APPROVED
By Olivia Yu at 10:54 am, Mar 30, 2018

NMOCD approves of the proposed additional delineation for 1RP-4721.

1RP-4721
AMENDED DELINEATION PLAN
EMSU #410 Produced Water Spill
Lea County, New Mexico

Latitude: N32° 28' 37.80"
Longitude: W103° 18' 24.39"

LAI Project No. 17-0182-01

February 26, 2018

Prepared for:
XTO Energy, Inc.
500 West Illinois Ave., Suite 100
Midland, Texas 79701

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

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

Sarah R. Johnson
Staff Geologist

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Table of Contents

Figures

Tables

Appendices

1.0 INTRODUCTION

This amended delineation plan is submitted to the New Mexico Oil Conservation Division (OCD) District 1 on behalf of XTO Energy, Inc. (XTO) for a produced water spill near the Eunice Monument South Unit (EMSU) Well #410 (Site) located in Unit K (NE/4, SW/4), Section 18, Township 21 South, Range 36 East, in Lea County, New Mexico. The geodetic position is latitude North 32° 28' 37.80" and longitude West 103° 18' 24.39". Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The spill occurred on June 3, 2017, after the injection line ruptured causing approximately 135.79 barrels (bbl) of produced water to be released onto a plugged and abandoned (P/A) well location, lease road and into the pasture. Approximately 120 bbl were recovered. The release covered an area estimated at approximately 5,834 square feet or about 0.133 acre. The (P/A) well, Eunice Monument South #411, is owned by Chevron USA, Inc. and located approximately 50 feet south of the release. The well was plugged on July 11, 2002. The surface owner is the United States of America (USA) administered by the Department of the Interior Bureau of Land Management (BLM). On June 5, 2017, XTO submitted the initial C-141 to OCD District 1 which was assigned the release remediation permit number 1RP-4721 with conditions. Appendix A presents the initial C-141.

On September 21, LAI, on behalf of XTO, submitted a plan to the OCD for delineating the spill. The plan was approved by OCD on October 3, 2018 and by BLM on December 19, 2017. Spill delineation was performed on October 27, 2017. Chloride exceeded the OCD Delineation limit of 600 milligrams per kilogram (mg/Kg) in the deepest sample from HA-1, 4 to 5 feet (677 mg/Kg), S-1, 4 to 6 feet (1,170 mg/Kg), S-2, 8 to 10 feet (939 mg/Kg), S-3, 4 to 6 feet (1,070 mg/kg), S-4, 4 to 6 feet (1,120 mg/Kg), S-9, 4 to 6 feet (1,050 mg/Kg), S-11, 4 to 6 feet (1,440 mg/Kg), S-12, 6 to 8 feet, (1,450 mg/Kg) and S-13, 6 to 8 feet (757 mg/Kg).

On January 10, 2018, LAI, on behalf of XTO, submitted the delineation report (*1RP-4721 Delineation Report, EMSU Well #410 Produced Water Spill)* to the OCD. On January 23, 2018, OCD denied the remediation plan and requested XTO to further delineate the spill for chloride at eight (8) locations including S-1, S-2, S-3, S-4, S-9, S-11, S-12, S-13 and HA-1. Appendix B presents the OCD correspondence.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,670 feet above mean sea level (msl);
- The topography slopes towards the east
- The nearest surface water is a small seasonal depression (playa) located about 500 feet west (up gradient) from the Site;
- The soils are designated as "Pyote and maljamar fine sands", consisting of approximatley 30 inches of fine sand underlain by fine 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 crossbeds;

- 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 H (SE/4, SE/4, Section 18, Township 21 South, Range 36 East or about 2,800 feet northeast (cross gradient) from the Site;
- Depth to groundwater in the well was reported at approximately 233.83 feet below ground surface (bgs) in 1996 with a slight increase reported in 2011.

1.3 Remediation Action Levels

Remediation action levels (RRAL) were calculated for benzene, BTEX and TPH based on the following criteria established by the OCD in "*Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993"*:

Criteria	***Result***	***Score***
Depth-to-Groundwater	>100 Feet	0
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0

The following RRAL apply to the release for ranking score: 0

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 5,000 mg/Kg

Depth to groundwater greater than 100 feet bgs requires vertical delineation fro chloride to 600 mg/Kg and maintained for five (5) feet farther in depth.

2.0 ADDITIONAL SPILL DELINEATION

LAI proposes to collect additional soil samples at locations S-1, S-2, S-3, S-4, S-9, S-11, S-12, S-13 and HA-1 to vertically delineate chloride to 600 mg/Kg plus 5 feet of additional samples with chloride below 600 mg/Kg. An air rotary rig and jam tube sampler will be used to collect soil samples to approximately 20 feet bgs, or until field chloride analysis reports concentrations below 600 mg/Kg plus 5 feet farther in depth. Samples will be collected every five (5) feet beginning at 10 feet bgs all locations except S-2 where sampling will begin at approximately 15 feet bgs and terminate at 25 feet bgs. The laboratory will analyze the samples for chloride by EPA Method 300. The borings will be plugged with bentonite. Figure 3 presents an aerial map showing proposed soil sample locations.

3.0 REMDEIATION PLAN

XTO will submit a remediation plan pending delineation.

