INFORMATION ONLY

1RP-4664

SPILL DELINEATION REPORT
Epperson 16 Inch Pipeline Release Site #1
Lea County, New Mexico

Latitude: 33°20'49.08" North
Longitude: 103°34'28.98" West

LAI Project No. 16-0120-01

March 7, 2017

Prepared for:

Targa Midstream Services, LLC
P.O. Box 1689
Lovington, New Mexico 88269

Prepared by:

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Contents

Tables

Figures

Attachments

1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this delineation report on behalf of Targa Midstream Services, LLC (Targa) for a natural gas liquids release at the Epperson 16" pipeline (Site #1) in Unit M (SW/4, SW/4), Section 24, Township 11 South, Range 33 East, in Lea County, New Mexico (the Site). The Site is located about 15 miles west of Tatum, New Mexico. On May 27, 2016, LAI personnel were requested by Targa representative, Ralph England, to visit the Site to document the release. LAI personnel observed an area without vegetation measuring about 40 x 45 feet or about 1,800 square feet. The geodetic location is 33°20'49.08" North and 103°34'28.98" West. The initial C-141 was submitted to the New Mexico Oil Conservation Division (OCD) District 1 on March 29, 2017, and assigned remediation permit number 1RP-4664. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Physical Setting

The physical setting is as follows:

- The surface elevation is about 4,227 feet above mean sea level (MSL);
- The topography is slightly undulating with the regional slope to the southeast;
- No surface water features are present within 1 mile of Site #1;
- The soils are designated as "Kimbrough-Lea complex", consisting of calcareous alluvium derived from reworking the Blackwater Draw (Pleistocene) and Ogallala (Pliocene) formations, in descending order;
- The soil developed over sandy clay loam that extends to depths greater than about 6 feet below ground surface (bgs);
- The nearest fresh water well is located about 2,000 feet southeast in Unit N (SE/4, SW/4), Section 24, Township 11 South, Range 33 East;
- According to records from the New Mexico Office of the State Engineer (OSE), groundwater is expected to occur at about 32 feet below ground surface (bgs).

The fresh water well is reportedly used for watering livestock based on field observation. Figure 1 presents the water well location.

1.2 Recommended Remediation Action Levels

Recommended remediation action levels (RRALs) were calculated for benzene, BTEX and TPH based on the following criteria established by the New Mexico Oil Conservation Division (OCD) in *"Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993"*:

Criteria	*Result*	*Score*
Depth-to-Groundwater	<50 feet	20
Wellhead Protection Area	No (>1,000 horizontal feet)	0
Distance to Surface Water Body	>1000 horizontal feet	0

The following RRAL apply to the release for ranking score: 20

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg

- TPH 100 mg/Kg

2.0 DELINEATON

On June 10, 2016, LAI personnel collected soil samples from the non-vegetated area and area where hydrocarbons were dispersed by wind to the east and southeast. The soil samples were collected at 0.5 feet bgs from eight (8) locations (HA-1 through HA-8) with a stainless steel hand auger. The samples were screened for headspace vapors with a calibrated photoionization detector (PID) in 8 ounce glass jars sealed with aluminum foil. The PID readings were below the New Mexico Oil Conservation Division (OCD) action level of 100 parts per million (ppm). Therefore laboratory analysis for benzene, toluene, ethylbenzene and xylenes (BTEX) was not required according to OCD guideline 7b Section IV Part 2b (Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993). The laboratory samples were delivered under preservation and chain of custody to Trace Analysis, Inc. (Trace), in Lubbock, Texas, and were analyzed for total petroleum hydrocarbons (TPH) by EPA SW-846 Method 8015 including gasoline range organics (GRO), diesel range organics (DRO) and oil range organics (ORO) and chloride by Method 300. Table 1 presents the delineation soil sample analytical data summary. Figure 3 presents a Site drawing and the hand auger soil sample locations HA-1 through HA-8. Appendix A presents the laboratory report.

