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

ndson Staff Geologist

Mark J. Larson, P.G. Certified Professional Geologist #10490 This Page Intentionally Left Blank

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1RP-4721 Amended Delineation Plan EMSU Well #410 Produced Water Spill February 26, 2018

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;

1RP-4721 Amended Delineation Plan EMSU Well #410 Produced Water Spill February 26, 2018

- 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

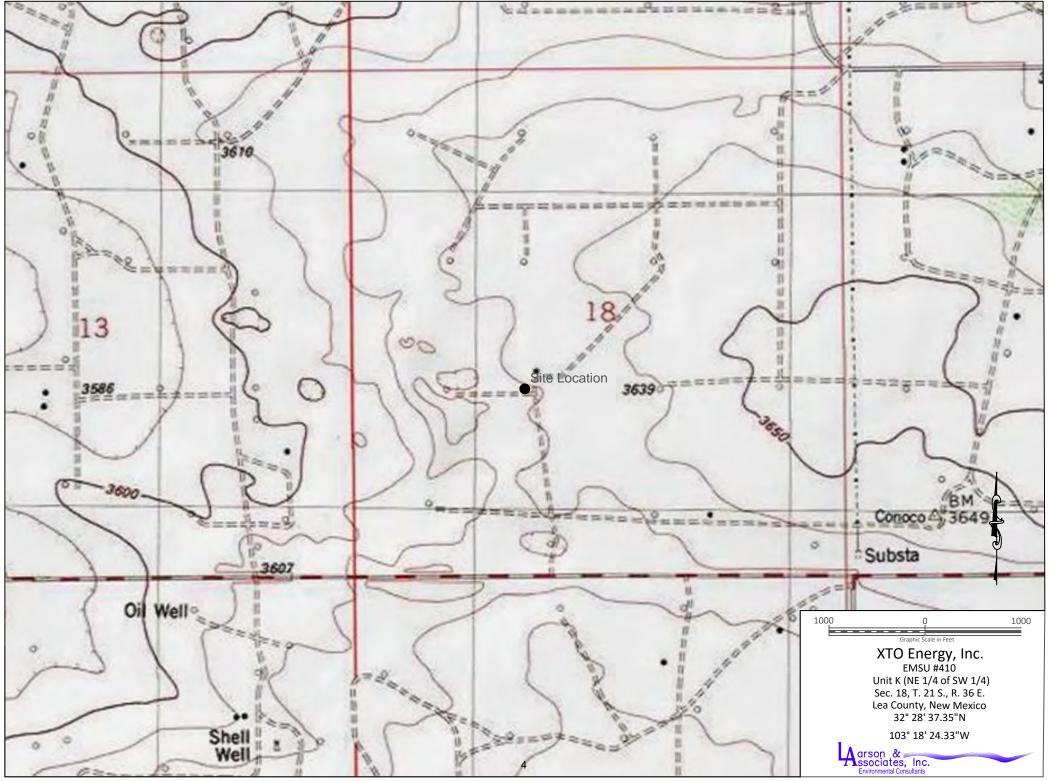


Figure 1 - Topographic Map



Figure 2 - Aerial Map Showing Sample Locations



Figure 3 - Aerial Map Showing Proposed Soil Sample Location

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

Page 1 of 4

Sample	Depth	Collection	PID	Benzene	BTEX	C6 - C12	C12 - C28	C28 - C35	TPH	Chloride
	(Feet)	Date	(ppm)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(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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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

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Sample	Depth	Collection	PID	Benzene	BTEX	C6 - C12	C12 - C28	C28 - C35	ТРН	Chloride
	(Feet)	Date	(ppm)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(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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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

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Sample	Depth	Collection	PID	Benzene	BTEX	C6 - C12	C12 - C28	C28 - C35	TPH	Chloride
	(Feet)	Date	(ppm)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
RRAL:	1			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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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

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Sample	Depth	Collection	PID	Benzene	BTEX	C6 - C12	C12 - C28	C28 - C35	ТРН	Chloride
	(Feet)	Date	(ppm)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(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

State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised April 3, 2017

000 Rio Brazos Road, Aztec, NM 87410 1220 Sout District IV 1220 Sout	ervation Div th St. Franc Fe, NM 875	is Dr.	Submit 1 Cop a	y to appropriate District Office in ccordance with 19.15.29 NMAC.
Release Notificatio		and the second	ction	
	OPER A	TOR	X Initi	al Report 🔲 Final Repor
Name of Company XTO Energy		Shannon Walke		
Address 500 W Illinois St. Suite 100 Midland Texas 79701	Telephone N	No. 432-661-46	549	
Facility Name EMSU 410 WIW	Facility Typ	e Injection		
Surface Owner BLM Mineral Owner	BLM		API N	0.3002530281
LOCATIO	N OF REI	LEASE		
Unit LetterSectionTownshipRangeFeet from theNorthK1821S36E	h/South Line	Feet from the	East/West Line	County
Latitude32 ⁰ 28' 37.80" N L	ongitude_1	03 ⁰ 18' 24.39"	W	NAD83
NATURE	OF REL	EASE		
Type of Release Produced Water		Release 135.79		Recovered 120 bbls
Source of Release Injection Line	and the second state of th	Iour of Occurrent	and the second sec	Hour of Discovery
Was Immediate Notice Given?	6/3/2017 If YES, To	Whom?	6/3/2017	
By Whom?	Date and F	lour		
Was a Watercourse Reached?		olume Impacting	the Watercourse.	
Describe Cause of Problem and Remedial Action Taken.*	ad. Cleaned up	all standing fluid	ds with vacuum tru	ck. Will clean area to NMOCD
statdards.				
Describe Area Affected and Cleanup Action Taken.*				
Pasture and Lease Road. All standing fluid cleaned up with vacuum truc	k.			
I hereby certify that the information given above is true and complete to regulations all operators are required to report and/or file certain release public health or the environment. The acceptance of a C-141 report by t should their operations have failed to adequately investigate and remedia or the environment. In addition, NMOCD acceptance of a C-141 report federal, state, or local laws and/or regulations.	notifications a he NMOCD m ate contaminati	nd perform corre- arked as "Final R on that pose a thr	ctive actions for re Report" does not re reat to ground wate	leases which may endanger lieve the operator of liability er, surface water, human health
Signature: Channon Walke		OIL CON	SERVATION	<u>I DIVISION</u>
Signature: Channon Walker	Approved by	Environmental S	Specialist:	Ŧ
Fitle: Production Foreman	Approval Da	te: 6/13/201	17 Expiration	Date:
E-mail Address: shannon_walker@xtoenergy.com	Conditions o			Attached
Date: 6/5/17 Phone: 432-661-4649	see atta	ched directi	ve	
Attach Additional Sheets If Necessary	1RP-472	1 fOY17	716446806	nOY1716446999

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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 <u>division-approved corrective action</u> 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; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

• Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

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

• Composite sampling is not generally allowed.

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

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

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

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

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

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

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

Sarah Johnson

From:	Yu, Olivia, EMNRD <olivia.yu@state.nm.us></olivia.yu@state.nm.us>
Sent:	Tuesday, January 23, 2018 12:37 PM
То:	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 <u>Olivia.yu@state.nm.us</u> 575-393-6161 x113

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

From: Sarah Johnson [mailto:SJohnson@laenvironmental.com]
Sent: Wednesday, January 10, 2018 7:28 AM
To: Yu, Olivia, EMNRD <<u>Olivia.Yu@state.nm.us</u>>
Cc: Luke_Williams@xtoenergy.com; Mark Larson <<u>Mark@laenvironmental.com</u>>
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 <u>luke_williams@xtoenergy.com</u> 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 sjohnson@laenvironmental.com



Appendix C Analytical Data PERMIAN BASIN ENVIRONMENTAL LAB, LP 1400 Rankin Hwy Midland, TX 79701



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

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

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

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

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

Permian Basin Environmental Lab, L.P.

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

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.

Permian Basin Environmental Lab, L.P.

S-1 0-1

7K06009-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
Анатук	Kesun	Liiilt	Units	Dilation	Datti	ricpareu	Analyzed	meniou	note
	Pern	nian Basin H	Cnvironmei	ntal Lab, I	L .P.				
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 %	75-1	25	P7K0706	11/07/17	11/09/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		92.7 %	75-1	25	P7K0706	11/07/17	11/09/17	EPA 8021B	
General Chemistry Parameters by El	PA / Standard Method	ls							
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-C	35 by EPA Method 80	15M							
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 %	70-1	30	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: o-Terphenyl		104 %	70-1	30	P7K1003	11/10/17	11/11/17	TPH 8015M	
Total Petroleum Hydrocarbon	271	26.3	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	
C6-C35									

Larson & Associates, Inc. P.O. Box 50685]	Proje Project Numb	ect: XTO E ber: 17-018					Fax: (432) 6	87-0456
Midland TX, 79710	F	roject Manag	ger: Mark L	arson					
		S	5-1 1-2						
		7K06	009-02 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, 1	L .P.				
General Chemistry Parameters by I	EPA / Standard Methods								
Chloride	43.6	1.04	mg/kg dry	1	P7K0902	11/09/17	11/09/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

4.0

Permian Basin Environmental Lab, L.P.

