

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)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

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.

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<p>Was this a major release as defined by 19.15.29.7(A) NMAC?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>If YES, for what reason(s) does the responsible party consider this a major release?</p> <p>The releases were greater than 25 bbls of liquid.</p>
<p>If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?</p> <p>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.</p>	

Initial Response

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

<p><input checked="" type="checkbox"/> The source of the release has been stopped.</p> <p><input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment.</p> <p><input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.</p> <p><input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.</p>	
<p>If all the actions described above have <u>not</u> been undertaken, explain why:</p>	
<p>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.</p>	
<p>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.</p>	
Printed Name: Shelby Pennington	Title: Environmental Coordinator
Signature: <u>Shelby Pennington</u>	Date: <u>7/3/2019</u>
email: <u>Shelby_Pennington@xtoenergy.com</u>	Telephone: <u>281-723-9353</u>
<u>OCD Only</u>	
Received by: _____	Date: _____

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>35</u> (ft bgs)
Did this release impact groundwater or surface water?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

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

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

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

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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: _____

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Remediation Plan

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

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

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

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

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

Printed Name: Shelby Pennington

Title: Environmental Coordinator

Signature: Shelby Pennington

Date: 7/3/2019

email: Shelby_Pennington@xtoenergy.comTelephone: 281-723-9353**OCD Only**

Received by: _____ Date: _____

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

Signature: _____

Date: _____

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Closure

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

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

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

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

Printed Name: Shelby Pennington Title: Environmental CoordinatorSignature: Shelby Pennington Date: 7/3/2019email: 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

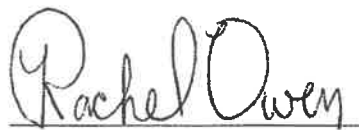
July 1, 2019

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

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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 (Alconox®) 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 not 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, 2019, 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 approach 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 GROUNDWATER 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
Direct 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 Satellite #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 01/02/2019	39.51 39.50	36.55 36.54
TMW-2	12/28/2018	47.67	50.65	2	27.44 - 47.17	2.98	12/28/2018 01/02/2019	39.98 40.00	37.00 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 Satellite #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 Method 8021B (BTEX) and Method 300 (chloride)

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

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

Table 4
1RP-4832Remediation 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

Page 1 of 4

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:													
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	
	North (side)	10	12/05/2018	Excavated	Refer to Table 2A								
		North (side)	10	12/13/2018	Excavated	<0.00110	<0.03803	<27.5	<27.5	<27.5	<27.5	660	
	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	<26.6	96.1	
		West (side)	6	11/30/2018	Excavated	--	--	<27.5	38.8	<27.5	38.8	40.1	
	S-4	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	
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		
	South (side)	2	12/04/2018	Excavated	<0.00111	<0.05087	<27.8	<27.8	<27.8	<27.8	4,680		
S-10	Southwest (side)	2	12/13/2018	In-Situ	<0.00111	<0.05087	<27.8	<27.8	<27.8	<27.8	703		
	Southwest (side)	2	12/04/2018	In-Situ	<0.00102	<0.04692	<25.5	<25.5	<25.5	<25.5	33.0		
S-12	Southwest (side)	2	12/04/2018	In-Situ	<0.00103	<0.04738	<25.8	<25.8	<25.8	<25.8	432		
	West (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	Excavated	<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		
	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

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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:												
	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	<29.1	<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

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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:												
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

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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)
					10	50		100	600					
RRAL														
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	<30.1	<30.1	<30.1	1,390
T-2	4.5	Bottom (W)	01/08/2019	Excavated	<0.00112	<0.05164	<28.1	<28.1	39.9	<28.1	<28.1	39.9	39.9	1,110
T-3	10.5	Bottom (W)	01/08/2019	Excavated	<0.00118	0.1111	66.2	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	<27.5	<27.5	<27.5	1,220
S-2	5	Bottom	03/04/2019	Excavated	<0.0233	<0.05582	<29.1	<29.1	332	48.7	380.7			2,960
	6	Bottom	03/08/2019	Excavated	--	--	<27.8	<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	<26.6	<26.6	<26.6	432
	3	Sidewall (N)	05/08/2029	In-situ	<0.00103	<0.00618	<25.8	<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	<25.3			2.23
	3	Sidewall (W)	05/08/2029	In-situ	<0.00110	<0.0066	<27.5	<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	<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	<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	<28.1			2,430
S-6	4	Bottom	03/04/2019	In-situ	<0.00119	<0.00714	<29.8	<29.8	36.9	<29.8	36.9			2,650
S-7	6	Bottom	03/04/2019	Excavated	<0.0222	<0.1332	244	244	4,100	580	4,924			1,210
	7	Bottom	03/08/2019	Excavated	--	--	54.5	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	<29.1			1,420
	17	Bottom	05/13/2019	In-situ	--	--	<36.8	<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	<28.1			1,100
	9	Sidewall (S)	05/13/2019	In-situ	<0.00115	<0.0069	<28.7	<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	<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	10		BTEX (mg/Kg)	50		C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
					Benzene (mg/Kg)									
RRAL														
	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

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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 criteria standard (Table 1 19.15.29 NMAC)

Highlighted denotes concentration exceeds chloride closure criteria 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