Figures

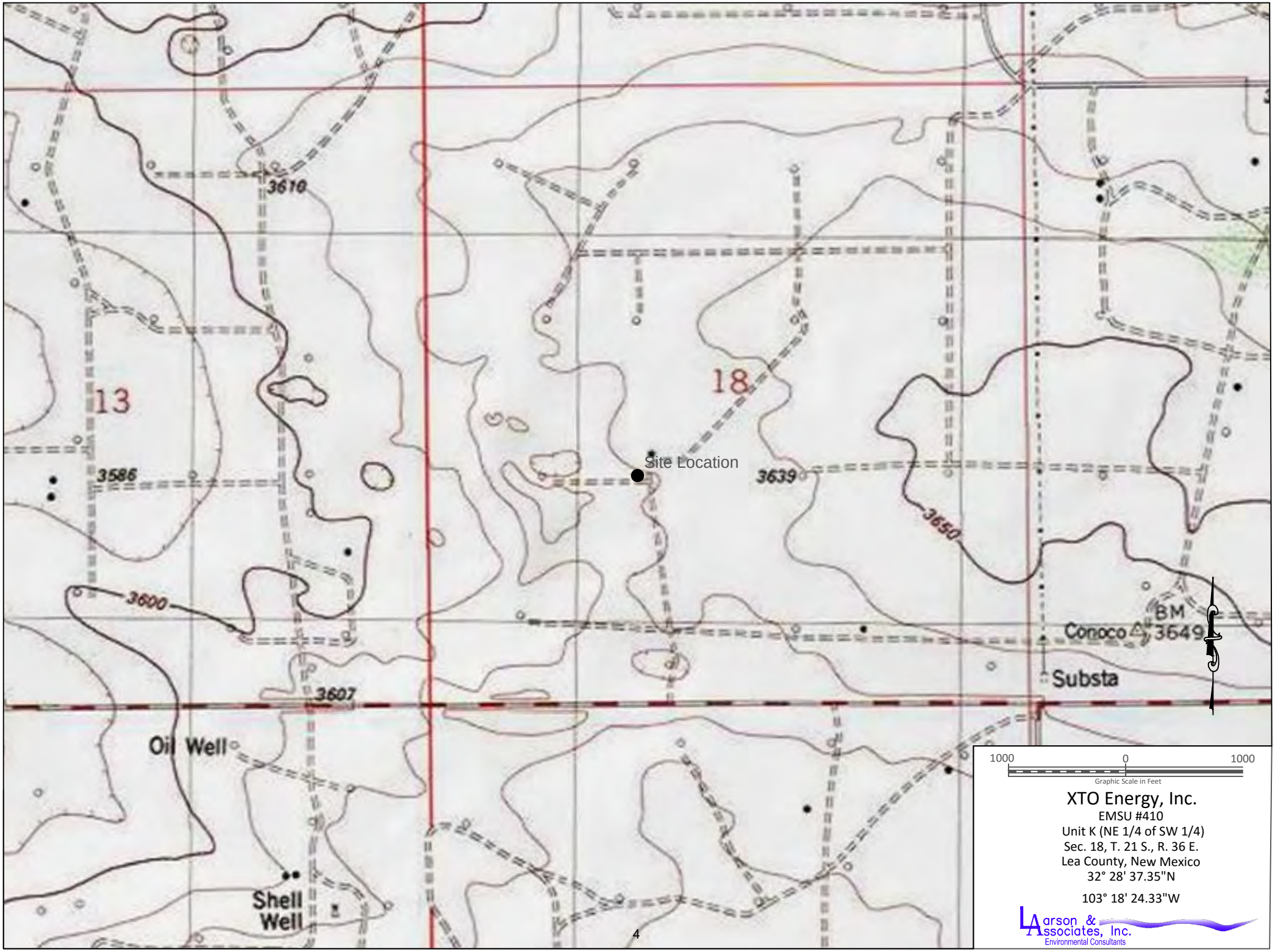

Figure 1 - Topographic Map

Figure 2 - Aerial Map Showing Sample Locations

Figure 3 - Aerial Map Showing Proposed Soil Sample Location

Tables

Table 1
1RP-4721
Delineation Soil Sample Analytical Data Summary
XTO Energy, Inc., EMSU Well #410 Produced Water Spill
UL K (NE/4, SW/4), Section 18, Township 21 South, Range 36 East
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	PID (ppm)	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**				**5,000**	***600**
HA-1	3 - 4	10/27/2017		<0.00112	<0.00794	<28.1	<28.1	<28.1	<28.1	173
	4 - 5	10/27/2017		--	--	--	--	--	--	**677**
S-1	0 - 1	10/27/2017		<0.00105	<0.00737	<26.3	107	164	271	13.7
	1 - 2	10/27/2017		--	--	---	--	--	--	43.6
	2 - 3	10/27/2017		--	--	---	--	--	--	89.5
	3 - 4	10/27/2017		--	--	---	--	--	--	160
	4 -6	10/27/2017		--	--	---	--	--	--	**1,170**
S-2	0 - 1	10/27/2017		<0.00104	<0.00728	<26.0	<26.0	<26.0	<26.0	<1.04
	1 - 2	10/27/2017		--	--	---	--	--	--	<1.04
	2 - 3	10/27/2017		--	--	---	--	--	--	<1.05
	3 - 4	10/27/2017		--	--	---	--	--	--	2.91
	4 -6	10/27/2017		--	--	---	--	--	--	797
	6 - 8	10/27/2017		--	--	---	--	--	--	1,100
	8 - 10	10/27/2017		--	--	---	--	--	--	**939**
S-3	0 - 1	10/27/2017		<0.00114	<0.00796	<28.4	38.3	99.8	138.1	18.5
	1 - 2	10/27/2017		--	--	---	--	--	--	121
	2 - 3	10/27/2017		--	--	---	--	--	--	164
	3 - 4	10/27/2017		--	--	---	--	--	--	556
	4 -6	10/27/2017		--	--	---	--	--	--	**1,070**
S-4	0 - 1	10/30/2017		<0.00108	<0.00754	<26.9	<26.9	<26.9	<26.9	201
	1 - 2	10/30/2017		--	--	---	--	--	--	226
	2 - 3	10/30/2017		--	--	---	--	--	--	628
	3 - 4	10/30/2017		--	--	---	--	--	--	577

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XTO Energy, Inc., EMSU Well #410 Produced Water Spill
UL K (NE/4, SW/4), Section 18, Township 21 South, Range 36 East
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	PID (ppm)	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**				**5,000**	***600**
	4 -6	10/30/2017		--	--	---	--	--	--	**1,120**
S-5	0 - 1	10/30/2017		<0.00109	<0.00761	<27.2	<27.2	39.5	39.5	202
	1 - 2	10/30/2017		--	--	---	--	--	--	173
	2 - 3	10/30/2017		--	--	---	--	--	--	502
	3 - 4	10/30/2017		--	--	---	--	--	--	445
	4 -6	10/30/2017		--	--	---	--	--	--	536
S-6	0 - 1	10/30/2017		<0.00102	<0.00714	<25.5	<25.5	<25.5	<25.5	<1.02
	1 - 2	10/30/2017		--	--	---	--	--	--	<1.06
	2 - 3	10/30/2017		--	--	---	--	--	--	<1.09
	3 - 4	10/30/2017		--	--	---	--	--	--	2.59
	4 -6	10/30/2017		--	--	---	--	--	--	<1.04
	6 - 8	10/30/2017		--	--	---	--	--	--	1.14
S-7	0 - 1	10/30/2017		<0.00101	<0.00707	<126	615	915	1,530	<1.01
	1 - 2	10/30/2017		--	--	---	--	--	--	<1.03
	2 - 3	10/30/2017		--	--	---	--	--	--	<1.05
	3 - 4	10/30/2017		--	--	---	--	--	--	<1.04
	4 -6	10/30/2017		--	--	---	--	--	--	10.9
S-8	0 - 1	11/1/2017		<0.00112	<0.00786	<28.1	75.5	159	234.5	<1.12
	1 - 2	11/1/2017		--	--	---	--	--	--	<1.10
	2 - 3	11/1/2017		--	--	---	--	--	--	<1.03
	3 - 4	11/1/2017		--	--	---	--	--	--	6.66
	4 -6	11/1/2017		--	--	---	--	--	--	85.1

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UL K (NE/4, SW/4), Section 18, Township 21 South, Range 36 East
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	PID (ppm)	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**				**5,000**	***600**
S-9	0 - 1	11/1/2017		<0.00101	<0.00707	<25.3	<25.3	<25.3	<25.3	<1.01
	1 - 2	11/1/2017		--	--	---	--	--	--	4.26
	2 - 3	11/1/2017		--	--	---	--	--	--	94.5
	3 - 4	11/1/2017		--	--	---	--	--	--	125
	4 -6	11/1/2017		--	--	---	--	--	--	**1,050**
S-10	0 - 1	11/1/2017		<0.00105	<0.00737	<26.3	<26.3	<26.3	<26.3	32.2
	1 - 2	11/1/2017		--	--	---	--	--	--	135
	2 - 3	11/1/2017		--	--	---	--	--	--	220
	3 - 4	11/1/2017		--	--	---	--	--	--	274
	4 -6	11/1/2017		--	--	---	--	--	--	513
S-11	0 - 1	11/1/2017		<0.00109	<0.00761	<27.2	154	106	261	54.5
	1 - 2	11/1/2017		--	--	---	--	--	--	74.5
	2 - 3	11/1/2017		--	--	---	--	--	--	246
	3 - 4	11/1/2017		--	--	---	--	--	--	345
	4 -6	11/1/2017		--	--	---	--	--	--	1,440
	6 - 8	11/1/2017		--	--	---	--	--	--	**225**
S-12	0 - 1	11/1/2017		<0.00108	<0.00754	<26.9	112	62.3	174.3	95.7
	1 - 2	11/1/2017		--	--	---	--	--	--	119
	2 - 3	11/1/2017		--	--	---	--	--	--	277
	3 - 4	11/1/2017		--	--	---	--	--	--	376
	4 -6	11/1/2017		--	--	---	--	--	--	829
	6 - 8	11/1/2017		--	--	---	--	--	--	**1,450**
S-13	0 - 1	11/1/2017		<0.00120	<0.00842	<30.1	195	110	305	629

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Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	PID (ppm)	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**				**5,000**	***600**
	1 - 2	11/1/2017		--	--	---	--	--	--	677
	2 - 3	11/1/2017		--	--	---	--	--	--	564
	3 - 4	11/1/2017		--	--	---	--	--	--	418
	4 -6	11/1/2017		--	--	---	--	--	--	976
	6 - 8	11/1/2017		--	--	---	--	--	--	**757**
S-14	0 - 1	11/1/2017		<0.00114	<0.00796	<28.4	81.3	38.0	119.3	<1.14
	1 - 2	11/1/2017		--	--	---	--	--	--	<1.01
	2 - 3	11/1/2017		--	--	---	--	--	--	<1.03
	3 - 4	11/1/2017		--	--	---	--	--	--	<1.03
	4 -6	11/1/2017		--	--	---	--	--	--	<1.01

Notes: Analysis by Permian Basin Environmental Lab, Midland, Texas by EPA SW-846 Methods 8021B (BTEX), 8015M (TPH) and 300 (chloride).
*: OCD delineation limit
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
P: Laboratory results pending
Bold exceeds OCD delineation limit (Chloride)

Appendix A
Initial 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

X Initial Report ☐ Final Report

Name of Company XTO Energy	Contact Shannon Walker
Address 500 W Illinois St. Suite 100 Midland Texas 79701	Telephone No. 432-661-4649
Facility Name EMSU 410 WIW	Facility Type Injection

Surface Owner BLM	Mineral Owner BLM	API No.3002530281

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	18	21S	36E					

Latitude 32° 28' 37.80" N **Longitude** 103° 18' 24.39"W NAD83

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 135.79 bbls	Volume Recovered 120 bbls
Source of Release Injection Line	Date and Hour of Occurrence 6/3/2017	Date and Hour of Discovery 6/3/2017
Was Immediate Notice Given? ☐ Yes X No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 12:58 pm, Jun 13, 2017

Describe Cause of Problem and Remedial Action Taken.*

Injection line ruptured causing produced water to spill on pasture and road. Cleaned up all standing fluids with vacuum truck. Will clean area to NMOCD statdards.

Describe Area Affected and Cleanup Action Taken.*

Pasture and Lease Road. All standing fluid cleaned up with vacuum truck.

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: Shannon Walker	OIL CONSERVATION DIVISION
Printed Name: Shannon Walker	Approved by Environmental Specialist:
Title: Production Foreman	Approval Date: 6/13/2017 Expiration Date:
E-mail Address: shannon_walker@xtoenergy.com	Conditions of Approval: see attached directive Attached ☑
Date: 6/5/17 Phone: 432-661-4649	

* Attach Additional Sheets If Necessary

1RP-4721 fOY1716446806 nOY1716446999 pOY1716447243

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _6/5/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-4721__ 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 _7/13/2017_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

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

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

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

● Composite sampling is not generally allowed.

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

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

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

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

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

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

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

Appendix B
OCD Correspondence

Sarah Johnson

From: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Sent: Tuesday, January 23, 2018 12:37 PM
To: Sarah Johnson; Shelly Tucker (stucker@blm.gov)
Cc: Luke_Williams@xtoenergy.com; Mark Larson
Subject: RE: 1RP-4721 XTO EMSU Well #410 Delienation Report, January 10, 2018

Mr. Williams:

Delineation is not completed for 1RP-4721. The historic release rationale for incompletion is not accepted. The Responsible Operator is required to address all environmental issues on the lease, which XTO Energy has held since 2004, regardless of the time of release. Furthermore, delineation began at the end of October 2017, 5 months after the release, on sandy soil with potential for chloride movement.

In addition to HA-1, further vertical delineation is required at the areas represented by S-1, S-2, S-3, S-4, S-9, S-11, S-12, S-13.

Please be advised that even under proper storage condition, HA-1 3-4 sample analyzed on November 21, 2017, collected on October 27, 2017, was almost at the maximum allowable holding time for BTEX and TPH analyses.

Please confirm or inform for clarification.