% Moisture

Larson & Associates, Inc.		5	et: XTO E					Fax: (432) 6	87-0456
P.O. Box 50685		Project Numb							
Midland TX, 79710	P	roject Manag	er: Mark L	arson					
		S	5-1 2-3						
		7K060)09-03 (So	il)					
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	P.				
General Chemistry Parameters by E	CPA / Standard Methods								
Chloride	89.5	1.03	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

3.0

% Moisture

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb Project Manag	er: 17-01					Fax: (432) 6	87-0456
			-1 3-4 09-04 (S	oil)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	ivironme	ental Lab, L	. P.				
General Chemistry Parameters by H	EPA / Standard Methods	5							

other ar entitiestry randmetters by Errer								
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. P.O. Box 50685 Midland TX, 79710		Proje Project Numb Project Manag		2-01				Fax: (432) 6	587-0456
		~	5-1 4-6 009-05 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, l	L .P.				
General Chemistry Parameters by H	CPA / Standard Methods								
Chloride	1170	5.95	mg/kg dry	5	P7K0910	11/09/17	11/09/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

16.0

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

S-2 0-1

7K06009-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environmer	ital Lab, l	L .P.				
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 %	75-1	25	P7K0706	11/07/17	11/09/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		109 %	75-1	25	P7K0706	11/07/17	11/09/17	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	ls							
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 80	15M							
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 %	70-1	30	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: o-Terphenyl		109 %	70-1	30	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	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb Project Manag		2-01				Fax: (432) 6	587-0456
		~	5-2 1-2)09-07 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	L .P.				
General Chemistry Parameters by H	EPA / Standard Methods								
Chloride	ND	1.04	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

4.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	587-0456
			5-2 2-3 009-08 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permi	ian Basin E	nvironme	ntal Lab, I	P.				
General Chemistry Parameters by E	PA / Standard Methods								
Chloride	ND	1.05	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

5.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	87-0456
			-2 3-4 09-09 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	an Basin E	nvironme	ntal Lab, I	L. P.				
<u>General Chemistry Parameters by E</u> Chloride	PA / Standard Methods 2.91		mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	

%

0.1

1

P7K0804

11/08/17

11/08/17

ASTM D2216

7.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	87-0456
S-2 4-6 7K06009-10 (Soil)									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, l	L .P.				
General Chemistry Parameters by E	CPA / Standard Methods								
Chloride	797	1.16	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

14.0

Larson & Associates, Inc.		Proje	ect: XTO E	MSU 410				Fax: (432) 6	87-0456	
P.O. Box 50685		Project Numb	er: 17-018	2-01						
Midland TX, 79710	9710 Project Manager: Mark Larson									
		S	5-2 6-8							
		7K06	009-11 (So	il)						
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
	Perm	ian Basin E	nvironme	ntal Lab, I	L.P.					
General Chemistry Parameters by I	EPA / Standard Methods	š								
Chloride	1100	5.95	mg/kg dry	5	P7K0910	11/09/17	11/09/17	EPA 300.0		

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

16.0

Fax: (432) 687-0456

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			

S-3 0-1

7K06009-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Cnvironmer	ıtal Lab, l	L .P.				
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 %	75-1	25	P7K0707	11/07/17	11/09/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		106 %	75-1	25	P7K0707	11/07/17	11/09/17	EPA 8021B	
General Chemistry Parameters by EP	A / Standard Method	ls							
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-C3	35 by EPA Method 80	15M							
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 %	70-1	30	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: o-Terphenyl		97.3 %	70-1	30	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	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	87-0456		
			5-3 1-2 009-14 (So	il)							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
Permian Basin Environmental Lab, L.P.											
General Chemistry Parameters by E	PA / Standard Methods										
Chloride	121	1.06	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0			

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

6.0

% Moisture

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje roject Numb oject Manag		2-01				Fax: (432) 6	587-0456
			5-3 2-3)09-15 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permia	nn Basin E	nvironme	ntal Lab, I	P .				
General Chemistry Parameters b								TR: 200 0	
<u>General Chemistry Parameters b</u> Chloride	oy EPA / Standard Methods 164	1.03	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 30	00.0

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

3.0

% Moisture

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			

Larson & Associates, Inc. P.O. Box 50685		Proj Project Num	ect: XTO E per: 17-018					Fax: (432) 68	87-0456
Midland TX, 79710	I	Project Mana	ger: Mark L	arson					
			S-3 4-6						
		7K06	009-17 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin F	nvironme	ntal Lab, I	L.P.				
General Chemistry Parameters by E	PA / Standard Methods	5							
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	

HA-1 3-4

7K06009-18 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin H	Environme	ntal Lab, I	L. P.				
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 %	75-1	25	P7K2009	11/20/17	11/21/17	EPA 8021B	<i>O-04</i>
Surrogate: 4-Bromofluorobenzene		102 %	75-1	25	P7K2009	11/20/17	11/21/17	EPA 8021B	<i>O-04</i>
General Chemistry Parameters by EPA	Standard Method	ls							
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 80	15M							
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 %	70-1	30	P7K1715	11/17/17	11/21/17	TPH 8015M	
Surrogate: o-Terphenyl		133 %	70-1	30	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	

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		

S-4 0-1

7K06009-20 (Soil)

Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pern	nian Basin F	Environme	ntal Lab, l	L .P.				
ND	0.00108	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
ND	0.00215	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
ND	0.00108	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
ND	0.00215	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
ND	0.00108	mg/kg dry	1	P7K0707	11/07/17	11/09/17	EPA 8021B	
	119 %	75-1	25	P7K0707	11/07/17	11/09/17	EPA 8021B	
	100 %	75-1	25	P7K0707	11/07/17	11/09/17	EPA 8021B	
Standard Method	ls							
201	1.08	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0	
7.0	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216	
oy EPA Method 80	15M							
ND	26.9	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
ND	26.9	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
ND	26.9	mg/kg dry	1	P7K1003	11/10/17	11/11/17	TPH 8015M	
	98.5 %	70-1	30	P7K1003	11/10/17	11/11/17	TPH 8015M	
	110 %	70-1	30	P7K1003	11/10/17	11/11/17	TPH 8015M	
ND	26.9	mg/kg dry	1	[CALC]	11/10/17	11/11/17	calc	
	Perr ND ND ND ND ND <u>'Standard Methoo</u> 201 7.0 50 EPA Method 80 ND ND ND	Result Limit Permian Basin F ND 0.00108 ND 0.00215 ND 0.00108 ND 0.00215 ND 0.00108 ND 0.00215 ND 0.00108 III9 % 100 % 201 1.08 7.0 0.1 Dy EPA Method 8015M 100 ND 26.9 98.5 % 110 % <td>Result Limit Units Permian Basin Environmen ND 0.00108 mg/kg dry ND 0.00215 mg/kg dry ND 0.00215 mg/kg dry ND 0.00215 mg/kg dry ND 0.00215 mg/kg dry ND 0.00108 mg/kg dry 7.0 0.1 % Standard Methods mg/kg dry ND 26.9 mg/kg dry <td< td=""><td>Result Limit Units Dilution Permian Basin Environmental Lab, I ND 0.00108 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00108 mg/kg dry 1 ND 0.00108 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00108 mg/kg dry 1 ND 0.00108 mg/kg dry 1 100 % 75-125 100 % 1 7.0 0.1 % 1 0.1 1.08 mg/kg dry 1 7.0 0.1 % 1 0.1 % 1 1 0.1 % 1 1 7.0 0.1 % 1 0.1 % 1 1 0.26.9 mg/kg d</td><td>Result Limit Units Dilution Batch Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 ND 0.00215 mg/kg dry 1 P7K0707 ND 0.00108 mg/kg dry 1 P7K0707 ND 0.00215 mg/kg dry 1 P7K0707 ND 0.00215 mg/kg dry 1 P7K0707 ND 0.00108 mg/kg dry 1 P7K0707 <i>100</i>% 75-125 P7K0707 P7K0707 <i>100</i>% 75-125 P7K0707 P7K0707 <i>100</i>% 100 % 1 P7K0910 7.0 0.1 % 1 P7K0910 7.0 1 % 1 % 1<</td><td>Result Limit Units Dilution Batch Prepared Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 100 % 75-125 P7K0707 11/07/17 7.0 0.1 % 1 P7K0910 11/09/17 7.0 0.1 %</td><td>Result Limit Units Dilution Batch Prepared Analyzed Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 11/09/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 119 % 75-125 P7K0707 11/07/17 11/09/17 7 100 % 1 P7K0804 11/08/17 11/09/17 7 0 1 % 1 P7K0804 11/08/17</td><td>Result Limit Units Dilution Batch Prepared Analyzed Method Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B Standard Methods 7.5-12.5 P7K0707 11/07/17 11/09/17 EPA 300.0 T.0 1.08 <td< td=""></td<></td></td<></td>	Result Limit Units Permian Basin Environmen ND 0.00108 mg/kg dry ND 0.00215 mg/kg dry ND 0.00215 mg/kg dry ND 0.00215 mg/kg dry ND 0.00215 mg/kg dry ND 0.00108 mg/kg dry 7.0 0.1 % Standard Methods mg/kg dry ND 26.9 mg/kg dry <td< td=""><td>Result Limit Units Dilution Permian Basin Environmental Lab, I ND 0.00108 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00108 mg/kg dry 1 ND 0.00108 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00108 mg/kg dry 1 ND 0.00108 mg/kg dry 1 100 % 75-125 100 % 1 7.0 0.1 % 1 0.1 1.08 mg/kg dry 1 7.0 0.1 % 1 0.1 % 1 1 0.1 % 1 1 7.0 0.1 % 1 0.1 % 1 1 0.26.9 mg/kg d</td><td>Result Limit Units Dilution Batch Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 ND 0.00215 mg/kg dry 1 P7K0707 ND 0.00108 mg/kg dry 1 P7K0707 ND 0.00215 mg/kg dry 1 P7K0707 ND 0.00215 mg/kg dry 1 P7K0707 ND 0.00108 mg/kg dry 1 P7K0707 <i>100</i>% 75-125 P7K0707 P7K0707 <i>100</i>% 75-125 P7K0707 P7K0707 <i>100</i>% 100 % 1 P7K0910 7.0 0.1 % 1 P7K0910 7.0 1 % 1 % 1<</td><td>Result Limit Units Dilution Batch Prepared Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 100 % 75-125 P7K0707 11/07/17 7.0 0.1 % 1 P7K0910 11/09/17 7.0 0.1 %</td><td>Result Limit Units Dilution Batch Prepared Analyzed Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 11/09/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 119 % 75-125 P7K0707 11/07/17 11/09/17 7 100 % 1 P7K0804 11/08/17 11/09/17 7 0 1 % 1 P7K0804 11/08/17</td><td>Result Limit Units Dilution Batch Prepared Analyzed Method Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B Standard Methods 7.5-12.5 P7K0707 11/07/17 11/09/17 EPA 300.0 T.0 1.08 <td< td=""></td<></td></td<>	Result Limit Units Dilution Permian Basin Environmental Lab, I ND 0.00108 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00108 mg/kg dry 1 ND 0.00108 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00215 mg/kg dry 1 ND 0.00108 mg/kg dry 1 ND 0.00108 mg/kg dry 1 100 % 75-125 100 % 1 7.0 0.1 % 1 0.1 1.08 mg/kg dry 1 7.0 0.1 % 1 0.1 % 1 1 0.1 % 1 1 7.0 0.1 % 1 0.1 % 1 1 0.26.9 mg/kg d	Result Limit Units Dilution Batch Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 ND 0.00215 mg/kg dry 1 P7K0707 ND 0.00108 mg/kg dry 1 P7K0707 ND 0.00215 mg/kg dry 1 P7K0707 ND 0.00215 mg/kg dry 1 P7K0707 ND 0.00108 mg/kg dry 1 P7K0707 <i>100</i> % 75-125 P7K0707 P7K0707 <i>100</i> % 75-125 P7K0707 P7K0707 <i>100</i> % 100 % 1 P7K0910 7.0 0.1 % 1 P7K0910 7.0 1 % 1 % 1<	Result Limit Units Dilution Batch Prepared Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 100 % 75-125 P7K0707 11/07/17 7.0 0.1 % 1 P7K0910 11/09/17 7.0 0.1 %	Result Limit Units Dilution Batch Prepared Analyzed Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 11/09/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 119 % 75-125 P7K0707 11/07/17 11/09/17 7 100 % 1 P7K0804 11/08/17 11/09/17 7 0 1 % 1 P7K0804 11/08/17	Result Limit Units Dilution Batch Prepared Analyzed Method Permian Basin Environmental Lab, L.P. ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00215 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B ND 0.00108 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B Standard Methods 7.5-12.5 P7K0707 11/07/17 11/09/17 EPA 300.0 T.0 1.08 <td< td=""></td<>

