		1				✓		✓		✓	✓	✓																														Sepl Sap 14:33
S-6	-06		14:44		1				✓		✓		✓	✓	✓																														Sepl Sap 14:44
S-7	-07		14:50		1				✓		✓		✓	✓	✓																														
S-8	-08		14:55		1				✓		✓		✓	✓	✓																														
S-9	-09		15:00		1				✓		✓		✓	✓	✓																														
S-10	-10		15:05		1				✓		✓		✓	✓	✓																														
S-11	-11		15:10		1				✓		✓		✓	✓	✓																														
S-12	-12		15:18		1				✓		✓		✓	✓	✓																														
S-13	-13		15:20		1				✓		✓		✓	✓	✓																														
S-14	-14	↓	15:25	↓	1				✓		✓		✓	✓	✓																														
TOTAL																																													

RELINQUISHED BY: (Signature) DATE/TIME 3/5/2019 8a RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature) DATE/TIME 3/5/19 8:30am RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature) DATE/TIME 3-5-19 8:44 RECEIVED BY: (Signature)

LABORATORY: PHEL

TURN AROUND TIME
NORMAL ☐
1 DAY ☑
2 DAY ☐
OTHER ☑

LABORATORY USE ONLY:
RECEIVING TEMP: 3.1-B.1 THERM#:
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☑ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Location: None Given

Lab Order Number: 9C11004

NELAP/TCEQ # T104704516-18-9

Report Date: 03/19/19

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-2 (6')	9C11004-01	Soil	03/08/19 10:21	03-11-2019 08:45
S-7 (7')	9C11004-02	Soil	03/08/19 09:11	03-11-2019 08:45
S-8 (11')	9C11004-03	Soil	03/08/19 09:18	03-11-2019 08:45
S-8 (12')	9C11004-04	Soil	03/08/19 09:34	03-11-2019 08:45
S-9 (12')	9C11004-05	Soil	03/08/19 09:43	03-11-2019 08:45
S-9 (13')	9C11004-06	Soil	03/08/19 09:47	03-11-2019 08:45
S-10 (12')	9C11004-07	Soil	03/08/19 10:45	03-11-2019 08:45
S-10 (13')	9C11004-08	Soil	03/08/19 10:48	03-11-2019 08:45
S-11 (13')	9C11004-09	Soil	03/08/19 10:37	03-11-2019 08:45
S-11 (16')	9C11004-10	Soil	03/08/19 10:38	03-11-2019 08:45
S-12 (12')	9C11004-11	Soil	03/08/19 10:25	03-11-2019 08:45
S-12 (13')	9C11004-12	Soil	03/08/19 10:28	03-11-2019 08:45
S-13 (11')	9C11004-13	Soil	03/08/19 10:18	03-11-2019 08:45
S-13 (12')	9C11004-14	Soil	03/08/19 10:20	03-11-2019 08:45
S-14 (11')	9C11004-15	Soil	03/08/19 10:15	03-11-2019 08:45

S-2 (6')

9C11004-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1050**	5.56	mg/kg dry	5	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.8	mg/kg dry	1	P9C1405	03/14/19	03/15/19	TPH 8015M	
>C12-C28	**104**	27.8	mg/kg dry	1	P9C1405	03/14/19	03/15/19	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P9C1405	03/14/19	03/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.8 %*	*70-130*		*P9C1405*	*03/14/19*	*03/15/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*107 %*	*70-130*		*P9C1405*	*03/14/19*	*03/15/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**104**	27.8	mg/kg dry	1	[CALC]	03/14/19	03/15/19	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-7 (7')

9C11004-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1330**	5.62	mg/kg dry	5	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**54.5**	28.1	mg/kg dry	1	P9C1405	03/14/19	03/15/19	TPH 8015M	
>C12-C28	**89.3**	28.1	mg/kg dry	1	P9C1405	03/14/19	03/15/19	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P9C1405	03/14/19	03/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.8 %*	*70-130*		*P9C1405*	*03/14/19*	*03/15/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P9C1405*	*03/14/19*	*03/15/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	144	28.1	mg/kg dry	1	[CALC]	03/14/19	03/15/19	calc	

S-8 (11')