Thanks,

Olivia Yu
Environmental Specialist
NMOCD, District I
Olivia.yu@state.nm.us
575-393-6161 x113

From: Sarah Johnson [mailto:SJohnson@laenvironmental.com]
Sent: Wednesday, January 10, 2018 7:28 AM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Luke_Williams@xtoenergy.com; Mark Larson <Mark@laenvironmental.com>
Subject: 1RP-4721 XTO EMSU Well #410 Delienation Report, January 10, 2018

Dear Ms. Yu,

Larson & Associates, Inc. (LAI), on behalf of XTO Energy, Inc. (XTO), submits the attached delineation report for the produced water spill at the EMSU Well #410 (1RP-4721) in Lea County, New Mexico. Your approval of the delineation report is requested. Please contact Luke Williams with XTO at (432) 620-6729 or luke_williams@xtoenergy.com or me at (432) 687-0901 (office) or (432) 664-5357 (cell) or Mark Larson if you have any questions.

Respectfully,

Sarah Johnson
Staff Geologist
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432-664-5357
Fax – 432-687-0456
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Appendix C
Analytical Data

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

PBELAB

Revised Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: XTO EMSU 410

Project Number: 17-0182-01

Location: New Mexico

Lab Order Number: 7K06009

NELAP/TCEQ # T104704516-16-7

Report Date: 12/29/17

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

Project: XTO EMSU 410
Project Number: 17-0182-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-1 0-1	7K06009-01	Soil	10/27/17 11:05	11-06-2017 09:08
S-1 1-2	7K06009-02	Soil	10/27/17 11:11	11-06-2017 09:08
S-1 2-3	7K06009-03	Soil	10/27/17 11:15	11-06-2017 09:08
S-1 3-4	7K06009-04	Soil	10/27/17 11:19	11-06-2017 09:08
S-1 4-6	7K06009-05	Soil	10/27/17 11:23	11-06-2017 09:08
S-2 0-1	7K06009-06	Soil	10/27/17 12:01	11-06-2017 09:08
S-2 1-2	7K06009-07	Soil	10/27/17 12:07	11-06-2017 09:08
S-2 2-3	7K06009-08	Soil	10/27/17 12:12	11-06-2017 09:08
S-2 3-4	7K06009-09	Soil	10/27/17 12:20	11-06-2017 09:08
S-2 4-6	7K06009-10	Soil	10/27/17 12:28	11-06-2017 09:08
S-2 6-8	7K06009-11	Soil	10/27/17 12:36	11-06-2017 09:08
S-2 8-10	7K06009-12	Soil	10/27/17 12:42	11-06-2017 09:08
S-3 0-1	7K06009-13	Soil	10/27/17 13:08	11-06-2017 09:08
S-3 1-2	7K06009-14	Soil	10/27/17 13:13	11-06-2017 09:08
S-3 2-3	7K06009-15	Soil	10/27/17 13:16	11-06-2017 09:08
S-3 3-4	7K06009-16	Soil	10/27/17 13:22	11-06-2017 09:08
S-3 4-6	7K06009-17	Soil	10/27/17 13:27	11-06-2017 09:08
HA-1 3-4	7K06009-18	Soil	10/27/17 13:38	11-06-2017 09:08
HA-1 4-5	7K06009-19	Soil	10/27/17 13:50	11-06-2017 09:08
S-4 0-1	7K06009-20	Soil	10/30/17 12:05	11-06-2017 09:08
S-4 1-2	7K06009-21	Soil	10/30/17 12:07	11-06-2017 09:08
S-4 2-3	7K06009-22	Soil	10/30/17 12:11	11-06-2017 09:08
S-4 3-4	7K06009-23	Soil	10/30/17 12:13	11-06-2017 09:08
S-4 4-6	7K06009-24	Soil	10/30/17 12:16	11-06-2017 09:08
S-5 0-1	7K06009-25	Soil	10/30/17 12:43	11-06-2017 09:08
S-5 1-2	7K06009-26	Soil	10/30/17 12:45	11-06-2017 09:08
S-5 2-3	7K06009-27	Soil	10/30/17 12:49	11-06-2017 09:08
S-5 3-4	7K06009-28	Soil	10/30/17 12:53	11-06-2017 09:08
S-5 4-6	7K06009-29	Soil	10/30/17 13:01	11-06-2017 09:08
S-6 0-1	7K06009-30	Soil	10/30/17 13:28	11-06-2017 09:08
S-6 1-2	7K06009-31	Soil	10/30/17 13:30	11-06-2017 09:08
S-6 2-3	7K06009-32	Soil	10/30/17 13:35	11-06-2017 09:08
S-6 3-4	7K06009-33	Soil	10/30/17 13:39	11-06-2017 09:08
S-6 4-6	7K06009-34	Soil	10/30/17 13:44	11-06-2017 09:08

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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-6 6-8	7K06009-35	Soil	10/30/17 13:50	11-06-2017 09:08
S-7 0-1	7K06009-36	Soil	10/30/17 14:39	11-06-2017 09:08
S-7 1-2	7K06009-37	Soil	10/30/17 14:41	11-06-2017 09:08
S-7 2-3	7K06009-38	Soil	10/30/17 14:45	11-06-2017 09:08
S-7 3-4	7K06009-39	Soil	10/30/17 14:48	11-06-2017 09:08
S-7 4-6	7K06009-40	Soil	10/30/17 14:51	11-06-2017 09:08
S-8 0-1	7K06009-41	Soil	11/01/17 10:49	11-06-2017 09:08
S-8 1-2	7K06009-42	Soil	11/01/17 10:53	11-06-2017 09:08
S-8 2-3	7K06009-43	Soil	11/01/17 10:55	11-06-2017 09:08
S-8 3-4	7K06009-44	Soil	11/01/17 10:59	11-06-2017 09:08
S-8 4-6	7K06009-45	Soil	11/01/17 11:02	11-06-2017 09:08
S-9 0-1	7K06009-46	Soil	11/01/17 11:12	11-06-2017 09:08
S-9 1-2	7K06009-47	Soil	11/01/17 11:15	11-06-2017 09:08
S-9 2-3	7K06009-48	Soil	11/01/17 11:19	11-06-2017 09:08
S-9 3-4	7K06009-49	Soil	11/01/17 11:23	11-06-2017 09:08
S-9 4-7	7K06009-50	Soil	11/01/17 11:30	11-06-2017 09:08
S-10 0-1	7K06009-51	Soil	11/01/17 11:37	11-06-2017 09:08
S-10 1-2	7K06009-52	Soil	11/01/17 11:46	11-06-2017 09:08
S-10 2-3	7K06009-53	Soil	11/01/17 11:50	11-06-2017 09:08
S-10 3-4	7K06009-54	Soil	11/01/17 11:53	11-06-2017 09:08
S-10 4-6	7K06009-55	Soil	11/01/17 11:59	11-06-2017 09:08
S-11 0-1	7K06009-56	Soil	11/01/17 12:04	11-06-2017 09:08
S-11 1-2	7K06009-57	Soil	11/01/17 12:08	11-06-2017 09:08
S-11 2-3	7K06009-58	Soil	11/01/17 12:11	11-06-2017 09:08
S-11 3-4	7K06009-59	Soil	11/01/17 12:16	11-06-2017 09:08
S-11 4-6	7K06009-60	Soil	11/01/17 12:21	11-06-2017 09:08
S-11 6-8	7K06009-61	Soil	11/01/17 12:25	11-06-2017 09:08
S-12 0-1	7K06009-62	Soil	11/02/17 10:08	11-06-2017 09:08
S-12 1-2	7K06009-63	Soil	11/02/17 10:12	11-06-2017 09:08
S-12 2-3	7K06009-64	Soil	11/02/17 10:15	11-06-2017 09:08
S-12 3-4	7K06009-65	Soil	11/02/17 10:18	11-06-2017 09:08
S-12 4-6	7K06009-66	Soil	11/02/17 10:22	11-06-2017 09:08
S-12 6-8	7K06009-67	Soil	11/02/17 10:27	11-06-2017 09:08
S-13 0-1	7K06009-68	Soil	11/02/17 10:50	11-06-2017 09:08

Larson & Associates, Inc.
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Midland TX, 79710

Project: XTO EMSU 410
Project Number: 17-0182-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-13 1-2	7K06009-69	Soil	11/02/17 10:53	11-06-2017 09:08
S-13 2-3	7K06009-70	Soil	11/02/17 10:57	11-06-2017 09:08
S-13 3-4	7K06009-71	Soil	11/02/17 11:00	11-06-2017 09:08
S-13 4-6	7K06009-72	Soil	11/02/17 11:04	11-06-2017 09:08
S-13 6-8	7K06009-73	Soil	11/02/17 11:09	11-06-2017 09:08
S-14 0-1	7K06009-74	Soil	11/02/17 11:15	11-06-2017 09:08
S-14 1-2	7K06009-75	Soil	11/02/17 11:17	11-06-2017 09:08
S-14 2-3	7K06009-76	Soil	11/02/17 11:19	11-06-2017 09:08
S-14 3-4	7K06009-77	Soil	11/02/17 11:21	11-06-2017 09:08
S-14 4-6	7K06009-78	Soil	11/02/17 11:36	11-06-2017 09:08

On 12/29/2017 PBELAB staff was advised to report BTEX and TPH on sample HA-1 3-4'. This revised report reflects that addition.