Permian Basin Environmental Lab, L.P.

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	587-0456		
			5-4 1-2 009-21 (So	il)							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
Permian Basin Environmental Lab, L.P.											
General Chemistry Parameters by E	PA / Standard Methods										
Chloride	226	1.03	mg/kg dry	1	P7K0910	11/09/17	11/09/17	EPA 300.0			

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

3.0

Permian Basin Environmental Lab, L.P.

% Moisture

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	587-0456
			5-4 2-3)09-22 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permi	an Basin E	nvironme	ntal Lab, I	L .P.				
General Chemistry Parameters by E	PA / Standard Methods								
Chloride	628	1.06	mg/kg dry	1	P7K0910	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

6.0

% Moisture

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	587-0456
		-	5-4 3-4 009-23 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	.				
General Chemistry Parameters by E	CPA / Standard Methods								
Chloride	577	1.05	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

5.0

% Moisture

Larson & Associates, Inc.		Proj	ect: XTO E	MSU 410				Fax: (432) 68	87-0456
P.O. Box 50685		Project Num	ber: 17-018	2-01					
Midland TX, 79710	Ι	Project Mana	ger: Mark I	arson					
			S-4 4-6						
		7K06	009-24 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anaryo	Kesut	Liint	Ollits	Dilution	Baten	Trepared	Anaryzeu	Wiethou	Notes
	Perm	ian Basin I	Invironme	ntal Lab,	L.P.				
<u>General Chemistry Parameters by F</u>	EPA / Standard Methods	i							
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	

Analyte

Toluene

Xylene (o)

Surrogate: 1,4-Difluorobenzene

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

EPA 8021B

EPA 8021B

S-5 0-1 7K06009-25 (Soil) Reporting Result Dilution Analyzed Method Limit Units Batch Prepared Notes Permian Basin Environmental Lab, L.P. Organics by GC ND mg/kg dry 1 P7K0707 EPA 8021B Benzene 0.00109 11/07/1711/09/17 mg/kg dry 1 P7K0707 EPA 8021B ND 0.00217 11/07/1711/09/17 Ethylbenzene ND 0.00109 mg/kg dry 1 P7K0707 EPA 8021B 11/07/17 11/09/17 Xylene (p/m) ND 0.00217 mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B

mg/kg dry

75-125

0.00109

104 %

ND

1

P7K0707

P7K0707

11/07/17

11/07/17

11/09/17

11/09/17

Surrogate: 4-Bromofluorobenzene		116 %	75-125		P7K0707	11/07/17	11/09/17	EPA 8021B	
General Chemistry Parameters by EPA	A / 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-C3	5 by EPA Method 8015	Μ							
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	

Permian Basin Environmental Lab, L.P.

Larson & Associates, Inc. P.O. Box 50685		Project Numb		2-01				Fax: (432) 6	87-0456
Midland TX, 79710	F	roject Manag	S-5 1-2	arson					
		-) 0 1 <u>2</u>)09-26 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	P.				
General Chemistry Parameters by F	EPA / Standard Methods								
Chloride	173	1.02	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

2.0

Larson & Associates, Inc.		5	ct: XTO E					Fax: (432) 6	87-0456
P.O. Box 50685]	Project Numb	er: 17-018	2-01					
Midland TX, 79710	F	roject Manag	er: Mark I	arson					
		S	-5 2-3						
		7K060	09-27 (So	il)					
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	L .P.				
General Chemistry Parameters by H	CPA / Standard Methods								
Chloride	502	1.06	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

6.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb Project Manag	er: 17-01					Fax: (432) 6	87-0456
			-5 3-4 09-28 (S	oil)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironmo	ental Lab, I	P.				

General Chemistry Parameters by EPA / Stan	dard 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

Larson & Associates, Inc. P.O. Box 50685		Project Numb		2-01				Fax: (432) 6	87-0456
Midland TX, 79710	Р	roject Manag	er: Mark I	arson					
			5-5 4-6)09-29 (So	il)					
				,					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permi	an Basin E	nvironme	ntal Lab, I	P.				
General Chemistry Parameters by E	CPA / Standard Methods								
Chloride	536	1.08	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

7.0

S-6 0-1

7K06009-30 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environmer	ital Lab, l	L. P.				
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 %	75-1	25	P7K0707	11/07/17	11/09/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		114 %	75-1	25	P7K0707	11/07/17	11/09/17	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	s							
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 I	oy EPA Method 80	15M							
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 %	70-1	30	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: o-Terphenyl		105 %	70-1	30	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	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb Project Manag		2-01				Fax: (432) 6	87-0456
		5 6	5-6 1-2 009-31 (So						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	P .				
General Chemistry Parameters by F	CPA / Standard Methods								
Chloride	ND	1.06	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

6.0

% Moisture

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	87-0456
			5-6 2-3 009-32 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	P.				
General Chemistry Parameters by E	PA / Standard Methods								
Chloride	ND	1.09	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

8.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: XTO EMSU 410 Project Number: 17-0182-01 Project Manager: Mark Larson									
		-	5-6 3-4 009-33 (So	il)						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
	Perm	ian Basin E	nvironme	ntal Lab, I	 P.					
General Chemistry Parameters by E	CPA / Standard Methods									
Chloride	2.59	1.06	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0		

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

6.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	l P	Fax: (432) 6	87-0456						
		~	5-6 4-6 009-34 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permi	ian Basin E	nvironme	ntal Lab, I	L .P.				
General Chemistry Parameters by H	EPA / Standard Methods								
Chloride	ND	1.04	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

4.0

% Moisture

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	l P	Fax: (432) 687-0456							
		-	5-6 6-8)09-35 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	L.P.				
General Chemistry Parameters by H	EPA / Standard Methods								
Chloride	1.14	1.05	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

5.0

calc

S-7 0-1 7K06009-36 (Soil) Reporting Analyte Result Limit Units Dilution Batch Prepared Analyzed Method Notes Permian Basin Environmental Lab, L.P. Organics by GC mg/kg dry P7K0707 EPA 8021B Benzene ND 0.00101 1 11/07/17 11/09/17 P7K0707 EPA 8021B Toluene ND 0.00202 mg/kg dry 1 11/07/17 11/09/17 mg/kg dry P7K0707 EPA 8021B Ethylbenzene ND 0.00101 1 11/07/17 11/09/17 Xylene (p/m) ND 0.00202mg/kg dry 1 P7K0707 11/07/17 11/09/17 EPA 8021B mg/kg dry P7K0707 EPA 8021B ND 1 Xylene (o) 0.00101 11/07/17 11/09/17 Surrogate: 1,4-Difluorobenzene 111 % 75-125 P7K0707 11/07/17 11/09/17 EPA 8021B Surrogate: 4-Bromofluorobenzene P7K0707 11/07/17 11/09/17 EPA 8021B S-GC 127 % 75-125 **General Chemistry Parameters by EPA / Standard Methods** mg/kg dry 1 P7K0911 EPA 300.0 Chloride ND 1.01 11/09/17 11/10/17% Moisture 1.0 0.1 % 1 P7K0804 11/08/17 ASTM D2216 11/08/17 Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M mg/kg dry 5 P7K1003 TPH 8015M C6-C12 ND 126 11/10/17 11/11/17 5 >C12-C28 615 126 mg/kg dry P7K1003 11/10/17 11/11/17 TPH 8015M 5 P7K1003 TPH 8015M >C28-C35 915 126 mg/kg dry 11/10/17 11/11/17 11/10/17 TPH 8015M Surrogate: 1-Chlorooctane 100 % 70-130 P7K1003 11/11/17 Surrogate: o-Terphenyl 105 % P7K1003 11/10/17 11/11/17 TPH 8015M 70-130

126 mg/kg dry

1530

Total Petroleum Hydrocarbon C6-C35

Permian Basin Environmental Lab, L.P.