Page 1 of 2

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

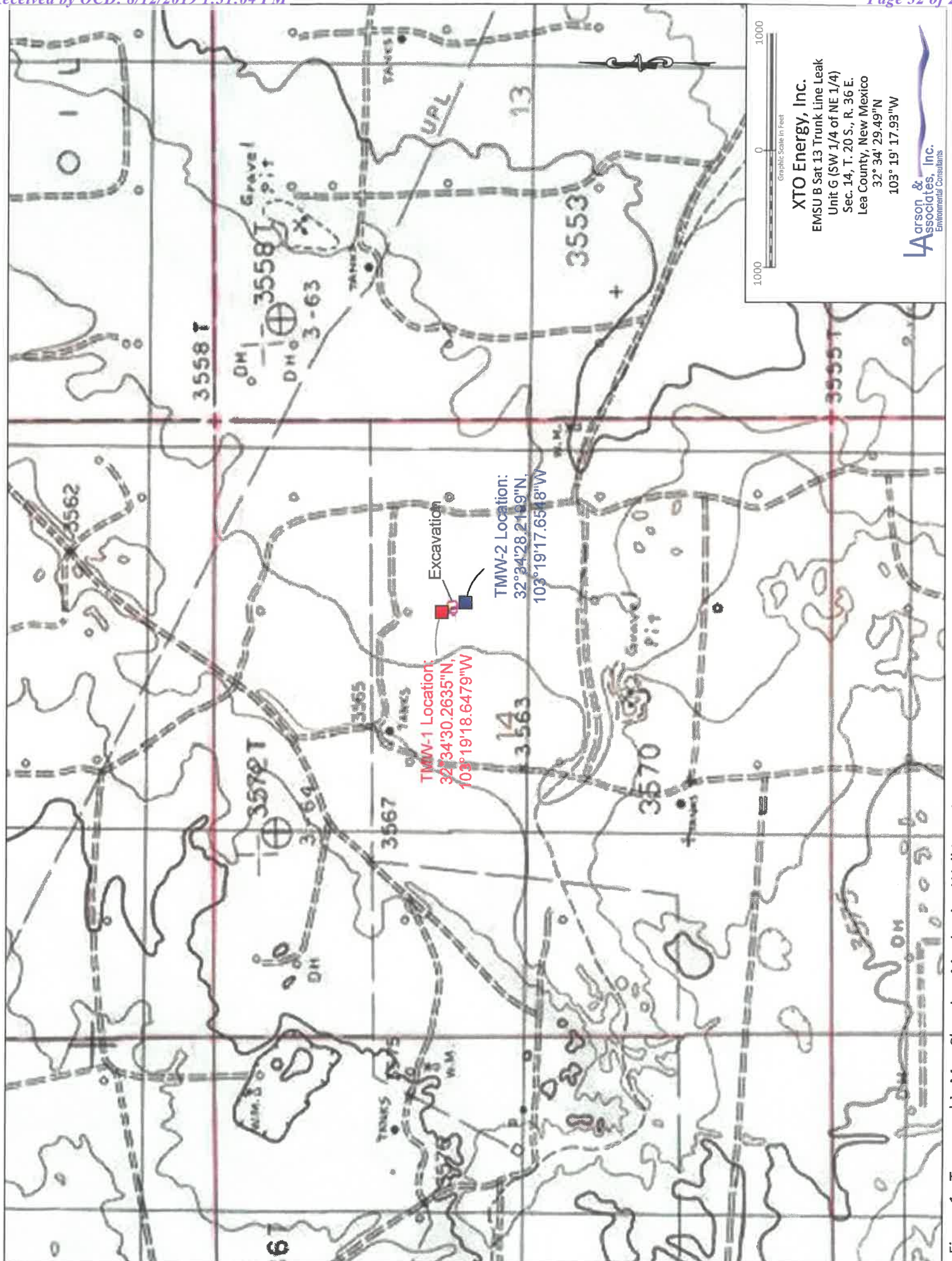


Figure 1 - Topographic Map Showing Monitoring Well Locations

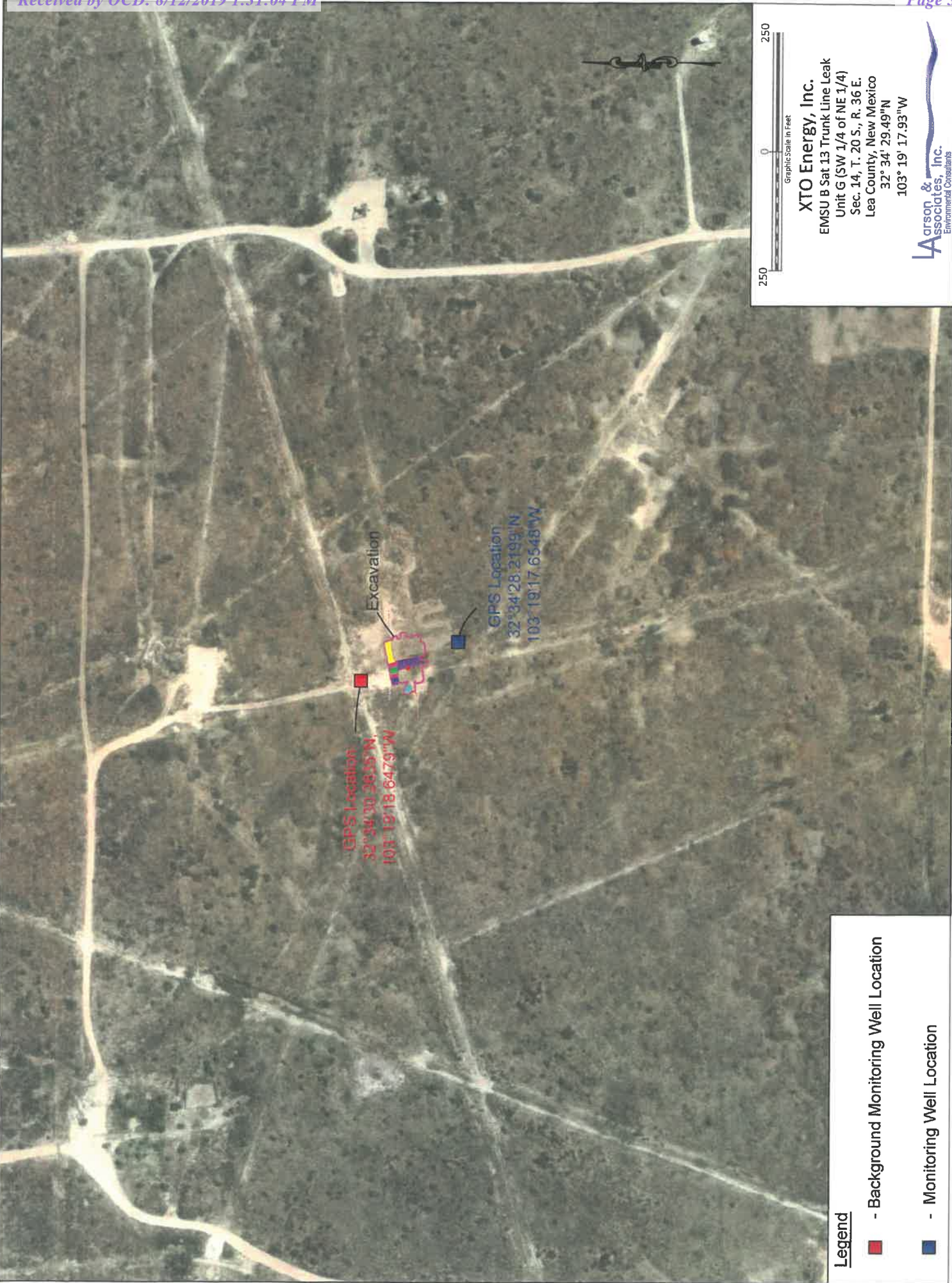


Figure 2 - Aerial Map

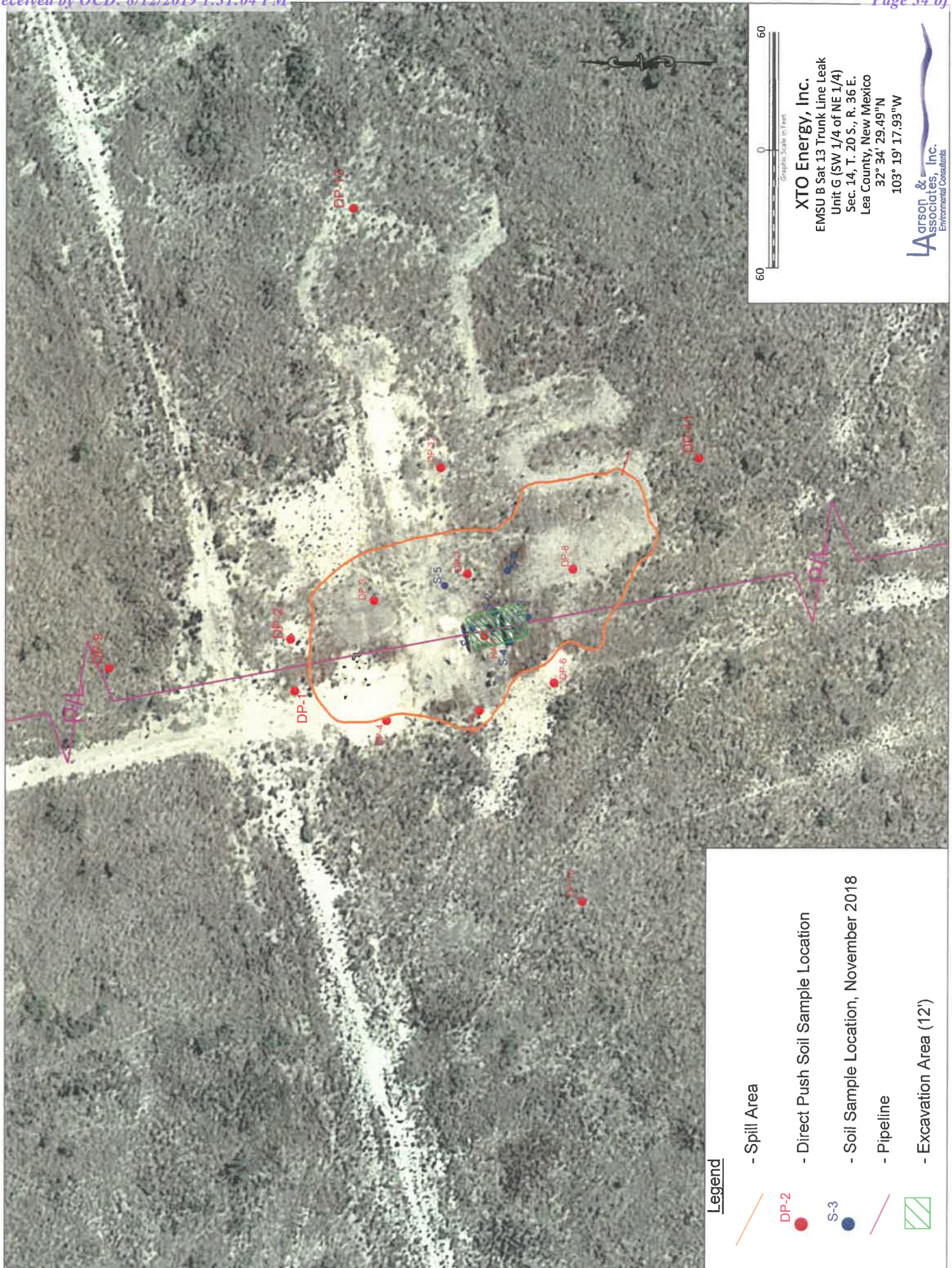


Figure 3 - Aerial Map Showing Delineation Soil Sample Locations and Excavation

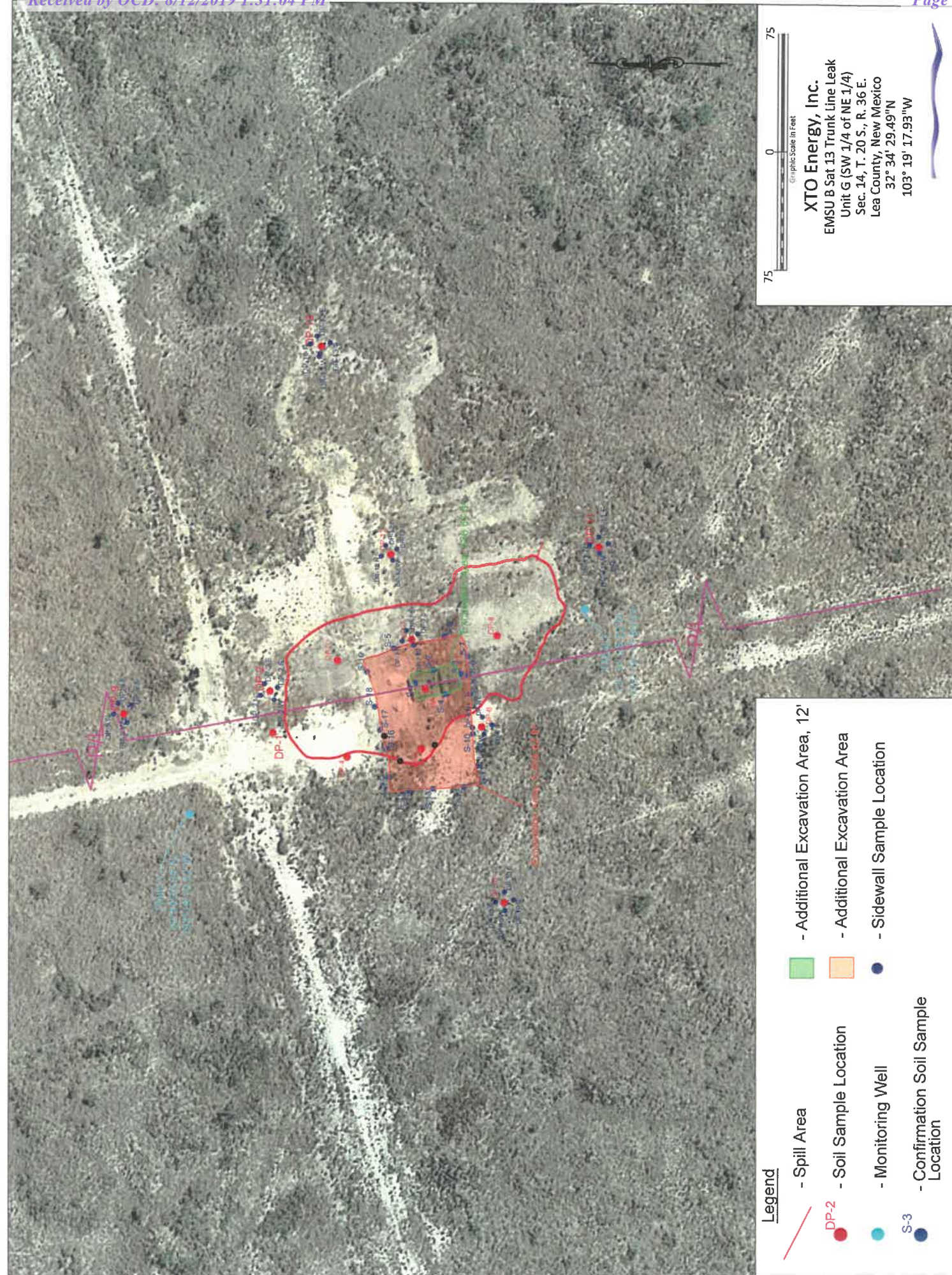


Figure 4 - Aerial Map Showing Excavation Areas and Confirmation Sample Locations

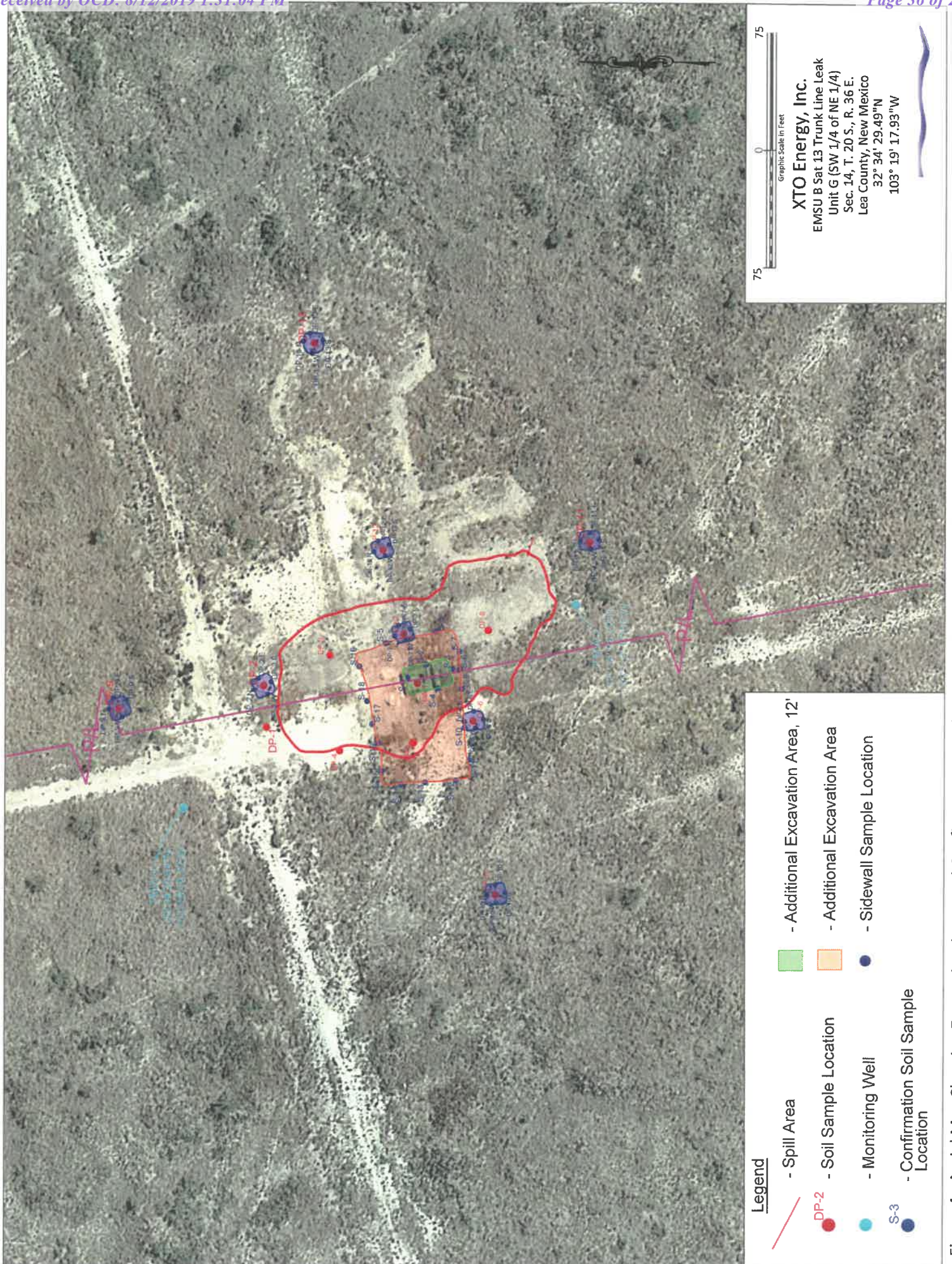


Figure 4 - Aerial Map Showing Excavation Areas and Confirmation Sample Locations

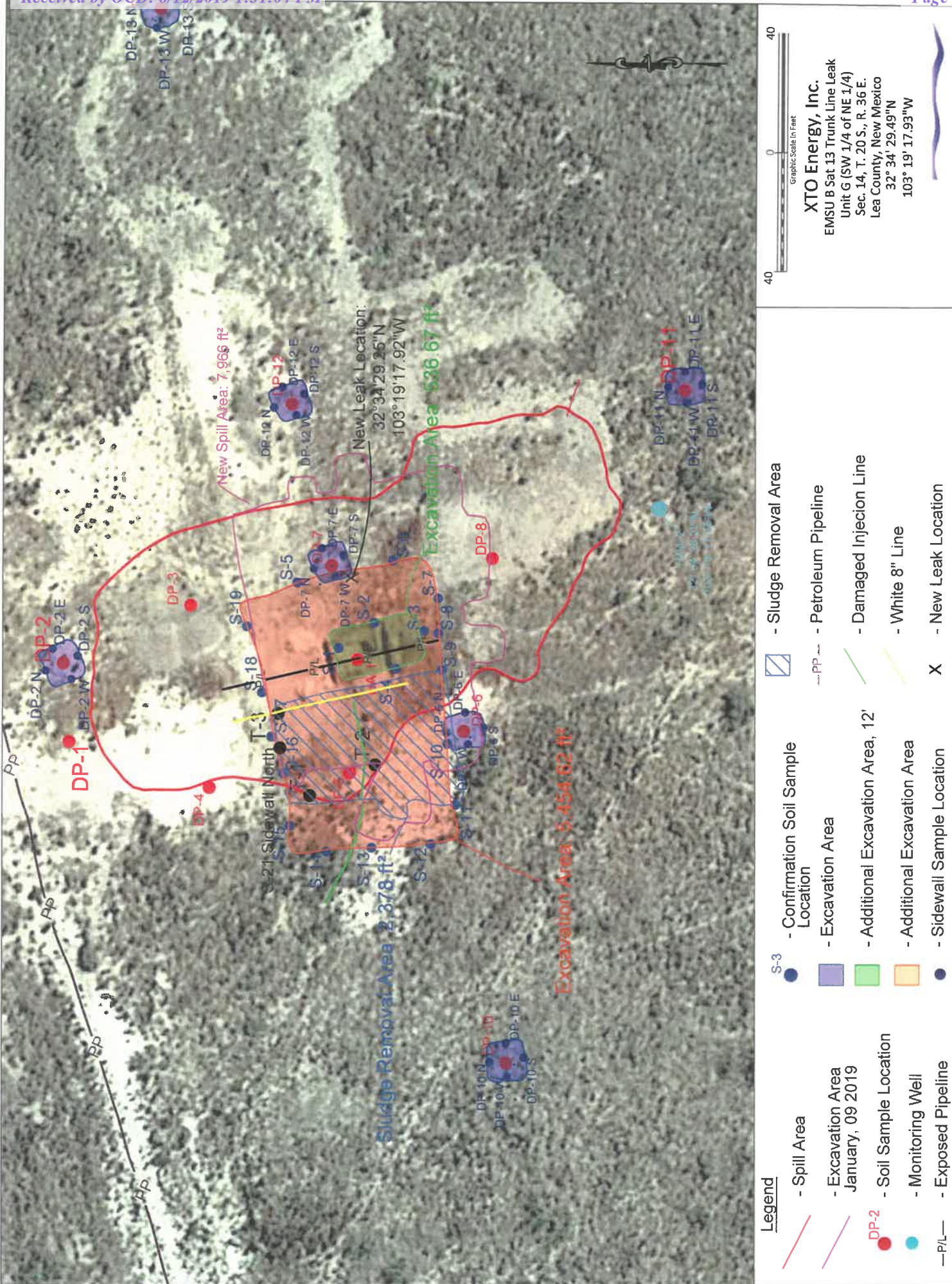


Figure 5 - Aerial Map Showing Excavation and New Spill Area

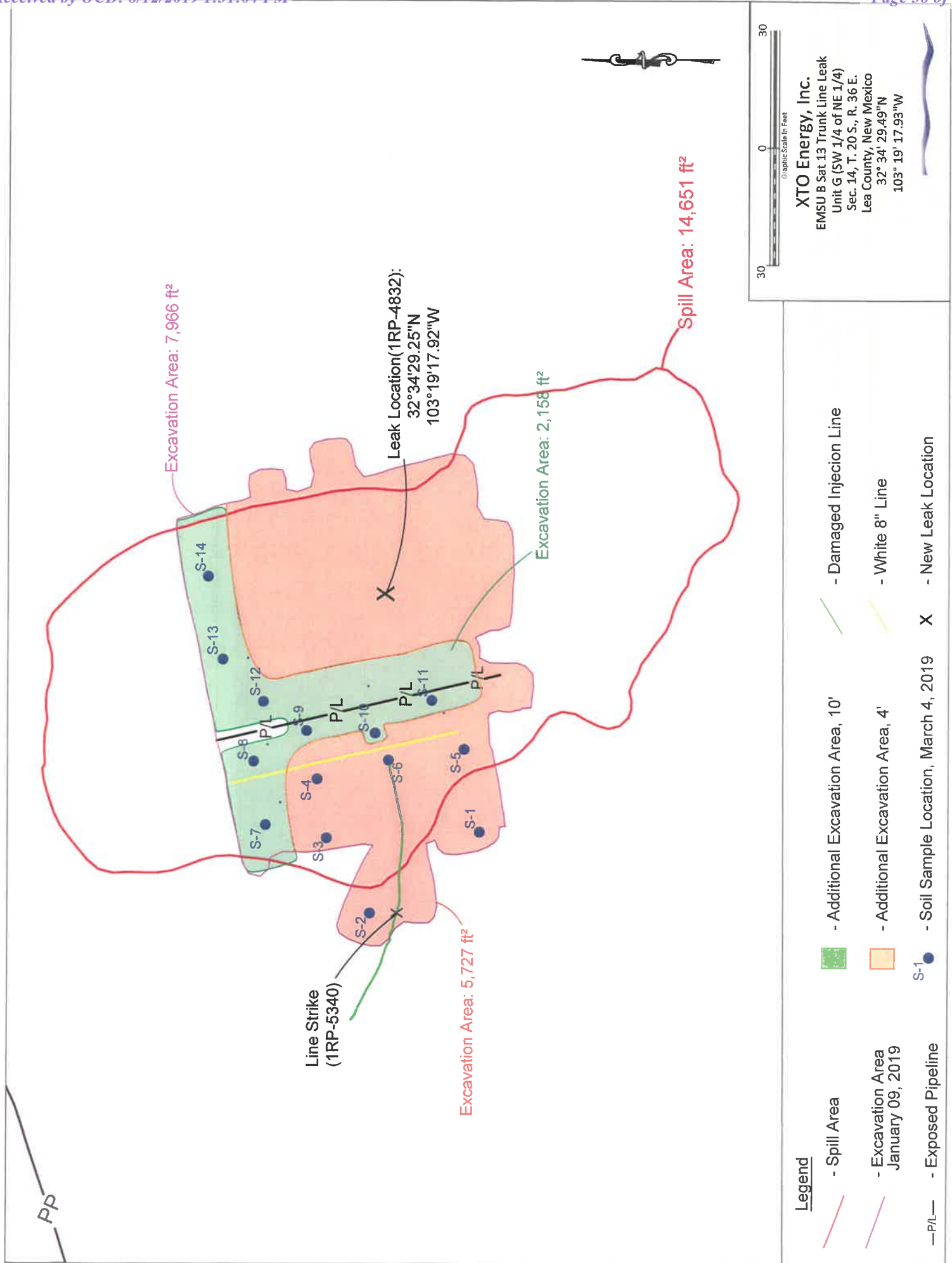
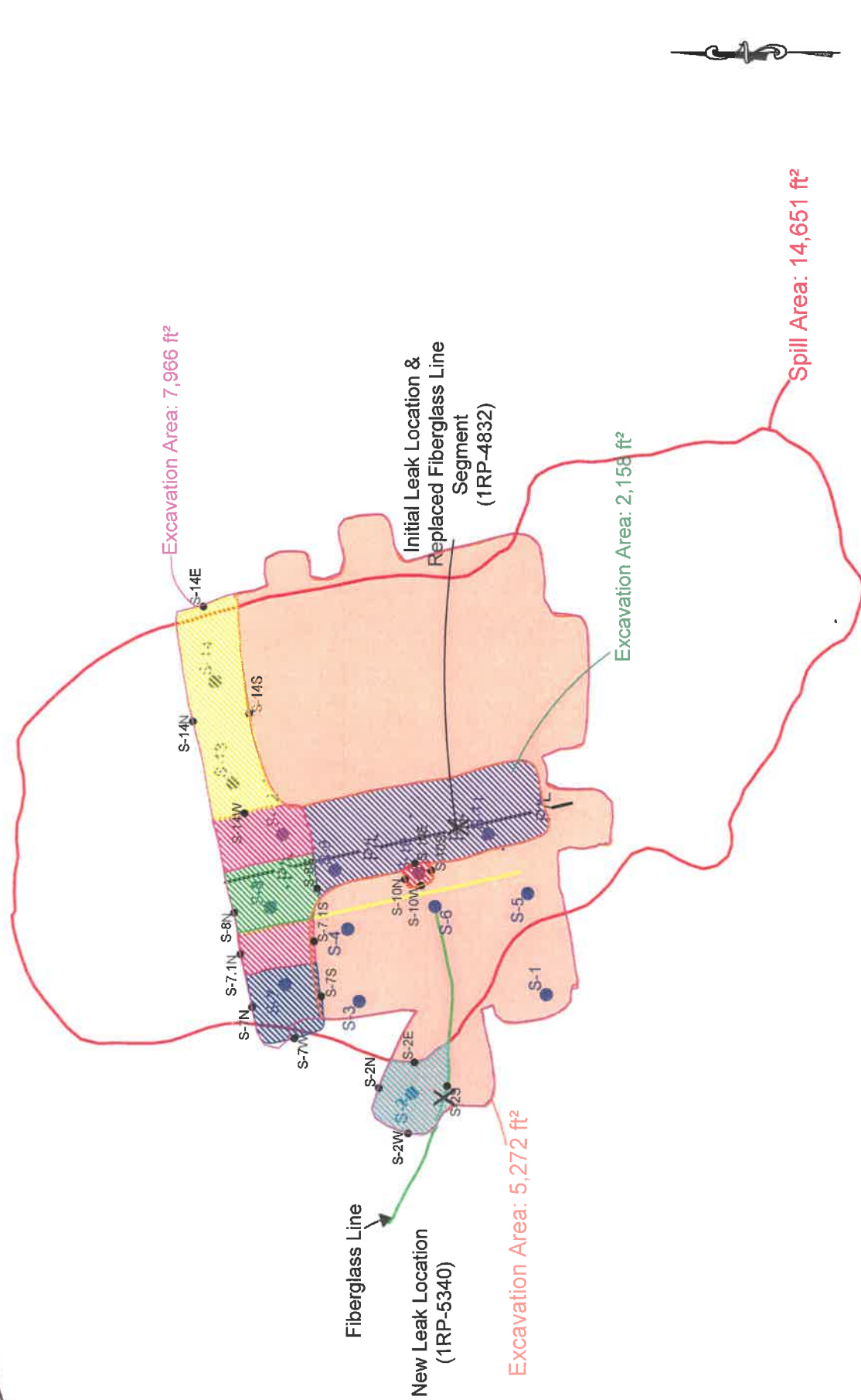


Figure 6 - Site Map Showing Excavation Areas and Soil Sample Locations



Legend

- Spill Area
- Excavation Area January 09, 2019
- Exposed Pipeline
- Additional Excavation Area: 4'

Excavation Area: 6.5'

Excavation Area: 11'

Excavation Area: 13'

Excavation Area: 14'

Excavation Area: 16'

Excavation Area: 17'

Excavation Area: 18'

Soil Sample Location, March 4, 2019

- Soil Sample Location, March 4, 2019
- Fiberglass Line
- White 8" Line
- Sidewall Sample, May 13, 2019
- Leak Location

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 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		<input checked="" type="checkbox"/> Initial Report	<input type="checkbox"/> 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 Satellite #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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Olivia Yu	
By Whom? Shannon Walker	Date and Hour 09/20/2017	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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

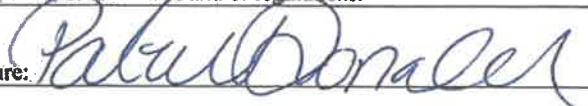

Describe Cause of Problem and Remedial Action Taken.*

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: 		OIL CONSERVATION DIVISION	
Printed Name: Patricia Donald		Approved by Environmental Specialist: 	
Title: Regulatory Analyst		Approval Date: 9/29/2017	Expiration Date:
E-mail Address: Patricia.Donald@xtoenergy.com		Conditions of Approval: see attached directive	Attached <input checked="" type="checkbox"/>
Date: 09/28/2017	Phone: 432-571-8220		