S-1 0-1

7K06009-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P7K0706	11/07/17	11/09/17	EPA 8021B	
Toluene	ND	0.00211	mg/kg dry	1	P7K0706	11/07/17	11/09/17	EPA 8021B	
Ethylbenzene	ND	0.00105	mg/kg dry	1	P7K0706	11/07/17	11/09/17	EPA 8021B	
Xylene (p/m)	ND	0.00211	mg/kg dry	1	P7K0706	11/07/17	11/09/17	EPA 8021B	
Xylene (o)	ND	0.00105	mg/kg dry	1	P7K0706	11/07/17	11/09/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*99.2 %*	*75-125*		*P7K0706*	*11/07/17*	*11/09/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*92.7 %*	*75-125*		*P7K0706*	*11/07/17*	*11/09/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**13.7**	1.05	mg/kg dry	1	P7K0902	11/09/17	11/09/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C12-C28	**107**	26.3	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C28-C35	**164**	26.3	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*100 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*104 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**271**	26.3	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

S-1 1-2

7K06009-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**43.6**	1.04	mg/kg dry	1	P7K0902	11/09/17	11/09/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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P.O. Box 50685	Project Number: 17-0182-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-1 2-3

7K06009-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**89.5**	1.03	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

Larson & Associates, Inc.	Project: XTO EMSU 410	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0182-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-1 3-4

7K06009-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**160**	1.04	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

Larson & Associates, Inc.	Project: XTO EMSU 410	Fax: (432) 687-0456
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Midland TX, 79710	Project Manager: Mark Larson	

S-1 4-6

7K06009-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1170**	5.95	mg/kg dry	5	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

S-2 0-1

7K06009-06 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00104	mg/kg dry	1	P7K0706	11/07/17	11/09/17	EPA 8021B	
Toluene	ND	0.00208	mg/kg dry	1	P7K0706	11/07/17	11/09/17	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P7K0706	11/07/17	11/09/17	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P7K0706	11/07/17	11/09/17	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P7K0706	11/07/17	11/09/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*97.4 %*	*75-125*		*P7K0706*	*11/07/17*	*11/09/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*109 %*	*75-125*		*P7K0706*	*11/07/17*	*11/09/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.04	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*99.6 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*109 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

S-2 1-2

7K06009-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.04	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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P.O. Box 50685	Project Number: 17-0182-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 2-3

7K06009-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.05	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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Midland TX, 79710	Project Manager: Mark Larson	

S-2 3-4

7K06009-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.91**	1.08	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-2 4-6

7K06009-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**797**	1.16	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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Midland TX, 79710	Project Manager: Mark Larson	

S-2 6-8

7K06009-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1100**	5.95	mg/kg dry	5	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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Midland TX, 79710	Project Manager: Mark Larson	

S-2 8-10

7K06009-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**939**	1.18	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-3 0-1

7K06009-13 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00114	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Toluene	ND	0.00227	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Ethylbenzene	ND	0.00114	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Xylene (p/m)	ND	0.00227	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Xylene (o)	ND	0.00114	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*121 %*	*75-125*		*P7K0707*	*11/07/17*	*11/09/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*106 %*	*75-125*		*P7K0707*	*11/07/17*	*11/09/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**18.5**	1.14	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.4	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C12-C28	**38.3**	28.4	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C28-C35	**99.8**	28.4	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.0 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*97.3 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**138**	28.4	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-3 1-2

7K06009-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**121**	1.06	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-3 2-3

7K06009-15 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**164**	1.03	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-3 3-4

7K06009-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**556**	1.05	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-3 4-6

7K06009-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1070**	1.15	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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HA-1 3-4

7K06009-18 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00112	mg/kg dry	1	P7K2009	11/20/17	11/21/17	EPA 8021B	O-04
Toluene	ND	0.00225	mg/kg dry	1	P7K2009	11/20/17	11/21/17	EPA 8021B	O-04
Ethylbenzene	ND	0.00112	mg/kg dry	1	P7K2009	11/20/17	11/21/17	EPA 8021B	O-04
Xylene (p/m)	ND	0.00225	mg/kg dry	1	P7K2009	11/20/17	11/21/17	EPA 8021B	O-04
Xylene (o)	ND	0.00112	mg/kg dry	1	P7K2009	11/20/17	11/21/17	EPA 8021B	O-04
Surrogate: 1,4-Difluorobenzene		*86.9 %*	*75-125*		*P7K2009*	*11/20/17*	*11/21/17*	*EPA 8021B*	*O-04*
Surrogate: 4-Bromofluorobenzene		*102 %*	*75-125*		*P7K2009*	*11/20/17*	*11/21/17*	*EPA 8021B*	*O-04*
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**173**	1.12	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.1	mg/kg dry	1	P7K1715	11/17/17	11/21/17	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P7K1715	11/17/17	11/21/17	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P7K1715	11/17/17	11/21/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*120 %*	*70-130*		*P7K1715*	*11/17/17*	*11/21/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*133 %*	*70-130*		*P7K1715*	*11/17/17*	*11/21/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	11/17/17	11/21/17	calc	

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HA-1 4-5

7K06009-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**677**	6.02	mg/kg dry	5	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**17.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-4 0-1

7K06009-20 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Toluene	ND	0.00215	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*119 %*	*75-125*		*P7K0707*	*11/07/17*	*11/09/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*100 %*	*75-125*		*P7K0707*	*11/07/17*	*11/09/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**201**	1.08	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.5 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-4 1-2

7K06009-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**226**	1.03	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-4 2-3

7K06009-22 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**628**	1.06	mg/kg dry	1	P7K0910	11/09/17	11/10/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-4 3-4

7K06009-23 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**577**	1.05	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-4 4-6

7K06009-24 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1120**	5.75	mg/kg dry	5	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-5 0-1

7K06009-25 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Toluene	ND	0.00217	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*104 %*	*75-125*		*P7K0707*	*11/07/17*	*11/09/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*116 %*	*75-125*		*P7K0707*	*11/07/17*	*11/09/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**202**	1.09	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C28-C35	**39.5**	27.2	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*103 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**39.5**	27.2	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-5 1-2

7K06009-26 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**173**	1.02	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-5 2-3

7K06009-27 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**502**	1.06	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-5 3-4

7K06009-28 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**445**	1.05	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-5 4-6

7K06009-29 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**536**	1.08	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-6 0-1

7K06009-30 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Toluene	ND	0.00204	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Ethylbenzene	ND	0.00102	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Xylene (p/m)	ND	0.00204	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Xylene (o)	ND	0.00102	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*94.2 %*	*75-125*		*P7K0707*	*11/07/17*	*11/09/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*114 %*	*75-125*		*P7K0707*	*11/07/17*	*11/09/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.02	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.4 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-6 1-2

7K06009-31 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.06	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-6 2-3

7K06009-32 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.09	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-6 3-4

7K06009-33 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.59**	1.06	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-6 4-6

7K06009-34 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.04	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-6 6-8

7K06009-35 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1.14**	1.05	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-7 0-1

7K06009-36 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00101	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Toluene	ND	0.00202	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Ethylbenzene	ND	0.00101	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Xylene (p/m)	ND	0.00202	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Xylene (o)	ND	0.00101	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*111 %*	*75-125*		*P7K0707*	*11/07/17*	*11/09/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*127 %*	*75-125*		*P7K0707*	*11/07/17*	*11/09/17*	*EPA 8021B*	*S-GC*
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.01	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**1.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	126	mg/kg dry	5	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C12-C28	**615**	126	mg/kg dry	5	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C28-C35	**915**	126	mg/kg dry	5	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*100 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**1530**	126	mg/kg dry	5	[CALC]	11/10/17	11/11/17	calc	

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S-7 1-2

7K06009-37 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-7 2-3

7K06009-38 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.05	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-7 3-4

7K06009-39 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.04	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-7 4-6

7K06009-40 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**10.9**	1.10	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

S-8 0-1

7K06009-41 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00112	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Toluene	ND	0.00225	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Ethylbenzene	ND	0.00112	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (p/m)	ND	0.00225	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (o)	ND	0.00112	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*90.7 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*102 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.12	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.1	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C12-C28	**75.5**	28.1	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
>C28-C35	**159**	28.1	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*101 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P7K1003*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**234**	28.1	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-8 1-2

7K06009-42 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.10	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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Midland TX, 79710	Project Manager: Mark Larson	

S-8 2-3

7K06009-43 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-8 3-4

7K06009-44 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**6.66**	1.03	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-8 4-6

7K06009-45 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**85.1**	1.08	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-9 0-1

7K06009-46 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00101	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Toluene	ND	0.00202	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Ethylbenzene	ND	0.00101	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (p/m)	ND	0.00202	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (o)	ND	0.00101	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*104 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*91.4 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.01	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.3	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C12-C28	ND	25.3	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C28-C35	ND	25.3	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*104 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*111 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.3	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-9 1-2

7K06009-47 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**4.26**	1.03	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-9 2-3

7K06009-48 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**94.5**	1.04	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-9 3-4

7K06009-49 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**125**	1.02	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-9 4-7

7K06009-50 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1050**	5.49	mg/kg dry	5	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

S-10 0-1

7K06009-51 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Toluene	ND	0.00211	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Ethylbenzene	ND	0.00105	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (p/m)	ND	0.00211	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (o)	ND	0.00105	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*96.3 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**32.2**	1.05	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*104 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*109 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-10 1-2

7K06009-52 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**135**	1.05	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-10 2-3

7K06009-53 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**220**	1.04	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-10 3-4

7K06009-54 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**274**	1.04	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-10 4-6

7K06009-55 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**513**	1.14	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

S-11 0-1

7K06009-56 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Toluene	ND	0.00217	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*81.9 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*98.1 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**54.5**	1.09	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C12-C28	**154**	27.2	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C28-C35	**107**	27.2	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*106 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*114 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**261**	27.2	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-11 1-2

7K06009-57 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**74.5**	1.12	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-11 2-3

7K06009-58 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**246**	1.06	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-11 3-4

7K06009-59 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**345**	1.05	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-11 4-6

7K06009-60 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1440**	5.88	mg/kg dry	5	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-11 6-8