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

[CALC]

11/10/17

11/11/17

5

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	87-0456
			5-7 1-2 009-37 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permi	an Basin E	nvironme	ntal Lab, I	P.				
General Chemistry Parameters by E	PA / Standard Methods								
Chloride	ND	1.03	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

3.0

% Moisture

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Fax: (432) 6	87-0456							
			5-7 2-3 009-38 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, l	L .P.				
General Chemistry Parameters by H	EPA / Standard Methods								
Chloride	ND	1.05	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

5.0

Permian Basin Environmental Lab, L.P.

% Moisture

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Fax: (432) 6	87-0456							
			5-7 3-4 009-39 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	L.P.				
General Chemistry Parameters by H	CPA / Standard Methods								
Chloride	ND	1.04	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0	

%

0.1

1

P7K0804

11/08/17

11/08/17

ASTM D2216

4.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Project: XTO EMSU 410 Project Number: 17-0182-01 Project Manager: Mark Larson									
			5-7 4-6 009-40 (So	il)							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
	Perm	ian Basin E	nvironme	ntal Lab, I	P.						
General Chemistry Parameters by E	CPA / Standard Methods										
Chloride	10.9	1.10	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0			

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

9.0

S-8 0-1

7K06009-41 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	ian Basin F	Invironmen	tal Lab, l	L .P.				
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 %	75-1	25	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		102 %	75-1.	25	P7K0707	11/07/17	11/10/17	EPA 8021B	
General Chemistry Parameters by EP	A / Standard Method	s							
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-C3	35 by EPA Method 80	15M							
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 %	70-1.	30	P7K1003	11/10/17	11/11/17	TPH 8015M	
Surrogate: o-Terphenyl		105 %	70-1.	30	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	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Project: XTO EMSU 410 Project Number: 17-0182-01 Project Manager: Mark Larson								
			5-8 1-2 009-42 (So	il)						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
	Perm	ian Basin E	nvironme	ntal Lab, I	P .					
General Chemistry Parameters by E	CPA / Standard Methods									
Chloride	ND	1.10	mg/kg dry	1	P7K0911	11/09/17	11/10/17	EPA 300.0		

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

9.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Project: XTO EMSU 410 Project Number: 17-0182-01 Project Manager: Mark Larson								
			5-8 2-3 009-43 (So	il)						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
	Permi	ian Basin E	nvironme	ntal Lab, I	P.					
General Chemistry Parameters by E	CPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0		

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

3.0

% Moisture

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

ASTM D2216

	S-8 3-4 7K06009-44 (Soil)												
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes				
	Permia	n Basin E	nvironme	ntal Lab, I	L .P.								
General Chemistry Parame	eters by EPA / Standard Methods												
Chloride	6.66	1.03	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0					

%

1

P7K0804

11/08/17

11/08/17

0.1

3.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Dix 50685 Project Number: 17-0182-01									
			5-8 4-6 009-45 (So	il)						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
	Permi	an Basin E	nvironme	ntal Lab, l	L. P.					
General Chemistry Parameters by H	CPA / Standard Methods									
Chloride	85.1	1.08	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0		

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

7.0

S-9 0-1

7K06009-46 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environmen	ital Lab, l	L .P.				
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 Method	ls							
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 I	oy EPA Method 80	15M							
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 %	70-1.	30	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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			5-9 1-2 009-47 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	an Basin E	nvironme	ntal Lab, 1	L .P.				
General Chemistry Parameters by H	EPA / Standard Methods								
Chloride	4.26	1.03	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

3.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	587-0456
			5-9 2-3 009-48 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, l	L .P.				
General Chemistry Parameters by E	CPA / Standard Methods								
Chloride	94.5	1.04	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

4.0

Permian Basin Environmental Lab, L.P.

% Moisture

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

Fax: (432) 687-0456

S-9 3-4 7K06009-49 (Soil)										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
	Permia	n Basin E	nvironme	ntal Lab, l	L .P.					
General Chemistry Paramet	ters by EPA / Standard Methods									
Chloride	125	1.02	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0		

%

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

2.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb Project Manag		2-01				Fax: (432) 6	587-0456
		-	8-9 4-7 009-50 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permi	ian Basin E	nvironme	ntal Lab, l	L. P.				
General Chemistry Parameters by H	PA / Standard Methods								
Chloride	1050	5.49	mg/kg dry	5	P7K0912	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

9.0

S-10 0-1

7K06009-51 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Invironme	ntal Lab, 1	L .P.				
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 %	75-1	25	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		105 %	75-1	25	P7K0707	11/07/17	11/10/17	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	ls							
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	oy EPA Method 80	015M							
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 %	70-1	30	P7K1004	11/10/17	11/11/17	TPH 8015M	
Surrogate: o-Terphenyl		109 %	70-1	30	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	

% Moisture

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

Fax: (432) 687-0456

ASTM D2216

11/08/17

			-10 1-2 009-52 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	L .P.				
General Chemistry Parame	ters by EPA / Standard Methods 135		mg/kg dry		P7K0912	11/09/17	11/10/17	EPA 300.0	

%

1

P7K0804

11/08/17

0.1

5.0

Permian Basin Environmental Lab, L.P.

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb roject Manag		2-01				Fax: (432) 6	87-0456
			-10 2-3 009-53 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permi	an Basin E	nvironme	ntal Lab, I	L .P.				
General Chemistry Parameters by H	EPA / Standard Methods								
Chloride	220	1.04	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	

%

0.1

1

P7K0804

11/08/17

11/08/17

ASTM D2216

4.0

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 I	oy 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		

S-10	4-6
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7K06009-55 (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	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)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin F	Invironme	ital Lab, 1	L .P.				
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 %	75-1	25	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		98.1 %	75-1	25	P7K0707	11/07/17	11/10/17	EPA 8021B	
General Chemistry Parameters by EP	A / Standard Method	5							
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-C3	5 by EPA Method 80	15M							
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 %	70-1	30	P7K1004	11/10/17	11/11/17	TPH 8015M	
Surrogate: o-Terphenyl		114 %	70-1	30	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	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb Project Manag		2-01				Fax: (432) 6	587-0456
			-11 1-2 009-57 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, l	L. P.				
General Chemistry Parameters by E	PA / Standard Methods								
Chloride	74.5	1.12	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

11.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb Project Manag		2-01				Fax: (432) 6	587-0456
			-11 2-3)09-58 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, l	L .P.				
General Chemistry Parameters by H	EPA / Standard Methods								
Chloride	246	1.06	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

6.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb Project Manag		2-01				Fax: (432) 6	587-0456
			-11 3-4)09-59 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	P .				
General Chemistry Parameters by H	CPA / Standard Methods								
Chloride	345	1.05	mg/kg dry	1	P7K0912	11/09/17	11/10/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

5.0

% Moisture

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

Fax: (432) 687-0456

ASTM D2216

Note

%

1

P7K0804

11/08/17

11/08/17

0.1

15.0

Permian Basin Environmental Lab, L.P.

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710		Proje Project Numb Project Manag	er: 17-018					Fax: (432) 6	87-0456
			-11 6-8 009-61 (Se	oil)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
	Pern	nian Basin Ei	nvironme	ental Lab, L	P.				

<u>General Chemistry Parameters by EPA / S</u>	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	

Notes

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

S-12 0-1

7K06009-62 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin H	Invironme	ntal Lab, I	L .P.				
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 %	75-1	25	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		99.2 %	75-1	25	P7K0707	11/07/17	11/10/17	EPA 8021B	
General Chemistry Parameters by El	PA / Standard Method	ls							
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-C	35 by EPA Method 80	15M							
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 %	70-1	30	P7K1004	11/10/17	11/11/17	TPH 8015M	
Surrogate: o-Terphenyl		109 %	70-1	30	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	

Permian Basin Environmental Lab, L.P.

Fax: (432) 687-0456

S-1	2 1-	2	

7K06009-63 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permia	n Basin E	nvironmer	ıtal Lab, I	P.				
General Chemistry Parameters b	oy 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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		~	-12 2-3 009-64 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	P .				
General Chemistry Parameters by H	EPA / Standard Methods								
Chloride	277	1.05	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	

%

0.1

1

P7K0804

11/08/17

11/08/17

ASTM D2216

5.0

S-12 3-4

7K06009-65 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permia	n Basin E	nvironmer	ıtal Lab, l	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	

% Moisture

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

Fax: (432) 687-0456

ASTM D2216

		7K060)09-66 (So	oil)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	nvironme	ntal Lab, L	P.				

%

1

P7K0804

11/08/17

11/08/17

0.1

7.0

7K06009-67 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permia	ın Basin E	nvironmer	ıtal Lab, I	L .P.				
General Chemistry Parameters	s 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	

S-13 0-1

7K06009-68 (Soil)

		D							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Invironmen	tal Lab, l	L .P.				
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 %	75-12	25	P7K0707	11/07/17	11/10/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		94.1 %	75-12	25	P7K0707	11/07/17	11/10/17	EPA 8021B	
General Chemistry Parameters by El	PA / Standard Method	ls							
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-C	35 by EPA Method 80	15M							
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 %	70-1.	30	P7K1004	11/10/17	11/11/17	TPH 8015M	
Surrogate: o-Terphenyl		117 %	70-1.	30	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	

Permian Basin Environmental Lab, L.P.