Hand auger soil samples reported TPH below the method reporting limit (see Table 1). Chloride was less than the reporting limit in all samples except HA-1 (68.4 mg/Kg), HA-2 (843 mg/Kg), HA-7 (405 mg/Kg) and HA-8 (40.5 mg/kg).

On June 30, 2016, LAI personnel used a direct push technology (DPT) to collect samples near the previous hand auger boring locations. Soil samples were collected in one foot increments between approximately 1 foot (SB-3, SB-4, SB-5 and SB-6) and 8 feet bgs (SB-8). The samples were analyzed for headspace vapors with a calibrated PID and reported readings below the OCD action level of 100 ppm. Therefore no analysis for BTEX was performed according to OCD guidelines. Trace analyzed the samples for TPH by EPA SW-846 Method 8015 including GRO, DRO and ORO and chloride by Method 300. Table 1 presents the delineation soil sample analytical data summary. Figure 3 presents a Site drawing and the direct push soil sample locations. Appendix A presents the laboratory report.

All direct push soil samples collected reported TPH below the method reporting limit (see Table 1). Chloride ranged from less than the method reporting limit (<25.0 mg/Kg) to 1,850 mg/kg in sample SB-8, 2 feet. The vertical extent of chloride was not delineated vertically to 250 mg/Kg, as required by OCD.

On October 18, 2016, additional samples were collected near direct push boring SB-8 (S-1) to vertically delineate chloride to 250 mg/Kg. The samples were collected in 2 foot intervals (i.e., 8 – 10 feet, 10 – 12 feet, etc.) from boring S-1 to about 16 feet bgs. The samples were analyzed for headspace vapors with a calibrated PID and reported readings below the OCD action level of 100 ppm. Therefore no analysis for BTEX was performed according to OCD guidelines. No analysis for TPH was performed since TPH was not reported above the method reporting limit in samples between ground surface and 8 feet bgs. The samples were analyzed for chloride by Method 300. Table 1 presents the delineation soil sample analytical data summary. Figure 3 presents a Site drawing and the location for direct push boring S-1 (SB-8). Appendix A presents the laboratory report.

Chloride ranged from 393 mg/Kg in sample S-1, 10 feet to 1,580 mg/kg in sample S-1, 16 feet. Chloride was not delineated vertically to 250 mg/Kg, as required by OCD.

On January 10, 2017, LAI personnel supervised Scarborough Drilling, Inc. (SDI) to drill an air rotary boring near direct push boring SB-8 (S-1). Boring SB-9 was drilled to about 40 feet bgs with soil samples collected every 2 feet beginning at about 16 to 20 feet bgs and every five (5) feet to 40 feet bgs with a jam tube sampler approximately 1 foot in length. The samples were screened for headspace vapors as previously discussed and recorded PID readings above 100 ppm in samples from 16 feet (450.6 ppm), 18 feet (752.7 ppm), 20 feet (683.6 ppm), 25 feet (172.7 ppm) and 30 feet (267.3 ppm). The samples were delivered under chain of custody and preservation to Trace Analysis, Inc., in Lubbock, Texas. Samples from 16 feet, 18 feet and 20 feet were analyzed BTEX and reported concentrations below the RRALs of 10 mg/kg (benzene) and 50 mg/Kg (BTEX). TPH was reported above the RRAL (100 mg/Kg) in samples from 16 feet (349.7 mg/Kg) and 20 feet (172.2 mg/Kg). Chloride was delineated to 250 mg/Kg in samples below approximately 15 feet bgs. Table 1 presents the delineation soil sample analytical data summary. Figure 3 presents a Site drawing and the location for direct push boring S-1 (SB-8). Appendix A presents the laboratory report.