7K06009-61 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**225**	1.15	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-12 0-1

7K06009-62 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Toluene	ND	0.00215	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*83.6 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*99.2 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**95.7**	1.08	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C12-C28	**112**	26.9	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C28-C35	**62.3**	26.9	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*106 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*109 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**174**	26.9	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-12 1-2

7K06009-63 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**119**	1.09	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-12 2-3

7K06009-64 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**277**	1.05	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-12 3-4

7K06009-65 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**376**	1.05	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-12 4-6

7K06009-66 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**829**	1.08	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-12 6-8

7K06009-67 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1450**	5.75	mg/kg dry	5	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-13 0-1

7K06009-68 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00120	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Toluene	ND	0.00241	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Ethylbenzene	ND	0.00120	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (p/m)	ND	0.00241	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (o)	ND	0.00120	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*98.9 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*94.1 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**629**	6.02	mg/kg dry	5	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**17.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	30.1	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C12-C28	**195**	30.1	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C28-C35	**110**	30.1	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*117 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**305**	30.1	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-13 1-2

7K06009-69 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**677**	5.38	mg/kg dry	5	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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Project Manager: Mark Larson

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S-13 2-3

7K06009-70 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**564**	1.09	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-13 3-4

7K06009-71 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**418**	1.05	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-13 4-6

7K06009-72 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**976**	5.26	mg/kg dry	5	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-13 6-8

7K06009-73 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**757**	1.15	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-14 0-1

7K06009-74 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00114	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Toluene	ND	0.00227	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Ethylbenzene	ND	0.00114	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (p/m)	ND	0.00227	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Xylene (o)	ND	0.00114	mg/kg dry	1	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*103 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*109 %*	*75-125*		*P7K0707*	*11/07/17*	*11/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.14	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.4	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C12-C28	**81.3**	28.4	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
>C28-C35	**38.0**	28.4	mg/kg dry	1	P7K1004	11/10/17	11/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*102 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P7K1004*	*11/10/17*	*11/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**119**	28.4	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	

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S-14 1-2

7K06009-75 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.01	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**1.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-14 2-3

7K06009-76 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-14 3-4

7K06009-77 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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S-14 4-6

7K06009-78 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.01	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	
% Moisture	**1.0**	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	

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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 P7K0706 - General Preparation (GC)										
Blank (P7K0706-BLK1)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	*0.0617*		*"*	*0.0600*		*103*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0554*		*"*	*0.0600*		*92.4*	*75-125*			
LCS (P7K0706-BS1)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.116	0.00100	mg/kg wet	0.100		116	70-130			
Toluene	0.108	0.00200	"	0.100		108	70-130			
Ethylbenzene	0.107	0.00100	"	0.100		107	70-130			
Xylene (p/m)	0.219	0.00200	"				70-130			
Xylene (o)	0.120	0.00100	"				70-130			
Surrogate: 1,4-Difluorobenzene	*0.0843*		*"*	*0.0600*		*141*	*75-125*			*S-GC1*
Surrogate: 4-Bromofluorobenzene	*0.0771*		*"*	*0.0600*		*129*	*75-125*			*S-GC1*
LCS Dup (P7K0706-BSD1)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.0951	0.00100	mg/kg wet	0.100		95.1	70-130	19.4	20	
Toluene	0.0877	0.00200	"	0.100		87.7	70-130	20.7	20	R2
Ethylbenzene	0.115	0.00100	"	0.100		115	70-130	6.95	20	
Xylene (p/m)	0.203	0.00200	"				70-130		20	
Xylene (o)	0.106	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	*0.0692*		*"*	*0.0600*		*115*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0697*		*"*	*0.0600*		*116*	*75-125*			
Calibration Blank (P7K0706-CCB1)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	*0.0500*		*"*	*0.0600*		*83.4*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0532*		*"*	*0.0600*		*88.6*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0706 - General Preparation (GC)										
Calibration Blank (P7K0706-CCB2)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0655*		*"*	*0.0600*		*109*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0654*		*"*	*0.0600*		*109*	*75-125*			
Calibration Check (P7K0706-CCV1)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.0838	0.00100	mg/kg wet	0.100		83.8	80-120			
Toluene	0.0820	0.00200	"	0.100		82.0	80-120			
Ethylbenzene	0.0818	0.00100	"	0.100		81.8	80-120			
Xylene (p/m)	0.180	0.00200	"	0.200		90.1	80-120			
Xylene (o)	0.0956	0.00100	"	0.100		95.6	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0588*		*"*	*0.0600*		*98.0*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0655*		*"*	*0.0600*		*109*	*75-125*			
Calibration Check (P7K0706-CCV2)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.101	0.00100	mg/kg wet	0.100		101	80-120			
Toluene	0.0899	0.00200	"	0.100		89.9	80-120			
Ethylbenzene	0.0910	0.00100	"	0.100		91.0	80-120			
Xylene (p/m)	0.195	0.00200	"	0.200		97.5	80-120			
Xylene (o)	0.102	0.00100	"	0.100		102	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0582*		*"*	*0.0600*		*96.9*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0636*		*"*	*0.0600*		*106*	*75-125*			
Calibration Check (P7K0706-CCV3)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.0884	0.00100	mg/kg wet	0.100		88.4	80-120			
Toluene	0.0873	0.00200	"	0.100		87.3	80-120			
Ethylbenzene	0.0897	0.00100	"	0.100		89.7	80-120			
Xylene (p/m)	0.199	0.00200	"	0.200		99.6	80-120			
Xylene (o)	0.110	0.00100	"	0.100		110	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0594*		*"*	*0.0600*		*99.0*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0640*		*"*	*0.0600*		*107*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0707 - General Preparation (GC)										
Blank (P7K0707-BLK1)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	*0.0627*		*"*	*0.0600*		*104*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0671*		*"*	*0.0600*		*112*	*75-125*			
LCS (P7K0707-BS1)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.0863	0.00100	mg/kg wet	0.100		86.3	70-130			
Toluene	0.0813	0.00200	"	0.100		81.3	70-130			
Ethylbenzene	0.105	0.00100	"	0.100		105	70-130			
Xylene (p/m)	0.185	0.00200	"				70-130			
Xylene (o)	0.0994	0.00100	"				70-130			
Surrogate: 4-Bromofluorobenzene	*0.0653*		*"*	*0.0600*		*109*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0680*		*"*	*0.0600*		*113*	*75-125*			
LCS Dup (P7K0707-BSD1)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.100	0.00100	mg/kg wet	0.100		100	70-130	14.8	20	
Toluene	0.0929	0.00200	"	0.100		92.9	70-130	13.3	20	
Ethylbenzene	0.119	0.00100	"	0.100		119	70-130	13.2	20	
Xylene (p/m)	0.211	0.00200	"				70-130		20	
Xylene (o)	0.109	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	*0.0660*		*"*	*0.0600*		*110*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0651*		*"*	*0.0600*		*108*	*75-125*			
Calibration Blank (P7K0707-CCB1)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.0660*		*"*	*0.0600*		*110*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0651*		*"*	*0.0600*		*108*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0707 - General Preparation (GC)										
Calibration Blank (P7K0707-CCB2)				Prepared: 11/07/17 Analyzed: 11/10/17						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	*0.0673*		*"*	*0.0600*		*112*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0703*		*"*	*0.0600*		*117*	*75-125*			
Calibration Check (P7K0707-CCV1)				Prepared: 11/07/17 Analyzed: 11/09/17						
Benzene	0.0884	0.00100	mg/kg wet	0.100		88.4	80-120			
Toluene	0.0873	0.00200	"	0.100		87.3	80-120			
Ethylbenzene	0.0897	0.00100	"	0.100		89.7	80-120			
Xylene (p/m)	0.199	0.00200	"	0.200		99.6	80-120			
Xylene (o)	0.110	0.00100	"	0.100		110	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0640*		*"*	*0.0600*		*107*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0594*		*"*	*0.0600*		*99.0*	*75-125*			
Calibration Check (P7K0707-CCV2)				Prepared: 11/07/17 Analyzed: 11/10/17						
Benzene	0.0827	0.00100	mg/kg wet	0.100		82.7	80-120			
Toluene	0.0815	0.00200	"	0.100		81.5	80-120			
Ethylbenzene	0.0828	0.00100	"	0.100		82.8	80-120			
Xylene (p/m)	0.183	0.00200	"	0.200		91.3	80-120			
Xylene (o)	0.0941	0.00100	"	0.100		94.1	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0674*		*"*	*0.0600*		*112*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0694*		*"*	*0.0600*		*116*	*75-125*			
Calibration Check (P7K0707-CCV3)				Prepared: 11/07/17 Analyzed: 11/10/17						
Benzene	0.112	0.00100	mg/kg wet	0.100		112	80-120			
Toluene	0.105	0.00200	"	0.100		105	80-120			
Ethylbenzene	0.111	0.00100	"	0.100		111	80-120			
Xylene (p/m)	0.220	0.00200	"	0.200		110	80-120			
Xylene (o)	0.118	0.00100	"	0.100		118	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0636*		*"*	*0.0600*		*106*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0610*		*"*	*0.0600*		*102*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0707 - General Preparation (GC)										
Matrix Spike Dup (P7K0707-MSD1)	**Source: 7K06009-74**			Prepared: 11/07/17 Analyzed: 11/10/17						
Benzene	0.105	0.00114	mg/kg dry	0.114	ND	92.2	80-120		20	
Toluene	0.0936	0.00227	"	0.114	ND	82.4	80-120		20	
Ethylbenzene	0.0995	0.00114	"	0.114	ND	87.6	80-120		20	
Xylene (p/m)	0.207	0.00227	"		ND		80-120		20	
Xylene (o)	0.0915	0.00114	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	*0.0786*		*"*	*0.0682*		*115*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0725*		*"*	*0.0682*		*106*	*75-125*			
Batch P7K2009 - General Preparation (GC)										
Blank (P7K2009-BLK1)				Prepared: 11/20/17 Analyzed: 11/21/17						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	*0.0763*		*"*	*0.0800*		*95.4*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0681*		*"*	*0.0800*		*85.1*	*75-125*			
LCS (P7K2009-BS1)				Prepared: 11/20/17 Analyzed: 11/21/17						
Benzene	0.100	0.00100	mg/kg wet	0.100		100	70-130			
Toluene	0.106	0.00200	"	0.100		106	70-130			
Ethylbenzene	0.104	0.00100	"	0.100		104	70-130			
Xylene (p/m)	0.219	0.00200	"				70-130			
Xylene (o)	0.110	0.00100	"				70-130			
Surrogate: 1,4-Difluorobenzene	*0.0618*		*"*	*0.0800*		*77.3*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0687*		*"*	*0.0800*		*85.9*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K2009 - General Preparation (GC)										
LCS Dup (P7K2009-BSD1)				Prepared: 11/20/17 Analyzed: 11/21/17						
Benzene	0.103	0.00100	mg/kg wet	0.100		103	70-130	2.30	20	
Toluene	0.110	0.00200	"	0.100		110	70-130	3.87	20	
Ethylbenzene	0.0976	0.00100	"	0.100		97.6	70-130	6.22	20	
Xylene (p/m)	0.204	0.00200	"				70-130		20	
Xylene (o)	0.113	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	*0.0701*		*"*	*0.0800*		*87.6*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0700*		*"*	*0.0800*		*87.5*	*75-125*			
Calibration Check (P7K2009-CCV2)				Prepared: 11/20/17 Analyzed: 11/21/17						
Benzene	0.107	0.00100	mg/kg wet	0.100		107	80-120			
Toluene	0.108	0.00200	"	0.100		108	80-120			
Ethylbenzene	0.112	0.00100	"	0.100		112	80-120			
Xylene (p/m)	0.220	0.00200	"	0.200		110	80-120			
Xylene (o)	0.113	0.00100	"	0.100		113	80-120			
Surrogate: 4-Bromofluorobenzene	*0.0781*		*"*	*0.0800*		*97.6*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0710*		*"*	*0.0800*		*88.8*	*75-125*			
Calibration Check (P7K2009-CCV3)				Prepared: 11/20/17 Analyzed: 11/21/17						
Benzene	0.102	0.00100	mg/kg wet	0.100		102	80-120			
Toluene	0.114	0.00200	"	0.100		114	80-120			
Ethylbenzene	0.113	0.00100	"	0.100		113	80-120			
Xylene (p/m)	0.224	0.00200	"	0.200		112	80-120			
Xylene (o)	0.116	0.00100	"	0.100		116	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0587*		*"*	*0.0800*		*73.4*	*75-125*			*S-GC*
Surrogate: 4-Bromofluorobenzene	*0.0825*		*"*	*0.0800*		*103*	*75-125*			
Matrix Spike (P7K2009-MS1)	**Source: 7K17007-06**			Prepared: 11/20/17 Analyzed: 11/21/17						
Benzene	0.0992	0.00102	mg/kg dry	0.102	ND	97.2	80-120			
Toluene	0.119	0.00204	"	0.102	ND	117	80-120			
Ethylbenzene	0.101	0.00102	"	0.102	ND	98.9	80-120			
Xylene (p/m)	0.200	0.00204	"		ND		80-120			
Xylene (o)	0.114	0.00102	"		ND		80-120			
Surrogate: 1,4-Difluorobenzene	*0.0873*		*"*	*0.0816*		*107*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.119*		*"*	*0.0816*		*146*	*75-125*			*S-GC*