9C11004-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**477**	6.58	mg/kg dry	5	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**24.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**79.5**	32.9	mg/kg dry	1	P9C1405	03/14/19	03/15/19	TPH 8015M	
>C12-C28	**696**	32.9	mg/kg dry	1	P9C1405	03/14/19	03/15/19	TPH 8015M	
>C28-C35	**102**	32.9	mg/kg dry	1	P9C1405	03/14/19	03/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P9C1405*	*03/14/19*	*03/15/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*119 %*	*70-130*		*P9C1405*	*03/14/19*	*03/15/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**877**	32.9	mg/kg dry	1	[CALC]	03/14/19	03/15/19	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-8 (12')

9C11004-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**826**	11.8	mg/kg dry	10	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.4	mg/kg dry	1	P9C1507	03/15/19	03/15/19	TPH 8015M	
>C12-C28	**72.5**	29.4	mg/kg dry	1	P9C1507	03/15/19	03/15/19	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P9C1507	03/15/19	03/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P9C1507*	*03/15/19*	*03/15/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*129 %*	*70-130*		*P9C1507*	*03/15/19*	*03/15/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**72.5**	29.4	mg/kg dry	1	[CALC]	03/15/19	03/15/19	calc	

S-9 (12')

9C11004-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1150**	5.81	mg/kg dry	5	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**1180**	145	mg/kg dry	5	P9C1507	03/15/19	03/15/19	TPH 8015M	
>C12-C28	**2840**	145	mg/kg dry	5	P9C1507	03/15/19	03/15/19	TPH 8015M	
>C28-C35	**479**	145	mg/kg dry	5	P9C1507	03/15/19	03/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*106 %*	*70-130*		*P9C1507*	*03/15/19*	*03/15/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P9C1507*	*03/15/19*	*03/15/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**4500**	145	mg/kg dry	5	[CALC]	03/15/19	03/15/19	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-9 (13')

9C11004-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**810**	1.15	mg/kg dry	1	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**92.3**	28.7	mg/kg dry	1	P9C1507	03/15/19	03/15/19	TPH 8015M	
>C12-C28	**205**	28.7	mg/kg dry	1	P9C1507	03/15/19	03/15/19	TPH 8015M	
>C28-C35	**38.1**	28.7	mg/kg dry	1	P9C1507	03/15/19	03/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*112 %*	*70-130*		*P9C1507*	*03/15/19*	*03/15/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*133 %*	*70-130*		*P9C1507*	*03/15/19*	*03/15/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**336**	28.7	mg/kg dry	1	[CALC]	03/15/19	03/15/19	calc	

S-10 (12')

9C11004-07 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**888**	1.30	mg/kg dry	1	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**23.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**533**	162	mg/kg dry	5	P9C1507	03/15/19	03/15/19	TPH 8015M	
>C12-C28	**1100**	162	mg/kg dry	5	P9C1507	03/15/19	03/15/19	TPH 8015M	
>C28-C35	**186**	162	mg/kg dry	5	P9C1507	03/15/19	03/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P9C1507*	*03/15/19*	*03/15/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*128 %*	*70-130*		*P9C1507*	*03/15/19*	*03/15/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**1820**	162	mg/kg dry	5	[CALC]	03/15/19	03/15/19	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-10 (13')

9C11004-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1780**	5.88	mg/kg dry	5	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**30.2**	29.4	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C12-C28	**41.5**	29.4	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*112 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*138 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**71.7**	29.4	mg/kg dry	1	[CALC]	03/15/19	03/16/19	calc	

S-11 (13')

9C11004-09 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1580**	5.88	mg/kg dry	5	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**304**	29.4	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C12-C28	**1070**	29.4	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C28-C35	**164**	29.4	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*113 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*130 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**1540**	29.4	mg/kg dry	1	[CALC]	03/15/19	03/16/19	calc	

S-11 (16')

9C11004-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2190**	8.20	mg/kg dry	5	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**39.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**1010**	205	mg/kg dry	5	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C12-C28	**3470**	205	mg/kg dry	5	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C28-C35	**530**	205	mg/kg dry	5	P9C1507	03/15/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*107 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*129 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**5010**	205	mg/kg dry	5	[CALC]	03/15/19	03/16/19	calc	

S-12 (12')

9C11004-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1720**	5.88	mg/kg dry	5	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**164**	29.4	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C12-C28	**1290**	29.4	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C28-C35	**189**	29.4	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*133 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**1640**	29.4	mg/kg dry	1	[CALC]	03/15/19	03/16/19	calc	

Larson & Associates, Inc.	Project: XTO EMSU Sat 13	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0193-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-12 (13')