On February 8 – 9, 2017, SDI drilled five (5) borings (SB-10 through SB-15) to delineate the TPH reported in soil samples from SB-9. Soil samples were collected every five (5) feet to approximately 25 feet bgs with the jam tube sampler. Samples were collected from SB-9 from ground surface (0 feet) to approximately 15 feet bgs. The samples were screened for headspace vapors as previously discussed and recorded PID readings above 100 ppm in samples from SB-9, 10 feet (750 ppm), SB-9, 15 feet (975 ppm), SB-10, 15 feet (162 ppm), SB-10, 20 feet (1,030 ppm), SB-14, 5 feet (2,600 ppm), SB-14, 10 feet (190 ppm) and SB-14, 15 feet (130 ppm). The samples were delivered under chain of custody and preservation to Permian Basin Environmental Lab, in Midland, Texas. BTEX concentrations were below the RRALs of 10 mg/Kg (benzene) and 50 mg/Kg (BTEX). TPH was reported above the RRAL (100 mg/Kg) in the following samples:

- SB-9, 0 feet (620 mg/Kg)
- SB-9, 10 feet (219 mg/Kg)
- SB-9, 15 feet (517 mg/Kg)
- SB-9, 16 feet (349.7 mg/Kg)
- SB-9, 20 feet (172.2 mg/Kg)
- SB-10, 0 feet (117 mg/Kg)
- SB-11, 0 feet (194.7 mg/Kg)
- SB-12, 0 feet (131 mg/Kg)
- SB-14, 5 feet (1,890 mg/Kg)
- SB-14, 10 feet (112 mg/kg)

Chloride was delineated vertically to 250 mg/Kg in samples from borings SB-9 through SB-15, as required by OCD guidance. Table 1 presents the delineation soil sample analytical data summary. Figure 3 presents a Site drawing and the locations for the air rotary borings. Appendix B presents the boring logs for SB-9 through SB-15. Appendix C presents photographs.

3.0 RECOMMENDATIONS

Remediation for Site #1 includes the following:

- Excavate soil in the vicinity of SB-9 to approximately 16 feet bgs;
- Extend excavation south to approximately 8 feet bgs in the vicinity of boring SB-14;

- Extend excavation west-northwest and east-southeast to approximately 2 feet bgs in the vicinity of borings SB-10 (west-northwest) and SB-11 (east-southeast);
- Dispose contaminated soil at Gandy Marley Landfill (NM1-19-0) located west of Tatum in Chaves County, New Mexico;
- Collect confirmation soil samples from the bottom and sidewalls of excavation for laboratory analysis of TPH (EPA SW-846-8015M including GRO, DRO and ORO);
- Submit confirmation samples analysis to OCD District 1 to request approval to backfill excavation assuming TPH in below the RRAL;
- Backfill excavation with caliche to about 4 feet bgs and top soil to ground surface;
- Seed location according to landowner requirements; and
- Prepare final closure report for submittal to OCD District 1.

Appendix D presents the initial C-141.

Tables

Table 1
1RP-2664
Delineation Soil Sample Analytical Data Summary
Targa Midstream Services, LLC, Epperson 16" Pipeline Release Site 1
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Status	PID (ppm)	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:					**10**	**50**				**100**	****250**
Hand Auger Soil Samples											
HA-1	0.5	6/10/2016	In-Situ	0.0	--	--	<50.0	<4.00	<50.0	<50.0	68.4
HA-2	0.5	6/10/2016	In-Situ	0.0	--	--	<50.0	<4.00	<50.0	<50.0	843
HA-3	0.5	6/10/2016	In-Situ	0.8	--	--	<50.0	<4.00	<50.0	<50.0	<25.0
HA-4	0.5	6/10/2016	In-Situ	0.0	--	--	<50.0	<4.00	<50.0	<50.0	<25.0
HA-5	0.5	6/10/2016	In-Situ	0.8	--	--	<50.0	<4.00	<50.0	<50.0	<25.0
HA-6	0.5	6/10/2016	In-Situ	0.0	--	--	<50.0	<4.00	<50.0	<50.0	<25.0
HA-7	0.5	6/10/2016	In-Situ	0.0	--	--	<50.0	<4.00	<50.0	<50.0	405
HA-8	0.5	6/10/2016	In-Situ	0.0	--	--	<50.0	<4.00	<50.0	<50.0	40.5
Soil Boring Samples											
SB-1	1	6/30/2016	In-Situ	0.9	--	--	<50.0	<4.24	<50.0	<50.0	145
	2	6/30/2016	In-Situ	1.3	--	--	<50.0	<4.24	<50.0	<50.0	71.0
	3	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	536
	4	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	708
	5	6/30/2016	In-Situ	1.1	--	--	<50.0	<4.24	<50.0	<50.0	518
	6	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	434
			In-Situ								
SB-3	1	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	<25.0
			In-Situ								
SB-4	1	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	<25.0
			In-Situ								
SB-5	1	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	<25.0
			In-Situ								
SB-6	1	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	<25.0
			In-Situ								
SB-8	1	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	476
	2	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	1,850
	3	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	1,440
	4	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	884
	5	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	469
	6	6/30/2016	In-Situ	0.0	--	--	<50.0	<4.24	<50.0	<50.0	452
	7	6/30/2016	In-Situ	3.4	--	--	<50.0	<4.24	<50.0	<50.0	519