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K2009 - General Preparation (GC)										
Matrix Spike Dup (P7K2009-MSD1)	**Source: 7K17007-06**			Prepared: 11/20/17 Analyzed: 11/21/17						
Benzene	0.110	0.00102	mg/kg dry	0.102	ND	108	80-120	10.1	20	
Toluene	0.117	0.00204	"	0.102	ND	115	80-120	1.22	20	
Ethylbenzene	0.112	0.00102	"	0.102	ND	110	80-120	10.2	20	
Xylene (p/m)	0.213	0.00204	"		ND		80-120		20	
Xylene (o)	0.114	0.00102	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	*0.0710*		*"*	*0.0816*		*87.0*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0813*		*"*	*0.0816*		*99.6*	*75-125*			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0804 - * DEFAULT PREP *** **										
Blank (P7K0804-BLK1)				Prepared & Analyzed: 11/08/17						
% Moisture	ND	0.1	%							
Blank (P7K0804-BLK2)				Prepared & Analyzed: 11/08/17						
% Moisture	ND	0.1	%							
Duplicate (P7K0804-DUP1)	**Source: 7K06009-08**			Prepared & Analyzed: 11/08/17						
% Moisture	4.0	0.1	%		5.0			22.2	20	R3
Duplicate (P7K0804-DUP2)	**Source: 7K06009-35**			Prepared & Analyzed: 11/08/17						
% Moisture	6.0	0.1	%		5.0			18.2	20	
Duplicate (P7K0804-DUP3)	**Source: 7K06009-62**			Prepared & Analyzed: 11/08/17						
% Moisture	6.0	0.1	%		7.0			15.4	20	
Batch P7K0902 - * DEFAULT PREP *** **										
LCS (P7K0902-BS1)				Prepared & Analyzed: 11/09/17						
Chloride	414	1.00	mg/kg wet	400		104	80-120			
LCS Dup (P7K0902-BSD1)				Prepared & Analyzed: 11/09/17						
Chloride	412	1.00	mg/kg wet	400		103	80-120	0.593	20	
Duplicate (P7K0902-DUP1)	**Source: 7K03002-07**			Prepared & Analyzed: 11/09/17						
Chloride	4410	27.8	mg/kg dry		4420			0.308	20	
Duplicate (P7K0902-DUP2)	**Source: 7K03004-12**			Prepared & Analyzed: 11/09/17						
Chloride	33.0	1.08	mg/kg dry		32.9			0.359	20	

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 P7K0902 - * DEFAULT PREP *** **										
Matrix Spike (P7K0902-MS1)	**Source: 7K03002-07**			Prepared & Analyzed: 11/09/17						
Chloride	6890	27.8	mg/kg dry	2220	4420	111	80-120			
Batch P7K0910 - * DEFAULT PREP *** **										
Blank (P7K0910-BLK1)				Prepared & Analyzed: 11/09/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7K0910-BS1)				Prepared & Analyzed: 11/09/17						
Chloride	436	1.00	mg/kg wet	400		109	80-120			
LCS Dup (P7K0910-BSD1)				Prepared & Analyzed: 11/09/17						
Chloride	433	1.00	mg/kg wet	400		108	80-120	0.619	20	
Duplicate (P7K0910-DUP1)	**Source: 7K06009-03**			Prepared & Analyzed: 11/09/17						
Chloride	88.2	1.03	mg/kg dry		89.5			1.50	20	
Duplicate (P7K0910-DUP2)	**Source: 7K06009-13**			Prepared & Analyzed: 11/09/17						
Chloride	19.6	1.14	mg/kg dry		18.5			5.91	20	
Matrix Spike (P7K0910-MS1)	**Source: 7K06009-03**			Prepared & Analyzed: 11/09/17						
Chloride	1190	1.03	mg/kg dry	1030	89.5	106	80-120			
Batch P7K0911 - * DEFAULT PREP *** **										
Blank (P7K0911-BLK1)				Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	ND	1.00	mg/kg wet							

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0911 - * DEFAULT PREP *** **										
LCS (P7K0911-BS1)				Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	422	1.00	mg/kg wet	400		105	80-120			
LCS Dup (P7K0911-BSD1)				Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	415	1.00	mg/kg wet	400		104	80-120	1.55	20	
Duplicate (P7K0911-DUP1)		**Source: 7K06009-23**		Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	594	1.05	mg/kg dry		577			2.90	20	
Duplicate (P7K0911-DUP2)		**Source: 7K06009-33**		Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	3.81	1.06	mg/kg dry		2.59			38.3	20	R4
Matrix Spike (P7K0911-MS1)		**Source: 7K06009-23**		Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	1650	1.05	mg/kg dry	1050	577	102	80-120			
Batch P7K0912 - * DEFAULT PREP *** **										
Blank (P7K0912-BLK1)				Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7K0912-BS1)				Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	412	1.00	mg/kg wet	400		103	80-120			
LCS Dup (P7K0912-BSD1)				Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	409	1.00	mg/kg wet	400		102	80-120	0.609	20	
Duplicate (P7K0912-DUP1)		**Source: 7K06009-43**		Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	ND	1.03	mg/kg dry		ND				20	

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 P7K0912 - * DEFAULT PREP *** **										
Duplicate (P7K0912-DUP2)	**Source: 7K06009-53**			Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	222	1.04	mg/kg dry		220			1.07	20	
Matrix Spike (P7K0912-MS1)	**Source: 7K06009-43**			Prepared: 11/09/17 Analyzed: 11/10/17						
Chloride	1110	1.03	mg/kg dry	1030	ND	108	80-120			
Batch P7K0913 - * DEFAULT PREP *** **										
Blank (P7K0913-BLK1)				Prepared: 11/09/17 Analyzed: 11/12/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7K0913-BS1)				Prepared: 11/09/17 Analyzed: 11/12/17						
Chloride	429	1.00	mg/kg wet	400		107	80-120			
LCS Dup (P7K0913-BSD1)				Prepared: 11/09/17 Analyzed: 11/12/17						
Chloride	439	1.00	mg/kg wet	400		110	80-120	2.41	20	
Duplicate (P7K0913-DUP1)	**Source: 7K06009-63**			Prepared: 11/09/17 Analyzed: 11/12/17						
Chloride	123	1.09	mg/kg dry		119			3.42	20	
Duplicate (P7K0913-DUP2)	**Source: 7K06009-73**			Prepared: 11/09/17 Analyzed: 11/12/17						
Chloride	758	1.15	mg/kg dry		757			0.0880	20	
Matrix Spike (P7K0913-MS1)	**Source: 7K06009-63**			Prepared: 11/09/17 Analyzed: 11/12/17						
Chloride	1280	1.09	mg/kg dry	1090	119	107	80-120			