* 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; C₆ thru C₃₆), 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; C₆ thru C₃₆), 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)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

A flowline was struck by a track hoe during soil remediation.

Form C-141

Page 2

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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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*

<input checked="" type="checkbox"/> The source of the release has been stopped.	
<input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
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: <u>Shelby A Pennington</u>	Date: 1/28/19
email: shelby_pennington@xtoenergy.com	Telephone: 281-723-9353
OCD Only RECEIVED Received by By CHernandez at 1:37 pm, Feb 05, 2019 at: _____	

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

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

Confidentiality Warning: This message along with any attachments are intended only for use of the individual or entity to which it is addressed and may contain information that is privileged or confidential and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient or the employee or agent responsible for delivering this message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately.

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

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

From: 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

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

From: 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

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

From: 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_Williams@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_Williams@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**



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

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 N (2')
8K19005-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 E (2')
8K19005-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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		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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 W (2')
8K19005-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 N (2')
8K19005-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 E (2')
8K19005-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 S (2')
8K19005-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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		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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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
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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	

Permian Basin Environmental Lab, L.P.

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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- 13 N (2')
8K19005-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 13 E (2')
8K19005-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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		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	

Permian Basin Environmental Lab, L.P.

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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- 13 S (2')
8K19005-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 13 W (2')

8K19005-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 12 N (2')
8K19005-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00119	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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 12 E (2')
8K19005-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 12 S (2')
8K19005-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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		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	

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 12 W (2')

8K19005-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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- 11 N (2')
8K19005-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 11 E (2')
8K19005-18 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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- 11 S (2')
8K19005-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 11 W (2')
8K19005-20 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 E (2')
8K19005-22 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 S (2')
8K19005-23 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 W (2')
8K19005-24 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 6 N (2')
8K19005-25 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 6 E (2')
8K19005-26 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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- 6 S (2')
8K19005-27 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 6 W (2')
8K19005-28 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 10 N (2')
8K19005-29 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 10 E (2')
8K19005-30 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 10 S (2')
8K19005-31 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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- 10 W (2')
8K19005-32 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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
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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			

Permian Basin Environmental Lab, L.P.

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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
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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			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 Limits	RPD	RPD Limit	Notes
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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

Permian Basin Environmental Lab, L.P.

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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							

Permian Basin Environmental Lab, L.P.

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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 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			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 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			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 Limits	RPD	RPD Limit	Notes
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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		

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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.

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:



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.