S-13 1-2

7K06009-69 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permia	n Basin E	nvironmeı	ntal Lab, I	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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		~	-13 2-3)09-70 (So	il)							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
	Perm	ian Basin E	nvironme	ntal Lab, l	L .P.						
General Chemistry Parameters by F	EPA / Standard Methods										
Chloride	564	1.09	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0			

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

8.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Fax: (432) 6	87-0456							
			-13 3-4 009-71 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	L .P.				
General Chemistry Parameters by H	CPA / Standard Methods								
Chloride	418	1.05	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

5.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	P.O. Box 50685 Project Number: 17-0182-01										
			-13 4-6)09-72 (So	il)							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
	Perm	ian Basin E	nvironme	ntal Lab, I	L .P.						
General Chemistry Parameters by H	CPA / Standard Methods										
Chloride	976	5.26	mg/kg dry	5	P7K0913	11/09/17	11/12/17	EPA 300.0			

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

5.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Fax: (432) 6	87-0456							
			·13 6-8 09-73 (Se	oil)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	ivironme	ental Lab, L	P.				
General Chemistry Parameters by F	PA / Standard Method	5							

1.15 mg/kg dry

%

0.1

757

13.0

P7K0913

P7K0804

11/09/17

11/08/17

11/12/17

11/08/17

1

1

EPA 300.0

ASTM D2216

Chloride

S-14 0-1 7K06009-74 (Soil) Reporting Analyte Result Limit Units Dilution Batch Prepared Analyzed Method Notes Permian Basin Environmental Lab, L.P. Organics by GC P7K0707 EPA 8021B Benzene ND 0.00114 mg/kg dry 1 11/07/17 11/10/17 P7K0707 EPA 8021B Toluene ND 0.00227 mg/kg dry 1 11/07/17 11/10/17 mg/kg dry P7K0707 EPA 8021B Ethylbenzene ND 0.00114 1 11/07/17 11/10/17 Xylene (p/m) ND 0.00227mg/kg dry 1 P7K0707 11/07/17 11/10/17 EPA 8021B P7K0707 EPA 8021B ND mg/kg dry 1 Xylene (o) 0.00114 11/07/17 11/10/17 Surrogate: 1,4-Difluorobenzene 103 % 75-125 P7K0707 11/07/17 11/10/17 EPA 8021B Surrogate: 4-Bromofluorobenzene P7K0707 11/07/17 11/10/17 EPA 8021B 109 % 75-125 **General Chemistry Parameters by EPA / Standard Methods** mg/kg dry 1 P7K0913 EPA 300.0 Chloride ND 1.14 11/09/17 11/12/17 % Moisture 12.0 0.1 % 1 P7K0804 11/08/17 ASTM D2216 11/08/17 Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M mg/kg dry P7K1004 TPH 8015M C6-C12 ND 28.4 1 11/10/17 11/11/17 81.3 >C12-C28 28.4 mg/kg dry 1 P7K1004 11/10/17 11/11/17 TPH 8015M P7K1004 TPH 8015M >C28-C35 38.0 28.4 mg/kg dry 1 11/10/17 11/11/17 11/10/17 TPH 8015M Surrogate: 1-Chlorooctane 102 % 70-130 P7K1004 11/11/17

Surrogate: o-Terphenyl 110 % P7K1004 11/10/17 11/11/17 TPH 8015M 70-130 [CALC] calc **Total Petroleum Hydrocarbon** 119 28.4 mg/kg dry 1 11/10/17 11/11/17 C6-C35

Permian Basin Environmental Lab, L.P.

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Fax: (432) 6	587-0456							
			-14 1-2 009-75 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	P .				
General Chemistry Parameters by H	EPA / Standard Methods								
Chloride	ND	1.01	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

1.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Fax: (432) 6	587-0456							
			-14 2-3)09-76 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	P.				
General Chemistry Parameters by E	CPA / Standard Methods								
Chloride	ND	1.03	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

3.0

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Fax: (432) 6	587-0456							
			-14 3-4)09-77 (So	il)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permi	an Basin E	nvironme	ntal Lab, I	P.				
General Chemistry Parameters by E	CPA / Standard Methods								
Chloride	ND	1.03	mg/kg dry	1	P7K0913	11/09/17	11/12/17	EPA 300.0	

1

P7K0804

11/08/17

11/08/17

ASTM D2216

0.1

3.0

S-14 4-6	
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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	Result Limit Units Dilution Batch Prepared Analyzed Method Notes									
% Moisture	1.0	0.1	%	1	P7K0804	11/08/17	11/08/17	ASTM D2216		

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
-		Liinit	Units	Level	Result	/0KEU	Linints	ΛſIJ	Liillit	notes
Batch P7K0706 - General Preparation (Ge	C)									
Blank (P7K0706-BLK1)				Prepared: 1	1/07/17 Ar	nalyzed: 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: 1	1/07/17 Ar	nalyzed: 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-GC.
Surrogate: 4-Bromofluorobenzene	0.0771		"	0.0600		129	75-125			S-GC.
LCS Dup (P7K0706-BSD1)				Prepared: 1	1/07/17 Ar	nalyzed: 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	R
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: 1	1/07/17 Ar	nalyzed: 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			

Permian Basin Environmental Lab, L.P.