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K1003 - * DEFAULT PREP *** **										
Blank (P7K1003-BLK1)				Prepared & Analyzed: 11/10/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*109*		*"*	*100*		*109*	*70-130*			
Surrogate: o-Terphenyl	*60.3*		*"*	*50.0*		*121*	*70-130*			
LCS (P7K1003-BS1)				Prepared & Analyzed: 11/10/17						
C6-C12	850	25.0	mg/kg wet	1000		85.0	75-125			
>C12-C28	998	25.0	"	1000		99.8	75-125			
Surrogate: 1-Chlorooctane	*107*		*"*	*100*		*107*	*70-130*			
Surrogate: o-Terphenyl	*56.9*		*"*	*50.0*		*114*	*70-130*			
LCS Dup (P7K1003-BSD1)				Prepared: 11/10/17 Analyzed: 11/13/17						
C6-C12	930	25.0	mg/kg wet	1000		93.0	75-125	8.95	20	
>C12-C28	1130	25.0	"	1000		113	75-125	12.0	20	
Surrogate: 1-Chlorooctane	*115*		*"*	*100*		*115*	*70-130*			
Surrogate: o-Terphenyl	*61.3*		*"*	*50.0*		*123*	*70-130*			
Calibration Blank (P7K1003-CCB1)				Prepared & Analyzed: 11/10/17						
C6-C12	17.5		mg/kg wet							
>C12-C28	4.48		"							
Surrogate: 1-Chlorooctane	*97.6*		*"*	*100*		*97.6*	*70-130*			
Surrogate: o-Terphenyl	*53.9*		*"*	*50.0*		*108*	*70-130*			
Calibration Blank (P7K1003-CCB2)				Prepared & Analyzed: 11/10/17						
C6-C12	19.1		mg/kg wet							
>C12-C28	22.6		"							
Surrogate: 1-Chlorooctane	*100*		*"*	*100*		*100*	*70-130*			
Surrogate: o-Terphenyl	*55.5*		*"*	*50.0*		*111*	*70-130*			

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K1003 - * DEFAULT PREP *** **										
Calibration Check (P7K1003-CCV1)				Prepared & Analyzed: 11/10/17						
C6-C12	456	25.0	mg/kg wet	500		91.2	85-115			
>C12-C28	471	25.0	"	500		94.3	85-115			
Surrogate: 1-Chlorooctane	*108*		*"*	*100*		*108*	*70-130*			
Surrogate: o-Terphenyl	*51.2*		*"*	*50.0*		*102*	*70-130*			
Calibration Check (P7K1003-CCV2)				Prepared & Analyzed: 11/10/17						
C6-C12	462	25.0	mg/kg wet	500		92.4	85-115			
>C12-C28	471	25.0	"	500		94.1	85-115			
Surrogate: 1-Chlorooctane	*112*		*"*	*100*		*112*	*70-130*			
Surrogate: o-Terphenyl	*53.8*		*"*	*50.0*		*108*	*70-130*			
Calibration Check (P7K1003-CCV3)				Prepared: 11/10/17 Analyzed: 11/11/17						
C6-C12	466	25.0	mg/kg wet	500		93.1	85-115			
>C12-C28	496	25.0	"	500		99.2	85-115			
Surrogate: 1-Chlorooctane	*112*		*"*	*100*		*112*	*70-130*			
Surrogate: o-Terphenyl	*53.6*		*"*	*50.0*		*107*	*70-130*			
Matrix Spike (P7K1003-MS1)	**Source: 7K03010-05**			Prepared: 11/10/17 Analyzed: 11/11/17						
C6-C12	1080	26.6	mg/kg dry	1060	41.1	97.6	75-125			
>C12-C28	2470	26.6	"	1060	1720	71.3	75-125			QM-05
Surrogate: 1-Chlorooctane	*124*		*"*	*106*		*116*	*70-130*			
Surrogate: o-Terphenyl	*63.1*		*"*	*53.2*		*119*	*70-130*			
Matrix Spike Dup (P7K1003-MSD1)	**Source: 7K03010-05**			Prepared: 11/10/17 Analyzed: 11/11/17						
C6-C12	1050	26.6	mg/kg dry	1060	41.1	94.8	75-125	2.90	20	
>C12-C28	2470	26.6	"	1060	1720	71.1	75-125	0.310	20	QM-05
Surrogate: 1-Chlorooctane	*123*		*"*	*106*		*116*	*70-130*			
Surrogate: o-Terphenyl	*62.4*		*"*	*53.2*		*117*	*70-130*			

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K1004 - General Preparation (GC)										
Blank (P7K1004-BLK1)				Prepared & Analyzed: 11/10/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*115*		*"*	*100*		*115*	*70-130*			
Surrogate: o-Terphenyl	*62.4*		*"*	*50.0*		*125*	*70-130*			
LCS (P7K1004-BS1)				Prepared & Analyzed: 11/10/17						
C6-C12	1080	25.0	mg/kg wet	1000		108	75-125			
>C12-C28	1050	25.0	"	1000		105	75-125			
Surrogate: 1-Chlorooctane	*133*		*"*	*100*		*133*	*70-130*			*S-GC*
Surrogate: o-Terphenyl	*58.3*		*"*	*50.0*		*117*	*70-130*			
LCS Dup (P7K1004-BSD1)				Prepared: 11/10/17 Analyzed: 11/13/17						
C6-C12	1150	25.0	mg/kg wet	1000		115	75-125	6.37	20	
>C12-C28	1150	25.0	"	1000		115	75-125	9.32	20	
Surrogate: 1-Chlorooctane	*123*		*"*	*100*		*123*	*70-130*			
Surrogate: o-Terphenyl	*62.4*		*"*	*50.0*		*125*	*70-130*			
Calibration Blank (P7K1004-CCB1)				Prepared & Analyzed: 11/10/17						
C6-C12	12.9		mg/kg wet							
>C12-C28	11.8		"							
Surrogate: 1-Chlorooctane	*111*		*"*	*100*		*111*	*70-130*			
Surrogate: o-Terphenyl	*59.2*		*"*	*50.0*		*118*	*70-130*			
Calibration Blank (P7K1004-CCB2)				Prepared: 11/10/17 Analyzed: 11/11/17						
C6-C12	16.4		mg/kg wet							
>C12-C28	8.34		"							
Surrogate: 1-Chlorooctane	*115*		*"*	*100*		*115*	*70-130*			
Surrogate: o-Terphenyl	*62.1*		*"*	*50.0*		*124*	*70-130*			

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K1004 - General Preparation (GC)										
Calibration Check (P7K1004-CCV1)				Prepared & Analyzed: 11/10/17						
C6-C12	534	25.0	mg/kg wet	500		107	85-115			
>C12-C28	505	25.0	"	500		101	85-115			
Surrogate: 1-Chlorooctane	*118*		*"*	*100*		*118*	*70-130*			
Surrogate: o-Terphenyl	*57.5*		*"*	*50.0*		*115*	*70-130*			
Calibration Check (P7K1004-CCV2)				Prepared: 11/10/17 Analyzed: 11/11/17						
C6-C12	560	25.0	mg/kg wet	500		112	85-115			
>C12-C28	535	25.0	"	500		107	85-115			
Surrogate: 1-Chlorooctane	*115*		*"*	*100*		*115*	*70-130*			
Surrogate: o-Terphenyl	*61.1*		*"*	*50.0*		*122*	*70-130*			
Matrix Spike (P7K1004-MS1)		**Source: 7K10006-03**		Prepared: 11/10/17 Analyzed: 11/11/17						
C6-C12	1140	25.8	mg/kg dry	1030	13.7	110	75-125			
>C12-C28	1090	25.8	"	1030	12.3	104	75-125			
Surrogate: 1-Chlorooctane	*125*		*"*	*103*		*121*	*70-130*			
Surrogate: o-Terphenyl	*60.8*		*"*	*51.5*		*118*	*70-130*			
Matrix Spike Dup (P7K1004-MSD1)		**Source: 7K10006-03**		Prepared: 11/10/17 Analyzed: 11/11/17						
C6-C12	1160	25.8	mg/kg dry	1030	13.7	111	75-125	1.34	20	
>C12-C28	1100	25.8	"	1030	12.3	106	75-125	1.05	20	
Surrogate: 1-Chlorooctane	*124*		*"*	*103*		*120*	*70-130*			
Surrogate: o-Terphenyl	*61.4*		*"*	*51.5*		*119*	*70-130*			
Batch P7K1715 - General Preparation (GC)										
Blank (P7K1715-BLK1)				Prepared: 11/17/17 Analyzed: 11/21/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*125*		*"*	*100*		*125*	*70-130*			
Surrogate: o-Terphenyl	*70.2*		*"*	*50.0*		*140*	*70-130*			*S-GC*