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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Marson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 11/19/18
PO#: 17-0143-01
PROJECT LOCATION OR NAME: 110 E. 4th St. S. 13
LAB WORK ORDER#: 814005
LAI PROJECT #: 17-0143-01
COLLECTOR: CB

NO 0413
CHAIN-OF-CUSTODY

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Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION				ANALYSES	FIELD NOTES	
						HCl	HNO ₃	H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/>	ICE			UNPRESERVED
DP-2 N (a)	D1	11/16/18	10:40	5					X			
DP-2 E (a)	D2	10:41										
DP-2 S (a)	D3	10:44										
DP-2 W (a)	D4	10:45										
DP-2 N (a)	D5	10:48										
DP-2 E (a)	D6	10:50										
DP-2 S (a)	D7	10:51										
DP-2 W (a)	D8	10:53										
DP-13 N (a)	D9	10:58										
DP-13 E (a)	D10	11:00										
DP-13 S (a)	D11	11:01										
DP-13 W (a)	D12	11:02										
DP-12 N (a)	D13	11:07										
DP-12 E (a)	D14	11:09										
DP-12 S (a)	D15	11:10										
TOTAL												

RELINQUISHED BY: (Signature) <i>Curran</i>	DATE/TIME 11/19/18	RECEIVED BY: (Signature)	TURN AROUND TIME NORMAL <input type="checkbox"/> 1 DAY <input type="checkbox"/> 2 DAY <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	
LABORATORY: PREL	DATE/TIME 11/19/18	RECEIVED BY: (Signature) <i>Musea Haddock</i>	LABORATORY USE ONLY RECEIVING TEMP: 3.7 CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED <input type="checkbox"/> CARRIER BILL # <input type="checkbox"/> HAND DELIVERED

Arson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 11/19/14
PO#:
PROJECT LOCATION OR NAME: 450 Emsu St 13
LA PROJECT #: 17-0193-01
COLLECTOR: CB

CHAIN-OF-CUSTODY

Nº 0414

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Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION				ANALYSES	FIELD NOTES	
						HCl	HNO ₃	H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/>	ICE			UNPRESERVED
DR-12-W (a)	14	11/16/14	11:12	S						X		
DR-11-N (a)	14	11/16/14	11:18							X		
DR-11-E (a)	18	11/20	11:20							X		
DR-11-S (a)	19	11/20	11:20							X		
DR-11-W (a)	20	11/20	11:20							X		
DR-7-N (a)	21	11/51	11:51							X		
DR-7-E (a)	22	11/53	11:53							X		
DR-7-S (a)	23	11/54	11:54							X		
DR-7-W (a)	24	11/56	11:56							X		
DR-6-N (a)	25	12/57	12:57							X		
DR-6-E (a)	26	13/59	13:59							X		
DR-6-S (a)	27	14/00	14:00							X		
DR-6-W (a)	28	14/03	14:03							X		
DR-10-N (a)	29	14/05	14:05							X		
DR-10-E (a)	30	14/06	14:06							X		
TOTAL												

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	TURN AROUND TIME	LABORATORY USE ONLY
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	NORMAL <input type="checkbox"/>	RECEIVING TEMP: 32°F
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	1 DAY <input type="checkbox"/>	CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED
LABORATORY: PREL	DATE/TIME	RECEIVED BY: (Signature)	2 DAY <input checked="" type="checkbox"/>	CARRIER BILL #
			OTHER <input type="checkbox"/>	HAND DELIVERED <input type="checkbox"/>

Released to Imaging: 10/16/2024 9:42:23 AM

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



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

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-1 (6')

8L03002-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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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-2 (6')
8L03002-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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-3 (6')
8L03002-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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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-4 (6')
8L03002-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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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
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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	

Permian Basin Environmental Lab, L.P.

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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-6 (2')
8L03002-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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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 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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

Page 9 of 13

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 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		

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

Page 11 of 13

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:



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.

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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Marson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 12/18 118
PO#: LAB WORK ORDER#:
PROJECT LOCATION OR NAME: K-0 503 13
LAI PROJECT #: 17-0193-01 COLLECTOR: CR

Page 13 of 13

CHAIN-OF-CUSTODY

Nº 0417

TRRP report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	S=SOIL W=WATER A=AIR	P=PAINT SL=SLUDGE OT=OTHER		
TIME ZONE: Time zone/State: <u>MST</u>	#8103002			
Field Sample I.D.	Lab #	Date	Time	Matrix
5-1 (6')		11/30/14	7:35	S
5-2 (6')			7:38	
5-3 (6')			7:41	
5-4 (6')			7:44	
5-5 (2')			7:51	
5-6 (2')			7:54	
TOTAL				
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)		
LABORATORY: <u>PBEL</u>				

PRESERVATION	
HCl	
HNO ₃	
H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/>	
ICE	
UNPRESERVED	

ANALYSES	
BTEX <input type="checkbox"/> MTBE <input type="checkbox"/>	
TRPH 418.1 <input type="checkbox"/> TPH 1005 <input type="checkbox"/> TPH 1006 <input type="checkbox"/>	
GASOLINE MOD 8015 <input type="checkbox"/> 8015 <input type="checkbox"/>	
DIESEL - MOD 8015 <input type="checkbox"/> 8015 <input type="checkbox"/>	
OIL - MOD 8015 <input type="checkbox"/> 8015 <input type="checkbox"/>	
VOC 8260 <input type="checkbox"/>	
SVOC 8270 <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLDPAH <input type="checkbox"/>	
8081 PESTICIDES <input type="checkbox"/> 8151 HERBICIDES <input type="checkbox"/>	
TBLP - METALS (ROR) <input type="checkbox"/> TOLP VOC <input type="checkbox"/>	
TCLP - PEST <input type="checkbox"/> HERB <input type="checkbox"/> Semi-VOC <input type="checkbox"/>	
TOTAL METALS (ROR) <input type="checkbox"/> OTHER LIST <input type="checkbox"/>	
LEAD - TOTAL <input type="checkbox"/> D.W. 200.8 <input type="checkbox"/> TCLP <input type="checkbox"/>	
RQ <input type="checkbox"/> TOX <input type="checkbox"/> FLASHPOINT <input type="checkbox"/>	
TDS <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> CYANIDE <input type="checkbox"/>	
PH <input type="checkbox"/> HEXAVALENT CHROMIUM <input type="checkbox"/>	
EXPLOSIVES <input type="checkbox"/> PETCHLORATE <input type="checkbox"/>	
CHLORIDE ANIONS <input type="checkbox"/> ALKALINITY <input type="checkbox"/>	
FIELD NOTES	

TURN AROUND TIME	LABORATORY USE ONLY
NORMAL <input type="checkbox"/>	RECEIVING TEMP: <u>22</u> THERM: <u>71</u>
2 DAY <input type="checkbox"/>	CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED
OTHER <input type="checkbox"/>	CARRIER BILL #
	<input checked="" type="checkbox"/> HAND DELIVERED

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



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
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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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

Page 3 of 21

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-8 (2')
8L05001-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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: 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	

Permian Basin Environmental Lab, L.P.

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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-9 (2')
8L05001-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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-10 (2')

8L05001-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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-11 (2')
8L05001-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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-12 (2')
8L05001-06 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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-13 (2')
8L05001-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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-14 (2')
8L05001-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00106	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	

Permian Basin Environmental Lab, L.P.

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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-15 (2')
8L05001-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-16 (2')
8L05001-10 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-17 (2')
8L05001-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-18 (2')
8L05001-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00104	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	

Permian Basin Environmental Lab, L.P.

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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-19 (2')
8L05001-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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			

Permian Basin Environmental Lab, L.P.

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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
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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			

Permian Basin Environmental Lab, L.P.

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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	

Permian Basin Environmental Lab, L.P.

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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 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		

Permian Basin Environmental Lab, L.P.

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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: 

Date: 12/7/2018

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.

Permian Basin Environmental Lab, L.P.