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Product Propared: 11/07/17 Analyzed: 11/09/17 Barch P7K0706 - CCB2) Prepared: 11/07/17 Analyzed: 11/09/17 Borence 0.00 " " 11/07/17 Analyzed: 11/09/17 Bolence 0.00 " " 11/07/17 Analyzed: 11/09/17 Borence 0.00 " " 0.0660 109 75-125 Surrogate: 1.4.0.0100 mgkg wet 0.0660 109 75-125 Calibration Check (P7K0706-CCV1) Prepared: 11/07/17 Analyzed: 11/09/17 Bearcanc 0.0838 0.00100 mgk wet 0.100 83.8 80-120 Edibiption Check (P7K0706-CCV1) Prepared: 11/09/17 Analyzed: 11/09/17 Bearcanc 0.0838 0.00100 " 0.100 83.8 80-120 Strenget: 0.0655 0.0100 " 0.100 95.6 80-120 Strenget: 0.055 " 0.0660 10.9 </th <th></th> <th></th> <th>Reporting</th> <th></th> <th>Spike</th> <th>Source</th> <th></th> <th>%REC</th> <th></th> <th>RPD</th> <th></th>			Reporting		Spike	Source		%REC		RPD	
Calibration Blank (P7K0706-CCB2) Prepared: 11/07/17 Analyzed: 11/09/17 Benzene 0.00 " Foluene 0.00 " Educe 0.00 " Educe 0.00 " Kylene (p/m) 0.00 " Surrogate: 1,4-Diffuorobenzene 0.0655 " 0.0600 109 75-125 Calibration Check (P7K0706-CCV1) Prepared: 11/07/17 Analyzed: 11/09/17 Analyzed: 11/09/17 Analyzed: 11/09/17 Benzene 0.0838 0.00100 mg/kg wei 0.100 83.8 80-120 Calibration Check (P7K0706-CCV1) Prepared: 11/07/17 Analyzed: 11/09/17 Analyzed: 11/09/17 Analyzed: 11/09/17 Benzene 0.0838 0.00100 " 0.100 81.8 80-120 Starogate: 1,4-Difluorobenzene 0.0858 " 0.0600 96.0 75-125 Surrogate: 1,4-Difluorobenzene 0.0655 " 0.0600 96.0 75-125 Calibration Check (P7K0706-CCV2) Prepared: 11/07/17 Analyzed: 11/09/17 Sonalyzed: 11/09/17 Sonalyzed: 11/09/17	Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Benzene 0.00 mg/kg wet Foluene 0.00 " Foluene 0.00 " Kylene (pim) 0.00 " Surrogate: 4-Bromofluorobenzene 0.0655 " 0.0600 109 75-125 Calibration Check (P7K0706-CCV1) " 0.0600 100 83.8 80-120 Calibration Check (P7K0706-CCV1) Trepared: 11/07/17 Analyzed: 11/09/17 80-120 80-120 Foluene 0.0838 0.0010 " 0.100 83.8 80-120 Foluene 0.0818 0.00100 " 0.100 81.8 80-120 Sylene (pin) 0.1818 0.00200 " 0.100 81.8 80-120 Sylene (pin) 0.818 0.00100 " 0.100 9.6 80-120 Sylene (pin) 0.8055 " 0.0600 9.0 75-125 Surrogate: 4-Bromofluorobenzene 0.0558 " 0.000 9.0 75-125 Surrogate: 4-Bromofluorobenzene 0.010	Batch P7K0706 - General Preparation (G	C)									
Toluene 0.00 * Ethylbenzene 0.00 * Sylene (p'm) 0.00 * Sarrogate: 4-Bronoffluorobenzene 0.0655 * 0.0600 1/09 7.5-125 Sarrogate: 1-4-Diffluorobenzene 0.0654 * 0.0600 1/09 7.5-125 Calibration Check (PTK0706-CCCV1) * Prepared: 11/07/17 Analyzed: 11/09/17 Benzene 0.0820 0.0000 mgk wet 0.100 8.8 80-120 Toluene 0.0820 0.00200 * 0.100 8.8 80-120 Sylene (p'm) 0.188 0.00100 mgk wet 0.100 8.8 80-120 Surrogate: 4-Bronoffluorobenzene 0.0583 * 0.0660 9.6 80-120 Surrogate: 4-Bronoffluorobenzene 0.055 * 0.0660 9.8.9 7.5-125 Surrogate: 4-Bronoffluorobenzene 0.055 * 0.0600 9.8.9 7.5-125 Surrogate: 4-Bronoffluorobenzene 0.052 * 0.0600 9.9 80-120 <td>Calibration Blank (P7K0706-CCB2)</td> <td></td> <td></td> <td></td> <td>Prepared: 1</td> <td>1/07/17 Ar</td> <td>nalyzed: 11</td> <td>/09/17</td> <td></td> <td></td> <td></td>	Calibration Blank (P7K0706-CCB2)				Prepared: 1	1/07/17 Ar	nalyzed: 11	/09/17			
Bank Benare 0.00 " Kylen (a) 0.00 " Syrangei: 0.0634 " Surragei: 0.0654 " 0.0600 109 75-125 Surragei: 0.0654 " 0.0600 109 75-125 Calibration Check (PTK0706-CCV1) " 0.000 Reg wet 0.100 83.8 80-120 Benzene 0.0818 0.00100 " 0.100 83.8 80-120 Kylene (pin) 0.180 0.0200 " 0.100 83.8 80-120 Surragei: 1.4.Difluorohenzene 0.0818 0.00100 " 0.100 85.6 80-120 Surragei: 1.4.Difluorohenzene 0.0818 0.0000 96.0 96.0 75-125 Surragei: 1.4.Difluorohenzene 0.0588 " 0.0600 96.0 75-125 Surragei: 1.4.Difluorohenzene 0.010 mkg wet 0.100 98.8 80-120 Surragei: 1.4.Difluorohenzene	Benzene	0.00		mg/kg wet							
Xy 0.00 " Sylene (n) 0.00 " Surrogets: 1.4r-Difluorobenzene 0.0655 " 0.0600 109 75-125 Surrogets: 1.4r-Difluorobenzene 0.0654 " 0.0600 109 75-125 Calibration Check (P7K0706-CCV1) Prepared: 11/07/17 Nalyzet: 11/09/17 Nalyzet: 11/09/17 Benzene 0.0820 0.0000 " 0.100 82.8 80-120 Toluene 0.0820 0.0000 " 0.100 82.8 80-120 Sylene (p/m) 0.180 0.0000 " 0.100 84.8 80-120 Surrogets: 1.4r-Difluorobenzene 0.055 0.0100 " 0.000 80.0 75-125 Surrogets: 1.4r-Difluorobenzene 0.055 " 0.0600 98.0 75-125 Surrogets: 1.4r-Difluorobenzene 0.055 " 0.0600 100 100 Surrogets: 1.4r-Difluorobenzene 0.055 " 0.0600 100 100 Surrogets: 1.4r-Difluorobenzene	Toluene	0.00		"							
Year (a) 0.00 " Surrogate: 4-Bromofluorobenzene 0.0655 " 0.0600 109 75-125 Surrogate: 1,4-Difluorobenzene 0.0654 " 0.0660 109 75-125 Calibration Check (PTK0706-CCV1) Prepared: 11/07/17 Analyzed: 11/09/17 Nanyzed: 11/09/17 Nanyzed: 11/09/17 Benzene 0.0838 0.00100 mg/k wet 0.100 82.0 80-120 Ethylbenzene 0.0818 0.00100 " 0.100 81.8 80-120 Syrongate: 1,4-Difluorobenzene 0.0818 0.00100 " 0.100 81.8 80-120 Syrongate: 1,4-Difluorobenzene 0.0858 " 0.0600 98.0 75-125 Surrogate: 1,4-Difluorobenzene 0.055 " 0.0600 100 80-120 Surrogate: 1,4-Difluorobenzene 0.055 " 0.0600 101 80-120 Surrogate: 1,4-Difluorobenzene 0.0635 " 0.0600 101 80-120 Surrogate: 1,4-Difluorobenzene 0.010 mg/k wet	Ethylbenzene	0.00		"							
Kylekt (d) 100 Surrogate: 4.Bromofluarobenzene 0.0655 " 0.0600 109 75-125 Calibration Check (PTK0706-CCV1) Prepared: 11/07/17 Analyzed: 11/09/17 Benzene 0.0838 0.0010 mg/k vet 0.100 83.8 80-120 Edubaration Check (PTK0706-CCV1) Prepared: 11/07/17 Analyzed: 11/09/17 Benzene 0.0838 0.00100 " 0.100 83.8 80-120 Edubaration Check (PTK0706-CCV1) 0.00200 " 0.100 81.8 80-120 Surrogate: 1.4-Difluorobenzene 0.055 " 0.0600 98.0 75-125 Surrogate: 1.4-Difluorobenzene 0.055 " 0.0600 109 75-125 Surrogate: 1.4-Difluorobenzene 0.0101 0.0104 89.9 80-120 Ethylence (n'n) 0.101 0.00100 " 0.100 10 89.120 Ethylence (o'n) 0.102 0.00100 " 0.1	Xylene (p/m)	0.00		"							
an rogan: - Holonquarboneledie 0.003 - Holonquarboneledie 109 7.5-12 Surrogati: 1.4-Difluorobenzene 0.0654 " 0.0600 109 7.5-125 Calibration Check (P7K0706-CCV1) Prepared: 11/07/17 Analyzet: 11/09/17 Banzene 0.0838 0.00100 mg/kg wet 0.100 83.8 80-120 Edilynation Check (P7K0706-CCV1) 0.0820 0.00200 " 0.000 81.8 80-120 Kylene (p/m) 0.0856 0.00100 " 0.100 81.8 80-120 Surrogate: 1.4-Difluorobenzene 0.0556 " 0.0000 98.0 75-125 Surrogate: 1.4-Difluorobenzene 0.055 " 0.0000 109 75-125 Calibration Check (P7K0706-CCV2) Prepared: 11/07/17 Analyzet: 11/09/17 Benzene 0.0101 0.00100 mg/kg wet 0.100 101 80-120 Surrogate: 1.4-Difluorobenzene 0.0100 " 0.100 10.0 80-120 Surrogate: 1.4-Difluorobenzene 0.00	Xylene (o)	0.00		"							
Surrogate: 1, 4-D µnorobenzene 0.004 109 7.3-123 Calibration Check (P7K0706-CCV1) Prepared: 11/07/17 Analyzed: 11/09/17 Benzene 0.0838 0.0010 mg/k wet 0.100 82.8 80-120 Ethylbenzene 0.0818 0.00100 " 0.100 81.8 80-120 Surrogate: 1.4-D µnorobenzene 0.0818 0.00100 " 0.100 86.120 Surrogate: 1.4-D µnorobenzene 0.055 " 0.0600 98.0 75-125 Surrogate: 1.4-D µnorobenzene 0.055 " 0.0600 109 75-125 Calibration Check (P7K0706-CCV2) Prepared: 11/07/17 Analyzed: 11/09/17 Benzene 0.0699 0.0200 " 0.000 89.9 80-120 Ethylbenzene 0.0991 0.0100 mg/k wet 0.100 80-120 Surrogate: 1.4-D µnorobenzene 0.052 " 0.0000 91.0 80-120 Surrogate:	Surrogate: 4-Bromofluorobenzene	0.0655		"	0.0600		109	75-125			
Benzene 0.0838 0.00100 mg/kg wet 0.100 83.8 80-120 Toluene 0.0820 0.00200 " 0.100 81.8 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 Surrogate: 4.Bromofluorobenzene 0.0556 0.00100 " 0.200 90.1 80-120 Surrogate: 1.4-Difluorobenzene 0.0555 " 0.0600 98.0 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 Sylene (p/m) 0.195 0.00200 " 0.100 89.120 80-120 Surrogate: 1.4-Difluorobenzene 0.0582 " 0.0600 9	Surrogate: 1,4-Difluorobenzene	0.0654		"	0.0600		109	75-125			
Toluene 0.0820 0.00200 " 0.100 8.2.0 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 Surrogate: 4.9 monfluorobenzene 0.0558 " 0.06600 98.0 75-125 Surrogate: 1.4 - Difluorobenzene 0.0558 " 0.06000 100 75 - 125 Calibration Check (PTK0706-CCV2) Prepared: 11/07/17 Analyzed: 11/09/17 Benzene 0.101 0.00100 mg/kg wet 0.100 101 80-120 Toluene 0.0910 0.00100 " 0.100 9.9 80-120 Sylene (p/m) 0.192 0.00200 " 0.2020 97.5 80-120 Sylene (p/m) 0.192 0.00100 " 0.100 101 80-120 Sylene (p/m) 0.192 0.0020 " 0.200 97.5 80-120 <	Calibration Check (P7K0706-CCV1)				Prepared: 1	1/07/17 Ar	nalyzed: 11	/09/17			
Nuclei 0.0020 0.100 0.100 0.0010 0.0010 0.0010 0.0010 0.0010 0.0000 0.0000 0.0000 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0000 0.0010 0.0010 0.0000 0.0010 0.0000 0.0000 0.0010 0.0010 0.0000 0.0010 0.0010 0.0000 0.0010 0.0010 0.0000 0.0000 0.0010 0.0010 0.0000 0.0010 <td>Benzene</td> <td>0.0838</td> <td>0.00100</td> <td>mg/kg wet</td> <td>0.100</td> <td></td> <td>83.8</td> <td>80-120</td> <td></td> <td></td> <td></td>	Benzene	0.0838	0.00100	mg/kg wet	0.100		83.8	80-120			
Mary lend (m) 0.000 0.0000 0.000	Toluene	0.0820	0.00200	"	0.100		82.0	80-120			
New of the second sec	Ethylbenzene	0.0818	0.00100	"	0.100		81.8	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 Edhylbenzene 0.0990 0.00100 " 0.100 89.9 80-120 Kylene (p/m) 0.195 0.00200 " 0.200 97.5 80-120 Surrogate: 1.4-Difluorobenzene 0.0582 " 0.0600 91.0 80-120 Surrogate: 1.4-Difluorobenzene 0.0582 " 0.0600 96.9 75-125 Surrogate: 1.4-Difluorobenzene 0.0636 " 0.0600 106 75-125 Surrogate: 1.4-Difluorobenzene 0.0684 0.00100 mg/kg wet 0.100 88.4 80-120 Toluene 0.0897 0.00100 " </td <td>Xylene (p/m)</td> <td>0.180</td> <td>0.00200</td> <td>"</td> <td>0.200</td> <td></td> <td>90.1</td> <td>80-120</td> <td></td> <td></td> <td></td>	Xylene (p/m)	0.180	0.00200	"	0.200		90.1	80-120			
unrogate: 1.0000 10.00	Xylene (o)	0.0956	0.00100	"	0.100		95.6	80-120			
Calibration Check (P7K0706-CCV2) Prepared: 11/07/17 Analyzed: 11/09/17 Benzene 0.101 0.0010 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 Surrogate: 4.Bromofluorobenzene 0.0582 " 0.0600 96.9 75-125 Surrogate: 1.4-Difluorobenzene 0.0636 " 0.0600 96.9 75-125 Calibration Check (P7K0706-CCV3) " 0.0600 96.9 75-125 Calibration Check (P7K0706-CCV3) " 0.0600 106 75-125 Toluene 0.0873 0.0020 " 0.100 88.4 80-120 Yalene (p/m) 0.0897 0.00100 " 0.100 89.7 80-120 Sylene (o) 0.110 0.00200 "	Surrogate: 4-Bromofluorobenzene	0.0588		"	0.0600		98.0	75-125			
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 Surrogate: 4-Bromofluorobenzene 0.0582 " 0.06600 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 Calibration Check (P7K0706-CCV3) Prepared: 11/07/17 Analyzed: 11/09/17 Benzene 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	Surrogate: 1,4-Difluorobenzene	0.0655		"	0.0600		109	75-125			
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 0.0582 " 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 0.0100 " 0.100 89.7 80-120 Xylene (o) <td>Calibration Check (P7K0706-CCV2)</td> <td></td> <td></td> <td></td> <td>Prepared: 1</td> <td>1/07/17 An</td> <td>nalyzed: 11</td> <td>/09/17</td> <td></td> <td></td> <td></td>	Calibration Check (P7K0706-CCV2)				Prepared: 1	1/07/17 An	nalyzed: 11	/09/17			
Induct 0.0050 0.00200 0.0100 0.0100 91.0 80-120 Ethylbenzene 0.0910 0.00100 " 0.200 97.5 80-120 Xylene (p/m) 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 Kylene (p/m) 0.199 0.00200 " 0.200 99.6 80-120 Xylene (p/m) 0.199 0.00200 " 0.200 99.6 80-120 Xylene (o) 0.110 0.0100 " 0.100 110 80-120 Xylene (o) 0.110 0.0100 " 0.100 110 80-120 Surrogate: 1	Benzene	0.101	0.00100	mg/kg wet	0.100		101	80-120			
Xylene (p/m)0.1950.00200"0.20097.580-120Xylene (o)0.1020.00100"0.10010280-120Surrogate: 4-Bromofluorobenzene0.0582"0.060096.975-125Surrogate: 1,4-Difluorobenzene0.0636"0.060010675-125Prepared: 11/07/17 Analyzed: 11/09/17Benzene0.08840.00100mg/kg wet0.10088.480-120Toluene0.08730.00200"0.10087.380-120Ethylbenzene0.08970.00100"0.10089.780-120Xylene (p/m)0.1990.00200"0.20099.680-120Xylene (o)0.1100.00100"0.10011080-120Surrogate: 1,4-Difluorobenzene0.0594"0.060099.075-125	Toluene	0.0899	0.00200	"	0.100		89.9	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 Surrogate: 1,4-Difluorobenzene 0.0594 " 0.0600 99.0 75-125	Ethylbenzene	0.0910	0.00100	"	0.100		91.0	80-120			
Netre (b) 0.102 0.00100 0.100 102 00-120 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 0.0897 0.00100 " 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 Surrogate: 1,4-Difluorobenzene 0.0594 " 0.0600 99.0 75-125	Xylene (p/m)	0.195	0.00200	"	0.200		97.5	80-120			
Surrogate: 1,4-Difluorobenzene 0.0532 0.0000 90.9 7.5-125 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 0.0897 0.00100 " 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 Surrogate: 1,4-Difluorobenzene 0.0594 " 0.0600 99.0 75-125	Xylene (o)	0.102	0.00100	"	0.100		102	80-120			
Surrogate: 1,4-Difluorobenzene 0.0000 100 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 Surrogate: 1,4-Difluorobenzene 0.0594 " 0.0600 99.0 75-125	Surrogate: 4-Bromofluorobenzene	0.0582		"	0.0600		96.9	75-125			
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 Sylene (o) 0.110 0.00100 " 0.100 110 80-120 Surrogate: 1,4-Difluorobenzene 0.0594 " 0.0600 99.0 75-125	Surrogate: 1,4-Difluorobenzene	0.0636		"	0.0600		106	75-125			
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	Calibration Check (P7K0706-CCV3)				Prepared: 1	1/07/17 An	nalyzed: 11	/09/17			
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	Benzene	0.0884	0.00100	mg/kg wet	0.100		88.4	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	Toluene	0.0873	0.00200	"	0.100		87.3	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	Ethylbenzene	0.0897	0.00100	"	0.100		89.7	80-120			
Surrogate: 1,4-Difluorobenzene 0.0594 " 0.0600 99.0 75-125	Xylene (p/m)	0.199	0.00200	"	0.200		99.6	80-120			
unogue. 1,4-Dijuulooenzene 0.0374 0.0000 93.0 75-125	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			
	Surrogate: 4-Bromofluorobenzene	0.0640		"	0.0600		107	75-125			