9C11004-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2470**	13.2	mg/kg dry	10	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**24.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	32.9	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C12-C28	**57.3**	32.9	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C28-C35	ND	32.9	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*130 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**57.3**	32.9	mg/kg dry	1	[CALC]	03/15/19	03/16/19	calc	

S-13 (11')

9C11004-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**477**	1.20	mg/kg dry	1	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**17.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	30.1	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C12-C28	ND	30.1	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C28-C35	ND	30.1	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*106 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*126 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	30.1	mg/kg dry	1	[CALC]	03/15/19	03/16/19	calc	

S-13 (12')

9C11004-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1120**	5.81	mg/kg dry	5	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.1	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P9C1507	03/15/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*104 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*129 %*	*70-130*		*P9C1507*	*03/15/19*	*03/16/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	03/15/19	03/16/19	calc	

S-14 (11')

9C11004-15 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**809**	5.43	mg/kg dry	5	P9C1505	03/15/19	03/18/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9C1202	03/12/19	03/12/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P9C1605	03/16/19	03/16/19	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P9C1605	03/16/19	03/16/19	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P9C1605	03/16/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*84.7 %*	*70-130*		*P9C1605*	*03/16/19*	*03/16/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*99.1 %*	*70-130*		*P9C1605*	*03/16/19*	*03/16/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	03/16/19	03/16/19	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C1202 - * DEFAULT PREP *** **										
Blank (P9C1202-BLK1)				Prepared & Analyzed: 03/12/19						
% Moisture	ND	0.1	%							
Duplicate (P9C1202-DUP1)		**Source: 9C08007-26**		Prepared & Analyzed: 03/12/19						
% Moisture	7.0	0.1	%		7.0			0.00	20	
Duplicate (P9C1202-DUP2)		**Source: 9C08007-53**		Prepared & Analyzed: 03/12/19						
% Moisture	11.0	0.1	%		11.0			0.00	20	
Duplicate (P9C1202-DUP3)		**Source: 9C08008-08**		Prepared & Analyzed: 03/12/19						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P9C1202-DUP4)		**Source: 9C08012-02**		Prepared & Analyzed: 03/12/19						
% Moisture	12.0	0.1	%		12.0			0.00	20	
Duplicate (P9C1202-DUP5)		**Source: 9C11001-04**		Prepared & Analyzed: 03/12/19						
% Moisture	12.0	0.1	%		10.0			18.2	20	
Duplicate (P9C1202-DUP6)		**Source: 9C11004-14**		Prepared & Analyzed: 03/12/19						
% Moisture	14.0	0.1	%		14.0			0.00	20	
Duplicate (P9C1202-DUP7)		**Source: 9C11005-06**		Prepared & Analyzed: 03/12/19						
% Moisture	12.0	0.1	%		10.0			18.2	20	
Duplicate (P9C1202-DUP8)		**Source: 9C11013-03**		Prepared & Analyzed: 03/12/19						
% Moisture	4.0	0.1	%		3.0			28.6	20	R3
Duplicate (P9C1202-DUP9)		**Source: 9C11015-06**		Prepared & Analyzed: 03/12/19						
% Moisture	16.0	0.1	%		14.0			13.3	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C1505 - * DEFAULT PREP *** **										
Blank (P9C1505-BLK1)				Prepared: 03/15/19 Analyzed: 03/18/19						
Chloride	ND	1.00	mg/kg wet							
LCS (P9C1505-BS1)				Prepared: 03/15/19 Analyzed: 03/18/19						
Chloride	408	1.00	mg/kg wet	400		102	80-120			
LCS Dup (P9C1505-BSD1)				Prepared: 03/15/19 Analyzed: 03/18/19						
Chloride	392	1.00	mg/kg wet	400		98.1	80-120	3.83	20	
Duplicate (P9C1505-DUP1)		Source: 9C08011-03		Prepared: 03/15/19 Analyzed: 03/18/19						
Chloride	13500	59.5	mg/kg dry		14000			3.81	20	