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Arson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 12/5/18 PAGE 1 OF 1
PO#: LAB WORK ORDER# 805001
PROJECT LOCATION OR NAME: 6413
LAI PROJECT #: 17-0193-01 COLLECTOR: CRB

CHAIN-OF-CUSTODY

№ 0418

Page 21 of 21

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION				ANALYSES	FIELD NOTES	
						S=SOIL W=WATER A=AIR	P=PAINT SL=SLUDGE OT=OTHER	HCl	HNO ₃			H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/>
5-7 (2)		12/11/18		S						X		
5-8 (2)										X		
5-9 (2)										X		
5-10 (2)										X		
5-11 (2)										X		
5-12 (2)										X		
5-13 (2)										X		
5-14 (2)										X		
5-15 (2)										X		
5-16 (2)										X		
5-17 (2)										X		
5-18 (2)										X		
5-19 (2)										X		
5-11 (2)										X		
TOTAL											13	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME	TURN AROUND TIME	LABORATORY USE ONLY:
<i>[Signature]</i>	12/5/18 9:01 AM	<i>[Signature]</i>	12/5/18 9:01 AM	NORMAL <input type="checkbox"/> 2 DAY <input type="checkbox"/>	RECEIVING TEMP: <u>-0.2</u> THERM#: <u>+1</u> CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME	TURN AROUND TIME	LABORATORY USE ONLY:
<i>[Signature]</i>	12/5/18 9:01 AM	<i>[Signature]</i>	12/5/18 9:01 AM	NORMAL <input type="checkbox"/> 2 DAY <input type="checkbox"/>	RECEIVING TEMP: <u>-0.2</u> THERM#: <u>+1</u> CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED
LABORATORY: <i>[Signature]</i>					

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



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

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-4 (10')
8L17004-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-9 (2')
8L17004-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-13 (2')
8L17004-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-1 (10')
8L17004-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-1 (6')
8L17004-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

Page 7 of 14

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
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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			

Permian Basin Environmental Lab, L.P.

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Page 8 of 14

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)										
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			

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

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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
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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

Permian Basin Environmental Lab, L.P.

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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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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			

Permian Basin Environmental Lab, L.P.

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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: 

Date: 12/18/2018

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.

Permian Basin Environmental Lab, L.P.

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Released to Imaging: 10/16/2024 9:42:23 AM



January 09, 2019

Mark Larson
Larson & Associates
507 N. Marienfeld #205
Midland, TX 79701
TEL: (432) 687-0901
FAX (432) 687-0456
RE: EMSU Sat #13

Order No.: 1901020

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,

A handwritten signature in red ink, appearing to read "John DuPont".

John DuPont
General Manager

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



2300 Double Creek Drive • Round Rock, TX 78664 • Phone (512) 388-8222 • FAX (512) 388-8229
www.dhlanalytical.com

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CHAIN-OF-CUSTODY

Released to Imaging: 10/16/2024 9:42:23 AM



Airbill No. **LSO065XP**

1. To: Company Name _____ Street Address (No P.O. Box or P.O. Box Zip Code/Deliveries) _____ Suite / Floor _____ City _____ State _____ Zip _____		Phone (Important) _____ Print Name (Person) _____ 2. From: _____ Company Name _____ Street Address _____ Suite / Floor _____ City _____ State _____ Zip _____		FOR DRIVER USE ONLY Driver Number _____ <input type="checkbox"/> Check here if LSO Supplies are used with LSO Ground Service Pick-up Location _____ Date: _____ Time: _____ City Code: _____	
3. Service: Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online. <input checked="" type="checkbox"/> LSO Priority Overnight® By 10:30 a.m. in most cities <input type="checkbox"/> LSO Early Overnight® By 6:30 a.m. select cities <input type="checkbox"/> LSO Economy Next Day® By 3 p.m. to most cities <input type="checkbox"/> LSO 2nd Day®		4. Package: Your company's billing reference information _____ Weight: _____ Ship Date: (mm/dd/yyyy) _____ 5. Payment:		3. Service: <input type="checkbox"/> LSO Ground <input type="checkbox"/> LSO Saturday® <input type="checkbox"/> Other _____ *Check commitment times and availability at www.lso.com Assumed LSO Priority Overnight service unless otherwise noted.	
6. Release Signature _____ Release Signature				7. Delivery Without Delivery Signature (See Limits of Liability below) _____	

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 per any reason unless you: 1) declare a greater value than that shown on the invoice; 2) pay an additional fee; or 3) declare 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 message 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. ALL DELIVERY SIGNATURES WILL BE OBTAINED FOR LSO AIRLIFT OVERTIME SERVICE. Packaging permitted by LSO is for EXPRESS use ONLY - NEVER TO BE USED FOR LSO GROUND SERVICE. OVERTIME RATES MAY APPLY. DELIVERY COMMITMENTS MAY VARY. ADDITIONAL FEES MAY APPLY. See LSO Source Code for further details.

REAL QEC
Quality Environmental Containers
800-225-3950 • 504-255-3950
Chen Olsen

CUSTODY SI
DATE 11/3
SIGNATURE

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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	2.7 °C
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH<2 acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/> LOT #
	Adjusted? _____		Checked by _____
Water - pH>9 (S) or pH>10 (CN) acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/> 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
Project: EMSU Sat #13
Project No: 17-0193-01
Lab Order: 1901020

Client Sample ID: TMW-1
Lab ID: 1901020-01
Collection Date: 01/02/19 12:11 PM
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
 DF Dilution Factor
 J Analyte detected between MDL and RL
 ND Not Detected at the Method Detection Limit
 S Spike Recovery outside control limits

C Sample Result or QC discussed in the Case Narrative
 E TPH pattern not Gas or Diesel Range Pattern
 MDL Method Detection Limit
 RL Reporting Limit
 N Parameter not NELAC certified

DHL Analytical, Inc.

Date: 09-Jan-19

CLIENT: Larson & Associates
Project: EMSU Sat #13
Project No: 17-0193-01
Lab Order: 1901020

Client Sample ID: TMW-2
Lab ID: 1901020-02
Collection Date: 01/02/19 01:15 PM
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

J Analyte detected between MDL and RL

ND Not Detected at the Method Detection Limit

RL Reporting Limit

J Analyte detected between SDL and RL

DF Dilution Factor

MDL Method Detection Limit

R RPD outside accepted control limits

S Spike Recovery outside control limits

N Parameter not NELAC certified

Page 1 of 3

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
 J Analyte detected between MDL and RL
 ND Not Detected at the Method Detection Limit
 RL Reporting Limit
 J Analyte detected between SDL and RL

DF Dilution Factor
 MDL Method Detection Limit
 R RPD outside accepted control limits
 S Spike Recovery outside control limits
 N Parameter not NELAC certified

Page 2 of 3

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
 J Analyte detected between MDL and RL
 ND Not Detected at the Method Detection Limit
 RL Reporting Limit
 J Analyte detected between SDL and RL

DF Dilution Factor
 MDL Method Detection Limit
 R RPD outside accepted control limits
 S Spike Recovery outside control limits
 N Parameter not NELAC certified

Page 3 of 3

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



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

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-1
9C05001-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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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-2

9C05001-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-4

9C05001-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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-5
9C05001-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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-6

9C05001-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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-7
9C05001-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-8
9C05001-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-9

9C05001-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	
<i>Surrogate: 1,4-Difluorobenzene</i>		99.3 %		75-125	P9C0517	03/05/19	03/05/19	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		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	
<i>Surrogate: 1-Chlorooctane</i>		124 %		70-130	P9C0505	03/05/19	03/05/19	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		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	

Permian Basin Environmental Lab, L.P.

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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-10

9C05001-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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-11
9C05001-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.0241	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	

Permian Basin Environmental Lab, L.P.

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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-12
9C05001-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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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-13
9C05001-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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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-14

9C05001-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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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)										
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			

Permian Basin Environmental Lab, L.P.

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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
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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			

Permian Basin Environmental Lab, L.P.

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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
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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			

Permian Basin Environmental Lab, L.P.

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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 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	

Permian Basin Environmental Lab, L.P.

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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	

Permian Basin Environmental Lab, L.P.

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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 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

Permian Basin Environmental Lab, L.P.

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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
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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			

Permian Basin Environmental Lab, L.P.

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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

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: 

Date: 3/6/2019

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.

Permian Basin Environmental Lab, L.P.