Permian Basin Environmental Lab, L.P.

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Apolyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Analyte	Result	Limit	Units	Level	Result	/0REU	LIINIIS	κrυ	Liinit	inotes
Batch P7K0707 - General Preparation (GC)	1									
Blank (P7K0707-BLK1)				Prepared: 1	<u>1/07/17</u> An	alyzed: 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: 1	1/07/17 An	alyzed: 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: 1	<u>1/07/17</u> An	alyzed: 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: 1	1/07/17 An	alyzed: 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						

Permian Basin Environmental Lab, L.P.

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7K0707 - General Preparation (GC)									
Calibration Blank (P7K0707-CCB2)				Prepared: 1	1/07/17 Ar	nalyzed: 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: 1	1/07/17 Ar	nalyzed: 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: 1	1/07/17 Ar	nalyzed: 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: 1	1/07/17 Ar	nalyzed: 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			

Permian Basin Environmental Lab, L.P.

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
-		Ennit	Onto	Lever	icosuit	, site c	Linito	Ni D	Linit	110103
Batch P7K0707 - General Preparation (G	C)									
Matrix Spike Dup (P7K0707-MSD1)	Sou	rce: 7K06009	-74	Prepared: 1	1/07/17 A	nalyzed: 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			
<u> Batch P7K2009 - General Preparation (G</u>	C)									
Blank (P7K2009-BLK1)				Prepared: 1	1/20/17 Ai	nalyzed: 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: 1	1/20/17 At	nalyzed: 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			
	0.0687		"	0.0800		85.9				

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source	e	%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7K2009 - General Preparation (GC)										
LCS Dup (P7K2009-BSD1)				Prepared: 1	1/20/17 At	nalyzed: 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: 1	<u>1/20/</u> 17 At	nalyzed: 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: 1	1/20/17 Ai	nalyzed: 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-G(
Surrogate: 4-Bromofluorobenzene	0.0825		"	0.0800		103	75-125			
Matrix Spike (P7K2009-MS1)	Soi	urce: 7K17007	-06	Prepared: 1	1/20/17 Ai	nalyzed: 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			
	0.119		"							

Permian Basin Environmental Lab, L.P.

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch P7K2009 - General Preparation (GC)

Matrix Spike Dup (P7K2009-MSD1)	Source: 7K17007-06			Prepared: 1	1/20/17 Ai	nalyzed: 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

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)	Sou	rce: 7K06009-	-08	Prepared &	Analyzed:	11/08/17				
% Moisture	4.0	0.1	%		5.0			22.2	20	R3
Duplicate (P7K0804-DUP2)	Sou	rce: 7K06009-	-35	Prepared &	z Analyzed:	11/08/17				
% Moisture	6.0	0.1	%		5.0			18.2	20	
Duplicate (P7K0804-DUP3)	Sou	rce: 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)	Sou	rce: 7K03002-	-07	Prepared &	z Analyzed:	11/09/17				
Chloride	4410	27.8	mg/kg dry		4420			0.308	20	
Duplicate (P7K0902-DUP2)	Sou	rce: 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

	D li	Reporting	T T 1:	Spike	Source	MARC	%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7K0902 - *** DEFAULT PREP ***										
Matrix Spike (P7K0902-MS1)	Sou	ce: 7K03002	2-07	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)	Sou	ce: 7K06009	0-03	Prepared &	Analyzed:	11/09/17				
Chloride	88.2	1.03	mg/kg dry		89.5			1.50	20	
Duplicate (P7K0910-DUP2)	Sou	ce: 7K06009	9-13	Prepared &	Analyzed:	11/09/17				
Chloride	19.6	1.14	mg/kg dry		18.5			5.91	20	
Matrix Spike (P7K0910-MS1)	Sou	ce: 7K06009	9-03	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: 1	1/09/17 A	nalyzed: 11	/10/17			
Chloride	ND	1.00	mg/kg wet							