Duplicate (P9C1505-DUP2)		Source: 9C11004-06		Prepared: 03/15/19 Analyzed: 03/18/19						
Chloride	1740	1.15	mg/kg dry		810			73.0	20	R3
Matrix Spike (P9C1505-MS1)		Source: 9C08011-03		Prepared: 03/15/19 Analyzed: 03/18/19						
Chloride	20400	59.5	mg/kg dry	5950	14000	108	80-120			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C1405 - TX 1005										
Blank (P9C1405-BLK1)				Prepared & Analyzed: 03/14/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*88.9*		"	*100*		*88.9*	*70-130*			
Surrogate: o-Terphenyl	*49.4*		"	*50.0*		*98.8*	*70-130*			
LCS (P9C1405-BS1)				Prepared & Analyzed: 03/14/19						
C6-C12	994	25.0	mg/kg wet	1000		99.4	75-125			
>C12-C28	936	25.0	"	1000		93.6	75-125			
Surrogate: 1-Chlorooctane	*100*		"	*100*		*100*	*70-130*			
Surrogate: o-Terphenyl	*50.1*		"	*50.0*		*100*	*70-130*			
LCS Dup (P9C1405-BSD1)				Prepared & Analyzed: 03/14/19						
C6-C12	915	25.0	mg/kg wet	1000		91.5	75-125	8.30	20	
>C12-C28	946	25.0	"	1000		94.6	75-125	0.994	20	
Surrogate: 1-Chlorooctane	*98.0*		"	*100*		*98.0*	*70-130*			
Surrogate: o-Terphenyl	*47.1*		"	*50.0*		*94.2*	*70-130*			
Calibration Blank (P9C1405-CCB1)				Prepared & Analyzed: 03/14/19						
C6-C12	15.2		mg/kg wet							
>C12-C28	8.26		"							
Surrogate: 1-Chlorooctane	*98.7*		"	*100*		*98.7*	*70-130*			
Surrogate: o-Terphenyl	*53.6*		"	*50.0*		*107*	*70-130*			
Calibration Blank (P9C1405-CCB2)				Prepared: 03/14/19 Analyzed: 03/15/19						
C6-C12	14.3		mg/kg wet							
>C12-C28	14.0		"							
Surrogate: 1-Chlorooctane	*102*		"	*100*		*102*	*70-130*			
Surrogate: o-Terphenyl	*55.7*		"	*50.0*		*111*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C1405 - TX 1005										
Calibration Check (P9C1405-CCV1)				Prepared & Analyzed: 03/14/19						
C6-C12	565	25.0	mg/kg wet	500		113	85-115			
>C12-C28	500	25.0	"	500		100	85-115			
Surrogate: 1-Chlorooctane	*101*		"	*100*		*101*	*70-130*			
Surrogate: o-Terphenyl	*51.3*		"	*50.0*		*103*	*70-130*			
Calibration Check (P9C1405-CCV2)				Prepared: 03/14/19 Analyzed: 03/15/19						
C6-C12	501	25.0	mg/kg wet	500		100	85-115			
>C12-C28	518	25.0	"	500		104	85-115			
Surrogate: 1-Chlorooctane	*107*		"	*100*		*107*	*70-130*			
Surrogate: o-Terphenyl	*54.9*		"	*50.0*		*110*	*70-130*			
Calibration Check (P9C1405-CCV3)				Prepared: 03/14/19 Analyzed: 03/15/19						
C6-C12	506	25.0	mg/kg wet	500		101	85-115			
>C12-C28	502	25.0	"	500		100	85-115			
Surrogate: 1-Chlorooctane	*107*		"	*100*		*107*	*70-130*			
Surrogate: o-Terphenyl	*54.3*		"	*50.0*		*109*	*70-130*			
Matrix Spike (P9C1405-MS1)	**Source: 9C11004-02**			Prepared: 03/14/19 Analyzed: 03/15/19						
C6-C12	1010	28.1	mg/kg dry	1120	54.5	84.8	75-125			
>C12-C28	1320	28.1	"	1120	89.3	110	75-125			
Surrogate: 1-Chlorooctane	*114*		"	*112*		*101*	*70-130*			
Surrogate: o-Terphenyl	*56.0*		"	*56.2*		*99.7*	*70-130*			
Matrix Spike Dup (P9C1405-MSD1)	**Source: 9C11004-02**			Prepared: 03/14/19 Analyzed: 03/15/19						
C6-C12	948	28.1	mg/kg dry	1120	54.5	79.5	75-125	6.39	20	
>C12-C28	1300	28.1	"	1120	89.3	107	75-125	2.25	20	
Surrogate: 1-Chlorooctane	*110*		"	*112*		*98.0*	*70-130*			
Surrogate: o-Terphenyl	*55.9*		"	*56.2*		*99.5*	*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C1507 - TX 1005										
Blank (P9C1507-BLK1)				Prepared & Analyzed: 03/15/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*116*		"	*100*		*116*	*70-130*			
Surrogate: o-Terphenyl	*63.1*		"	*50.0*		*126*	*70-130*			
LCS (P9C1507-BS1)				Prepared & Analyzed: 03/15/19						
C6-C12	897	25.0	mg/kg wet	1000		89.7	75-125			
>C12-C28	1140	25.0	"	1000		114	75-125			
Surrogate: 1-Chlorooctane	*105*		"	*100*		*105*	*70-130*			
Surrogate: o-Terphenyl	*51.0*		"	*50.0*		*102*	*70-130*			
LCS Dup (P9C1507-BSD1)				Prepared & Analyzed: 03/15/19						
C6-C12	878	25.0	mg/kg wet	1000		87.8	75-125	2.16	20	
>C12-C28	1170	25.0	"	1000		117	75-125	2.79	20	
Surrogate: 1-Chlorooctane	*106*		"	*100*		*106*	*70-130*			
Surrogate: o-Terphenyl	*55.8*		"	*50.0*		*112*	*70-130*			
Calibration Blank (P9C1507-CCB1)				Prepared & Analyzed: 03/15/19						
C6-C12	8.54		mg/kg wet							
>C12-C28	10.1		"							
Surrogate: 1-Chlorooctane	*111*		"	*100*		*111*	*70-130*			