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 P7K1715 - General Preparation (GC)										
LCS (P7K1715-BS1)				Prepared: 11/17/17 Analyzed: 11/21/17						
C6-C12	1130	25.0	mg/kg wet	1000		113	75-125			
>C12-C28	1150	25.0	"	1000		115	75-125			
Surrogate: 1-Chlorooctane	*114*		*"*	*100*		*114*	*70-130*			
Surrogate: o-Terphenyl	*62.1*		*"*	*50.0*		*124*	*70-130*			
LCS Dup (P7K1715-BSD1)				Prepared: 11/17/17 Analyzed: 11/21/17						
C6-C12	1130	25.0	mg/kg wet	1000		113	75-125	0.393	20	
>C12-C28	1190	25.0	"	1000		119	75-125	3.77	20	
Surrogate: 1-Chlorooctane	*126*		*"*	*100*		*126*	*70-130*			
Surrogate: o-Terphenyl	*62.4*		*"*	*50.0*		*125*	*70-130*			
Calibration Check (P7K1715-CCV2)				Prepared: 11/17/17 Analyzed: 11/21/17						
C6-C12	578	25.0	mg/kg wet	500		116	85-115			
>C12-C28	566	25.0	"	500		113	85-115			
Surrogate: 1-Chlorooctane	*119*		*"*	*100*		*119*	*70-130*			
Surrogate: o-Terphenyl	*60.9*		*"*	*50.0*		*122*	*70-130*			
Matrix Spike (P7K1715-MS1)		**Source: 7K16005-01**		Prepared: 11/17/17 Analyzed: 11/21/17						
C6-C12	1160	27.8	mg/kg dry	1110	13.1	103	75-125			
>C12-C28	1270	27.8	"	1110	351	82.6	75-125			
Surrogate: 1-Chlorooctane	*139*		*"*	*111*		*125*	*70-130*			
Surrogate: o-Terphenyl	*71.9*		*"*	*55.6*		*129*	*70-130*			
Matrix Spike Dup (P7K1715-MSD1)		**Source: 7K16005-01**		Prepared: 11/17/17 Analyzed: 11/21/17						
C6-C12	1160	27.8	mg/kg dry	1110	13.1	103	75-125	0.378	20	
>C12-C28	1230	27.8	"	1110	351	78.7	75-125	4.81	20	
Surrogate: 1-Chlorooctane	*130*		*"*	*111*		*117*	*70-130*			
Surrogate: o-Terphenyl	*64.1*		*"*	*55.6*		*115*	*70-130*			

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

Project: XTO EMSU 410
Project Number: 17-0182-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

S-GC1	Surrogate recovery outside of control limits. A second analysis confirmed the original results..
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
R4	Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.
R3	The RPD exceeded the acceptance limit due to sample matrix effects.
R2	The RPD exceeded the acceptance limit.
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.
O-04	This sample was analyzed outside the EPA recommended holding time.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 12/29/2017

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: Nov. 6 2017 PAGE 1 OF 6
PO #: LAB WORK ORDER #: 7K06009
PROJECT LOCATION OR NAME: XTO EMSU 410
LAI PROJECT #: 17-0182-01 COLLECTOR: SJ/ZB

TRRP report? ☐ Yes ■ No

TIME ZONE: Time zone/State: MST/NM

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ■ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ■	DIESEL - MOD 8015 ■ ■ ORO	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ■ ANIONS ☐ ALKALINITY ☐ M300				FIELD NOTES
S-1 0-1	1	10/27	11:05	S	1				✓		✓		✓	✓													✓				
1-2	2		11:11																												
2-3	3		11:15																												
3-4	4		11:19																												
4-6	5		11:23																												
S-2 0-1	6		12:01								✓		✓	✓																	
1-2	7		12:07																												
2-3	8		12:12																												
3-4	9		12:20																												
4-6	10		12:28																												
6-8	11		12:36																												
8-10	12		12:42																												
S-3 0-1	13		13:08							✓		✓	✓																		
1-2	14		13:13																												
2-3	15		13:16																												
TOTAL																															

RELINQUISHED BY:(Signature) [signature] DATE/TIME 11/6/17 RECEIVED BY: (Signature)

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

RELINQUISHED BY:(Signature) [signature] DATE/TIME RECEIVED BY: (Signature) [signature] 11-6-17 908

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

LABORATORY USE ONLY:
RECEIVING TEMP: 7.6 THERM #:
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #
☒ HAND DELIVERED

120

PBEL

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: Nov 6 2017 PAGE 2 OF 6

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: 17-0162-01

LAI PROJECT #: XTO EMSU 410 COLLECTOR: SJ/TB

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST/NM

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒ ORO	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐	M 300	FIELD NOTES
S-3 3-4	16	10/27	13:22	S	1				✓																			✓	
4-6	17		13:27																										
HA-1 3-4	18		13:38																										
4-5	19		13:50																										
S-4 0-1	20	10/30	12:05								✓		✓	✓															
1-2	21		12:07																										
2-3	22		12:11																										
3-4	23		12:13																										
4-6	24		12:16																										
S-5 0-1	25		12:43								✓		✓	✓															
1-2	26		12:45																										
2-3	27		12:49																										
3-4	28		12:53																										
4-6	29		13:01																										
S-6 0-1'	30		13:28								✓		✓	✓															
TOTAL																													

121

RELINQUISHED BY:(Signature) Sandra Rios DATE/TIME 11/6/17 RECEIVED BY: (Signature)

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

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature) 11-6-17 911

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

LABORATORY USE ONLY:
RECEIVING TEMP: 2.6 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED

PBEI

Orion

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: Nov 6 2017 PAGE 3 OF 6
PO #: _____ LAB WORK ORDER #: _____
PROJECT LOCATION OR NAME: KD EMSU 410
LAI PROJECT #: 17-0182-01 COLLECTOR: SJ TB

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐	M30	FIELD NOTES
S-6 1-2	31	10/30	13:30	S	1				✓																			✓	
2-3	32		13:35																										
3-4	33		13:39																										
4-6	34		13:44																										
6-8	35		13:50																										
S-7 0-1	36		14:39								✓		✓	✓															
1-2	37		14:41																										
2-3	38		14:45																										
3-4	39		14:48																										
4-6	40		14:51																										
S-8 0-1	41	11/1	10:49								✓		✓	✓															
1-2	42		10:53																										
2-3	43		10:55																										
3-4	44		10:59																										
4-6	45		11:02																										
TOTAL																													

122

RELINQUISHED BY:(Signature) Sarah Swan DATE/TIME 11/6/17 RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature) 1116-1911

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

LABORATORY USE ONLY:
RECEIVING TEMP: 7.6 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED

PRE

AMZ

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: Nov 6 2017 PAGE 4 OF 6
PO #: _____ LAB WORK ORDER #: _____
PROJECT LOCATION OR NAME: XTO EMSU 410
LAI PROJECT #: 17-0182-17 COLLECTOR: SJ/TB

TRRP report? ☐ Yes ☑ No

TIME ZONE: Time zone/State: MST/NM

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☑ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☑	DIESEL - MOD 8015 ☑ GRO	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☑ ANIONS ☐ ALKALINITY ☐ M300	FIELD NOTES
S-9 0-1	46	11/1	11:12	S	1				✓		✓		✓	✓													✓	
1-2	47		11:15																									
2-3	48		11:19																									
3-4	49		11:23																									
4-7	50		11:30																									123
S-10 0-1	51		11:37								✓		✓	✓														
1-2	52		11:46																									
2-3	53		11:50																									
3-4	54		11:53																									
4-6	55		11:59																									
S-11 0-1	56		12:04								✓		✓	✓														
1-2	57		12:08																									
2-3	58		12:11																									
3-4	59		12:16																									
4-6	60		12:21						✓																			
TOTAL																												

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RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature) Helen 911

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

LABORATORY USE ONLY:
RECEIVING TEMP: 7.6 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☑ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☑ HAND DELIVERED

PREL

frozen

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: Nov 6 2017 PAGE 5 OF 6

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: XTO EMSU 410

LAI PROJECT #: 17-0182-17 COLLECTOR: SWB

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST / NM

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
S-11 6-8	61	11/1	12:25	S	1				✓			
S-12 0-1	62	11/2	10:08								✓ ✓ ✓	
1-2	63		10:12									
2-3	64		10:15									
3-4	65		10:18									
4-6	66		10:22									
6-8	67		10:27									
S-13 0-1	68		10:50								✓ ✓ ✓	
1-2	69		10:53									
2-3	70		10:57									
3-4	71		11:00									
4-6	72		11:04									
6-8	73		11:09									
S-14 0-1	74		11:15								✓ ✓ ✓	
1-2	75		11:17									
TOTAL												

ANALYSES: BTEX ☒ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☒ | DIESEL - MOD 8015 ☒ GRO | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐ | M3D

124

RELINQUISHED BY:(Signature) DATE/TIME 11/6/17 RECEIVED BY: (Signature)

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

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature) 11-6-17 911

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

LABORATORY USE ONLY:
RECEIVING TEMP: 7.6 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED

PBEL

Frozen

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: Nov 0 2017 PAGE 6 OF 6

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: XTO EMSU 410

LAI PROJECT #: 17-0182-01 COLLECTOR: SJ/ZB

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST/NM

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒ OFC ☒	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐ M300	FIELD NOTES
S-14 2-3	76	11/2	11:19	S	1				✓																		✓	
3-4	77	"	11:21	"	1				"																		"	
4-6	78	"	11:30	"	1				"																		"	

TOTAL

RELINQUISHED BY:(Signature) DATE/TIME 11/6/17 RECEIVED BY: (Signature)

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

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature) 11-6-17 911

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

LABORATORY USE ONLY:
RECEIVING TEMP: 7.6 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED

PBEL

Pinson

125

Appendix D
Photographs

Excavation Prior to Remediation Viewing East

Excavated Soil Viewing East

Site Prior to Remediation Viewing South

Site Prior to Remediation Viewing West

Site Prior to Remediation Viewing East

Site Prior to Remediation Viewing North