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Result		Units			%REC		RPD		Notes
Result	Liint	Ollits	Level	Kesun	70REC	Linits	Ki D	Linint	Notes
			Prepared:	11/09/17 A	nalyzed: 11	/10/17			
422	1.00	mg/kg wet	400		105	80-120			
			Prepared:	11/09/17 A	nalyzed: 11	/10/17			
415	1.00	mg/kg wet	400		104	80-120	1.55	20	
Sou	rce: 7K06009	0-23	Prepared:	11/09/17 A	nalyzed: 11	/10/17			
594	1.05	mg/kg dry		577			2.90	20	
Sou	rce: 7K06009	0-33	Prepared:	11/09/17 A	nalyzed: 11	/10/17			
3.81	1.06	mg/kg dry		2.59			38.3	20	R4
Sou	rce: 7K06009	0-23	Prepared:	11/09/17 A	nalyzed: 11	/10/17			
1650	1.05	mg/kg dry	1050	577	102	80-120			
			Prepared:	11/09/17 A	nalyzed: 11	/10/17			
ND	1.00	mg/kg wet							
			Prepared:	11/09/17 A	nalyzed: 11	/10/17			
412	1.00	mg/kg wet	400		103	80-120			
			Prepared:	11/09/17 A	nalyzed: 11	/10/17			
409	1.00	mg/kg wet	400		102	80-120	0.609	20	
Sou		12	D 1	11/00/17	1 1 1 1	/10/17			
Sou	rce: /Kuouus	-43	Prepared:	11/09/1/ Ai	nalyzed: 11	/10/1/			
	415 Sou 594 Sou 3.81 Sou 1650 ND 412 409	422 1.00 415 1.00 Source: 7K06009 594 1.05 Source: 7K06009 3.81 1.06 Source: 7K06009 1650 1.05 ND 1.00 412 1.00 409 1.00	Result Limit Units 422 1.00 mg/kg wet 415 1.00 mg/kg wet 594 1.05 mg/kg dry Source: 7K06009-23 3.81 1.06 mg/kg dry Source: 7K06009-23 1650 1.05 mg/kg dry ND 1.00 mg/kg wet 412 1.00 mg/kg wet	Result Limit Units Level Result Limit Units Level 422 1.00 mg/kg wet 400 422 1.00 mg/kg wet 400 415 1.00 mg/kg wet 400 50urce: 7K06009-23 Prepared: 594 1.05 mg/kg dry Source: 7K06009-33 Prepared: 3.81 1.06 mg/kg dry Source: 7K06009-23 Prepared: 1650 1.05 mg/kg dry 1050 MD 1.06 mg/kg wet 400 145 1.05 mg/kg dry 1050 1650 1.05 mg/kg wet 400 MD 1.00 mg/kg wet 400 412 1.00 mg/kg wet 400 409 1.00 mg/kg wet 400	Result Limit Units Level Result Prepared: 11/09/17 Ar 422 1.00 mg/kg wet 400 422 1.00 mg/kg wet 400 415 1.00 mg/kg wet 400 50urce: 7K06009-23 Prepared: 11/09/17 Ar 594 1.05 mg/kg dry 577 Ar 594 1.06 mg/kg dry 2.59 Ar 3.81 1.06 mg/kg dry 2.59 Ar 50urce: 7K06009-23 Prepared: 11/09/17 Ar 1650 1.05 mg/kg dry 1050 577 MD 1.00 mg/kg dry 1050 577 MD 1.00 mg/kg wet 400 Ar 412 1.00 mg/kg wet 400 Ar 409 1.00 mg/kg wet 400 Ar	Result Limit Units Level Result %REC Prepared: 11/09/17 Analyzed: 11 422 1.00 mg/kg wet 400 105 422 1.00 mg/kg wet 400 105 Prepared: 11/09/17 Analyzed: 11 415 1.00 mg/kg wet 400 104 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11 594 1.05 mg/kg dry 577 Source: 7K06009-33 Prepared: 11/09/17 Analyzed: 11 3.81 1.06 mg/kg dry 2.59 102 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11 105 577 102 1650 1.05 mg/kg dry 1050 577 102 Prepared: 11/09/17 Analyzed: 11 1650 1.00 mg/kg wet 100 103 Prepared: 11/09/17 Analyzed: 11 103 103 103 409 1.00 mg/kg wet 400 102 102	Result Limit Units Level Result %REC Limits 422 1.00 mg/kg wet 400 105 80-120 422 1.00 mg/kg wet 400 105 80-120 415 1.00 mg/kg wet 400 104 80-120 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11/10/17 594 1.05 mg/kg dry 577 11/01/7 3.81 1.06 mg/kg dry 2.59 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11/10/17 1650 1.05 mg/kg dry 1050 577 102 80-120 MD 1.05 mg/kg dry 1050 577 102 80-120 MD 1.00 mg/kg wet 400 103 80-120 MD 1.00 mg/kg wet 400 103 80-120 MD 1.00 mg/kg wet	Result Limit Units Level Result %REC Limits RPD Prepared: 11/09/17 Analyzed: 11/10/17 422 1.00 mg/kg wet 400 105 80-120 1.55 Prepared: 11/09/17 Analyzed: 11/10/17 415 1.00 mg/kg wet 400 104 80-120 1.55 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11/10/17 Analyzed: 11/10/17 2.90 504 1.05 mg/kg dry 577 2.90 38.3 Source: 7K06009-33 Prepared: 11/09/17 Analyzed: 11/10/17 3.81 1.06 mg/kg dry 2.59 38.3 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11/10/17 3.83 38.3 38.3 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11/10/17 402 80-120 38.3 MD 1.00 mg/kg wet 400 103 80-120 400 H12 1.00 mg/kg wet 400 102 80-120 6.609 409 1.00 <t< td=""><td>Result Limit Units Level Result %REC Limits RPD Limit 422 1.00 mg/kg wet 400 105 80-120 105 20 422 1.00 mg/kg wet 400 105 80-120 1.55 20 415 1.00 mg/kg wet 400 104 80-120 1.55 20 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11/10/17 2.90 20 594 1.05 mg/kg dry 577 2.90 20 Source: 7K06009-33 Prepared: 11/09/17 Analyzed: 11/10/17 3.81 1.06 mg/kg dry 2.59 38.3 20 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11/10/17 1650 1.05 mg/kg dry 1050 577 102 80-120 MD 1.00 mg/kg wet 400 103 80-120 11/10/17</td></t<>	Result Limit Units Level Result %REC Limits RPD Limit 422 1.00 mg/kg wet 400 105 80-120 105 20 422 1.00 mg/kg wet 400 105 80-120 1.55 20 415 1.00 mg/kg wet 400 104 80-120 1.55 20 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11/10/17 2.90 20 594 1.05 mg/kg dry 577 2.90 20 Source: 7K06009-33 Prepared: 11/09/17 Analyzed: 11/10/17 3.81 1.06 mg/kg dry 2.59 38.3 20 Source: 7K06009-23 Prepared: 11/09/17 Analyzed: 11/10/17 1650 1.05 mg/kg dry 1050 577 102 80-120 MD 1.00 mg/kg wet 400 103 80-120 11/10/17

General Chemistry Parameters by EPA / Standard Methods - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Inotes
Batch P7K0912 - *** DEFAULT PREP ***										
Duplicate (P7K0912-DUP2)	Sou	rce: 7K06009	9-53	Prepared: 1	11/09/17 A	nalyzed: 11	/10/17			
Chloride	222	1.04	mg/kg dry		220			1.07	20	
Matrix Spike (P7K0912-MS1)	Sou	rce: 7K06009	9-43	Prepared: 1	11/09/17 A	nalyzed: 11	/10/17			
Chloride	1110	1.03	mg/kg dry	1030	ND	108	80-120			
Batch P7K0913 - *** DEFAULT PREP ***										
Blank (P7K0913-BLK1)				Prepared: 1	11/09/17 A	nalyzed: 11	/12/17			
Chloride	ND	1.00	mg/kg wet							
LCS (P7K0913-BS1)				Prepared: 1	11/09/17 A	nalyzed: 11	/12/17			
Chloride	429	1.00	mg/kg wet	400		107	80-120			
LCS Dup (P7K0913-BSD1)				Prepared: 1	11/09/17 A	nalyzed: 11	/12/17			
Chloride	439	1.00	mg/kg wet	400		110	80-120	2.41	20	
Duplicate (P7K0913-DUP1)	Sou	rce: 7K06009)-63	Prepared:	11/09/17 A	nalyzed: 11	/12/17			
Chloride	123	1.09	mg/kg dry		119			3.42	20	
Duplicate (P7K0913-DUP2)	Sou	rce: 7K06009	0-73	Prepared: 1	11/09/17 A	nalyzed: 11	/12/17			
Chloride	758	1.15	mg/kg dry		757	-		0.0880	20	
Matrix Spike (P7K0913-MS1)	Sou	rce: 7K06009	0-63	Prepared: 1	11/09/17 A	nalyzed: 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.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	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: 1	1/10/17 A	nalyzed: 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			

Permian Basin Environmental Lab, L.P.

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
		Linin	Onto	Level	Result	JURLE	Linits	NI D	Linit	10005
Batch P7K1003 - *** DEFAULT PREP ***	k.									
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 Ai	nalyzed: 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)	Sou	rce: 7K03010	0-05	Prepared:	11/10/17 Ai	nalyzed: 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)	Sou	rce: 7K03010	0-05	Prepared:	11/10/17 Ai	nalyzed: 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 (O	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-GO
Surrogate: o-Terphenyl	58.3		"	50.0		117	70-130			
LCS Dup (P7K1004-BSD1)				Prepared: 1	1/10/17 Ai	nalyzed: 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: 1	1/10/17 Ai	nalyzed: 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.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	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 A	nalyzed: 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)	Sour	ce: 7K10006	5-03	Prepared:	11/10/17 A	nalyzed: 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)	Sour	·ce: 7K10006	5-03	Prepared:	11/10/17 A	nalyzed: 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)										
				Prepared:	11/17/17 A	nalyzed: 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.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7K1715 - General Preparation (GC)										
LCS (P7K1715-BS1)				Prepared: 1	11/17/17 A	nalyzed: 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 Ai	nalyzed: 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: 1	11/17/17 Ai	nalyzed: 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)	Sou	rce: 7K16005	5-01	Prepared: 1	11/17/17 Ai	nalyzed: 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)	Sou	rce: 7K16005	5-01	Prepared:	11/17/17 Ai	nalyzed: 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			

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

Sun Barron

Report Approved By:

12/29/2017

Brent Barron, Laboratory Director/Technical Director

Permian Basin Environmental Lab, L.P.

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

Date:

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

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

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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