Surrogate: o-Terphenyl	*60.5*		"	*50.0*		*121*	*70-130*			
Calibration Blank (P9C1507-CCB2)				Prepared & Analyzed: 03/15/19						
C6-C12	11.9		mg/kg wet							
>C12-C28	8.40		"							
Surrogate: 1-Chlorooctane	*114*		"	*100*		*114*	*70-130*			
Surrogate: o-Terphenyl	*62.3*		"	*50.0*		*125*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C1507 - TX 1005										
Calibration Check (P9C1507-CCV1)				Prepared & Analyzed: 03/15/19						
C6-C12	488	25.0	mg/kg wet	500		97.5	85-115			
>C12-C28	551	25.0	"	500		110	85-115			
Surrogate: 1-Chlorooctane	*93.8*		"	*100*		*93.8*	*70-130*			
Surrogate: o-Terphenyl	*49.5*		"	*50.0*		*99.1*	*70-130*			
Calibration Check (P9C1507-CCV2)				Prepared & Analyzed: 03/15/19						
C6-C12	486	25.0	mg/kg wet	500		97.2	85-115			
>C12-C28	541	25.0	"	500		108	85-115			
Surrogate: 1-Chlorooctane	*97.1*		"	*100*		*97.1*	*70-130*			
Surrogate: o-Terphenyl	*50.4*		"	*50.0*		*101*	*70-130*			
Calibration Check (P9C1507-CCV3)				Prepared: 03/15/19 Analyzed: 03/16/19						
C6-C12	474	25.0	mg/kg wet	500		94.9	85-115			
>C12-C28	563	25.0	"	500		113	85-115			
Surrogate: 1-Chlorooctane	*99.6*		"	*100*		*99.6*	*70-130*			
Surrogate: o-Terphenyl	*52.4*		"	*50.0*		*105*	*70-130*			
Matrix Spike (P9C1507-MS1)	**Source: 9C15004-06**			Prepared: 03/15/19 Analyzed: 03/16/19						
C6-C12	982	27.2	mg/kg dry	1090	24.3	88.1	75-125			
>C12-C28	1290	27.2	"	1090	ND	119	75-125			
Surrogate: 1-Chlorooctane	*116*		"	*109*		*107*	*70-130*			
Surrogate: o-Terphenyl	*62.3*		"	*54.3*		*115*	*70-130*			
Matrix Spike Dup (P9C1507-MSD1)	**Source: 9C15004-06**			Prepared: 03/15/19 Analyzed: 03/16/19						
C6-C12	984	27.2	mg/kg dry	1090	24.3	88.3	75-125	0.255	20	
>C12-C28	1330	27.2	"	1090	ND	123	75-125	3.22	20	
Surrogate: 1-Chlorooctane	*118*		"	*109*		*108*	*70-130*			
Surrogate: o-Terphenyl	*70.3*		"	*54.3*		*129*	*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C1605 - TX 1005										
Blank (P9C1605-BLK1)				Prepared & Analyzed: 03/16/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*111*		"	*100*		*111*	*70-130*			
Surrogate: o-Terphenyl	*67.4*		"	*50.0*		*135*	*70-130*			*S-GC*
LCS (P9C1605-BS1)				Prepared & Analyzed: 03/16/19						
C6-C12	864	25.0	mg/kg wet	1000		86.4	75-125			
>C12-C28	1110	25.0	"	1000		111	75-125			
Surrogate: 1-Chlorooctane	*120*		"	*100*		*120*	*70-130*			
Surrogate: o-Terphenyl	*67.4*		"	*50.0*		*135*	*70-130*			*S-GC*
LCS Dup (P9C1605-BSD1)				Prepared & Analyzed: 03/16/19						
C6-C12	849	25.0	mg/kg wet	1000		84.9	75-125	1.76	20	
>C12-C28	1060	25.0	"	1000		106	75-125	4.54	20	
Surrogate: 1-Chlorooctane	*122*		"	*100*		*122*	*70-130*			
Surrogate: o-Terphenyl	*65.5*		"	*50.0*		*131*	*70-130*			*S-GC*
Calibration Blank (P9C1605-CCB1)				Prepared: 03/16/19 Analyzed: 03/17/19						
C6-C12	10.1		mg/kg wet							
>C12-C28	17.8		"							
Surrogate: 1-Chlorooctane	*114*		"	*100*		*114*	*70-130*			
Surrogate: o-Terphenyl	*65.1*		"	*50.0*		*130*	*70-130*			
Calibration Check (P9C1605-CCV1)				Prepared: 03/16/19 Analyzed: 03/17/19						
C6-C12	890	25.0	mg/kg wet	1000		89.0	85-115			
>C12-C28	861	25.0	"	1000		86.1	85-115			
Surrogate: 1-Chlorooctane	*126*		"	*100*		*126*	*70-130*			
Surrogate: o-Terphenyl	*63.0*		"	*50.0*		*126*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C1605 - TX 1005										
Calibration Check (P9C1605-CCV3)				Prepared: 03/16/19 Analyzed: 03/17/19						
C6-C12	982	25.0	mg/kg wet	1000		98.2	85-115			
>C12-C28	897	25.0	"	1000		89.7	85-115			
Surrogate: 1-Chlorooctane	*121*		"	*100*		*121*	*70-130*			
Surrogate: o-Terphenyl	*63.9*		"	*50.0*		*128*	*70-130*			
Matrix Spike (P9C1605-MS1)	**Source: 9C11009-01**			Prepared: 03/16/19 Analyzed: 03/17/19						
C6-C12	891	26.3	mg/kg dry	1050	ND	84.6	75-125			
>C12-C28	1210	26.3	"	1050	370	80.0	75-125			
Surrogate: 1-Chlorooctane	*123*		"	*105*		*117*	*70-130*			
Surrogate: o-Terphenyl	*59.5*		"	*52.6*		*113*	*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: XTO EMSU Sat 13
Project Number: 17-0193-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
R3	The RPD exceeded the acceptance limit due to sample matrix effects.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 3/19/2019