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Nº 0278

CHAIN-OF-CUSTODY

Varson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 3-5-2019 PAGE 1 OF 1
PO#: 9C05001 LAB WORK ORDER#: 9C05001
PROJECT LOCATION OR NAME: Emu h Sat 13/1/2019
LAI PROJECT #: 19-0193-01 COLLECTOR: 17

TRRP report? ☐ Yes ☒ No
S=SOIL W=WATER P=PAINT
A=AIR SL=SLUDGE OT=OTHER

TIME ZONE:
Time zone/State:
MN/MN

9C05001

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION				ANALYSES																FIELD NOTES							
						HCl	HNO ₃	H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/>	ICE	UNPRESERVED	BTEX <input type="checkbox"/> MTBE <input type="checkbox"/>	TPH 418.1 <input type="checkbox"/> TPH 1005 <input type="checkbox"/> TPH 1008 <input type="checkbox"/>	GASOLINE MOD 8015 <input type="checkbox"/>	DIESEL - MOD 8015 <input type="checkbox"/>	OIL - MOD 8015 <input type="checkbox"/>	VOC 8260 <input type="checkbox"/>	SVOC 8270 <input type="checkbox"/>	8081 PESTICIDES <input type="checkbox"/> 8151 HERBICIDES <input type="checkbox"/>	8082 PCBS <input type="checkbox"/>	TBLP - METALS (ROR) <input type="checkbox"/> TCLP VOC <input type="checkbox"/>	TCLP - METALS (ROR) <input type="checkbox"/> TCLP VOC <input type="checkbox"/>	TOTAL METALS (ROR) <input type="checkbox"/> HERB <input type="checkbox"/> Semi-VOC <input type="checkbox"/>	LEAD - TOTAL <input type="checkbox"/> D.W. 200.8 <input type="checkbox"/> TCLP <input type="checkbox"/>	RCI <input type="checkbox"/> TOX <input type="checkbox"/> FLASHPOINT <input type="checkbox"/>	TDS <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/>	pH <input type="checkbox"/> HEXVALENT CHROMIUM <input type="checkbox"/>	EXPLOSIVES <input type="checkbox"/> PECTHLORATE <input type="checkbox"/>	CHLORIDE <input type="checkbox"/> ANIONS <input type="checkbox"/> ALKALINITY <input type="checkbox"/>					
S-1	-01	3/4/19	14:22	S	1																												
S-2	-02		14:25		1																												
S-3	-03		14:30		1																												
S-4	-04		14:31		1																												
S-5	-05		14:33		1																												
S-6	-06		14:44		1																												
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		15:29		1																												
TOTAL																																	

RELINQUISHED BY: (Signature) [Signature] DATE/TIME 3/5/2019 08:00 RECEIVED BY: (Signature) [Signature]

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

LABORATORY USE ONLY
RECEIVING TEMP: 31.1 THERM: 12
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
CARRIER BILL #
☒ HAND DELIVERED

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

LABORATORY: PHL

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



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

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

S-2 (6')
9C11004-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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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

S-7 (7')
9C11004-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	
<i>Surrogate: 1-Chlorooctane</i>		95.8 %	70-130		P9C1405	03/14/19	03/15/19	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		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	

Permian Basin Environmental Lab, L.P.

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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

S-8 (11')
9C11004-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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

S-8 (12')
9C11004-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

S-9 (12')
9C11004-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

S-9 (13')
9C11004-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

S-10 (12')
9C11004-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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

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S-10 (13')
9C11004-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	
<i>Surrogate: 1-Chlorooctane</i>		112 %	70-130		P9C1507	03/15/19	03/16/19	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		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	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

S-11 (13')
9C11004-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

S-11 (16')
9C11004-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

S-12 (12')
9C11004-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

S-12 (13')
9C11004-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

S-13 (11')
9C11004-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

S-13 (12')
9C11004-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

S-14 (11')
9C11004-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

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	

Permian Basin Environmental Lab, L.P.

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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	

Permian Basin Environmental Lab, L.P.

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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			

Permian Basin Environmental Lab, L.P.

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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 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			

Permian Basin Environmental Lab, L.P.

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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 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		

Permian Basin Environmental Lab, L.P.

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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			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

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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 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		

Permian Basin Environmental Lab, L.P.

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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 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		

Permian Basin Environmental Lab, L.P.

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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
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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			

Permian Basin Environmental Lab, L.P.

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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:



Date:

3/19/2019

Brent Barron, Laboratory Director/Technical Director

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

Permian Basin Environmental Lab, L.P.

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Marson & 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

CHAIN-OF-CUSTODY

Nº 0424

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TRRP report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER		TIME ZONE: Time zone/State: MST		PREPARATION HCl <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> ICE <input type="checkbox"/> UNPRESERVED <input type="checkbox"/>		ANALYSES BTEX <input type="checkbox"/> MTBE <input type="checkbox"/> TPH 418.1 <input type="checkbox"/> TPH 1006 <input type="checkbox"/> TPH 1006 <input type="checkbox"/> GASOLINE MOD 8015 <input checked="" type="checkbox"/> DIESEL - MOD 8015 <input checked="" type="checkbox"/> OIL - MOD 8015 <input checked="" type="checkbox"/> VOC 8260 <input checked="" type="checkbox"/> SVOC 8270 <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLDPAH <input type="checkbox"/> 8081 PESTICIDES <input type="checkbox"/> 8151 HERBICIDES <input type="checkbox"/> TBLP - METALS <input type="checkbox"/> TCLP - METALS (RCRA) <input type="checkbox"/> TCLP VOC <input type="checkbox"/> 8082 PESTICIDES <input type="checkbox"/> 8151 HERBICIDES <input type="checkbox"/> TBLP - METALS <input type="checkbox"/> TCLP - METALS (RCRA) <input type="checkbox"/> TCLP VOC <input type="checkbox"/> LEAD - TOTAL <input type="checkbox"/> D.W. 200.8 <input type="checkbox"/> TCLP <input type="checkbox"/> RO <input type="checkbox"/> TOX <input type="checkbox"/> FLASHPOINT <input type="checkbox"/> CYANIDE <input type="checkbox"/> TDS <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> PH <input type="checkbox"/> HEXAVALENT CHROMIUM <input type="checkbox"/> PECHLORATED <input type="checkbox"/> CHLORIDES <input type="checkbox"/> ANIONS <input type="checkbox"/> ALKALINITY <input type="checkbox"/>	
Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	FIELD NOTES					
S-2 (6')		3/8/19	10:21	S	1	X X X X					
S-7 (7')			9:11			X X X X					
S-8 (11')			9:18			X X X X					
S-8 (12')			9:34			X X X X					
S-9 (12')			9:43			X X X X					
S-9 (13')			9:47			X X X X					
S-10 (12')			10:45			X X X X					
S-10 (13')			10:48			X X X X					
S-11 (13')			10:37			X X X X					
S-11 (14')			10:38			X X X X					
S-12 (12')			10:25			X X X X					
S-12 (13')			10:28			X X X X					
S-13 (11')			10:18			X X X X					
S-13 (12')			10:20			X X X X					
S-14 (11')			10:15			X X X X					
TOTAL		15				X X X X					

RECEIVED BY: (Signature)

TURN AROUND TIME

LABORATORY USE ONLY:

RECEIVED BY: (Signature)

NORMAL ☒ 1 DAY ☐ 2 DAY ☐ OTHER ☐RECEIVING TEMP: 12-22 THERM#: X

RECEIVED BY: (Signature)

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USEDCARRIER BILL #

RECEIVED BY: (Signature)

HAND DELIVERED ☒LABORATORY: P&E

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

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

COMMENTS

Action 754

COMMENTS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 754
	Action Type: [C-141] Release Corrective Action (C-141)

COMMENTS

Created By	Comment	Comment Date
csmith	Returned to OCD Review. Operator indicated that a GW investigation needs to be conducted. Previous Approval gave this incident a closure status.	9/25/2024

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CONDITIONS

Action 754

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 754
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Accepted as part of the record. XTO has been notified to proceed with a groundwater abatement plan as per 19.15.30 NMAC and proceed to submit a stage 1 & stage 2 abatement plan under these provisions. The incident will remain open until groundwater contamination has been addressed and abatement is completed.	10/16/2024