Brent Barron, Laboratory Director/Technical Director

Nº 0424

CHAIN-OF-CUSTOD

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 3/11/19 PAGE 1 OF 1

PO#:

LAB WORK ORDER#: 9C11004

PROJECT LOCATION OR NAME: XTO EMSU Sat #13

LAI PROJECT #: 17-0193-01 COLLECTOR: TO / ML

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

9C11004

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
S-2 (6')		3/8/19	10:21	S	1				X		X X X X	
S-7 (7')			9:11									
S-8 (11')			9:18									
S-8 (12')			9:34									
S-9 (12')			9:43									
S-9 (13')			9:47									
S-10 (12')			10:45									
S-10 (13')			10:48									
S-11 (13')			10:37									
S-11 (14')			10:38									
S-12 (12')			10:25									
S-12 (13')			10:28									
S-13 (11')			10:18									
S-13 (12')			10:20									
S-14 (11')			10:15									
TOTAL				15								

ANALYSES: ☐ BTEX ☐ MTBE ☐ TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 ☒ DIESEL - MOD 8015 ☒ OIL - MOD 8015 ☒ VOC 8260 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ 8082 PCBS ☐ TBLP - METALS (RCRA) ☐ TCLP VOC ☐ TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ TOTAL METALS (RCRA) ☐ OTHER LIST ☐ LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ RCI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ pH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PECHLORATE ☐ CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐ M300

RELINQUISHED BY:(Signature) [signature] DATE/TIME 3/11/19 8:45 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 3/11/19 8:45 RECEIVED BY: (Signature) [signature]

LABORATORY: PBEL

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 1.2-2.2 M THERM#:
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☒ HAND DELIVERED