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1RP-2664
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Sample	Sample Depth (Feet)	Collection Date	Status	PID (ppm)	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:					**10**	**50**				**100**	****250**
SB-8	8	6/30/2016	In-Situ	2.1	--	--	<50.0	<4.24	<50.0	<50.0	295
S-1	10	10/18/2016	In-Situ	0.1	--	--	--	--	--	--	393
	12	10/18/2016	In-Situ	0.3	--	--	--	--	--	--	951
	14	10/18/2016	In-Situ	4.3	--	--	--	--	--	--	989
	16	10/18/2016	In-Situ	1.2	--	--	--	--	--	--	1,580
SB-9	0	2/08/2017	In-Situ	2.3	0.0361	0.0611	<27.2	496	124	**620**	2,970
	5	2/08/2017	In-Situ	3.0	--	--	<29.1	<29.1	<29.1	<29.1	855
	10	2/08/2017	In-Situ	750	0.0491	3.52	1.43	76.4	<27.2	**219.4**	6,870
	15	2/08/2017	In-Situ	975	0.286	20.95	371	146	<132	**517**	527
	16	1/10/2017	In-Situ	450.6	0.119	9.49	280	69.7	<15.0	**349.7**	280
	18	1/10/2017	In-Situ	752.7	0.161	9.13	68.0	27.4	<15.0	95.4	17.2
	20	1/10/2017	In-Situ	683.6	0.0857	8.92	105	67.2	<15.0	**172.2**	136
	25	1/10/2017	In-Situ	172.7	--	--	17.8	15.4	<14.9	33.2	93.1
	30	1/10/2017	In-Situ	267.3	--	--	19.9	22.4	<15.0	42.3	25.8
	35	1/10/2017	In-Situ	36.3	--	--	<15.0	19.7	<15.0	19.7	24.6
	40	1/10/2017	In-Situ	20.2	--	--	<15.0	<15.0	<15.0	<15.0	24.6
			In-Situ								
***SB-10**	0	2/08/2017	In-Situ	0.6	--	--	<26.9	85.8	31.2	**117**	11.2
	5	2/08/2017	In-Situ	4.1	--	--	<28.4	<28.4	<28.4	<28.4	887
	10	2/08/2017	In-Situ	95	--	--	<27.5	<27.5	<27.5	<27.5	492
	15	2/08/2017	In-Situ	162	0.0483	0.8503	<26.6	<26.6	<26.6	<26.6	260
	20	2/08/2017	In-Situ	1,030	0.0848	3.5268	96.8	<26.3	<26.3	96.8	--
	25	2/08/2017	In-Situ	51	--	--	<25.5	<25.5	<25.5	<25.5	47.7
			In-Situ								
***SB-11**	0	2/08/2017	In-Situ	0.5	--	--	<26.9	144	50.7	**194.7**	17.3
	5	2/08/2017	In-Situ	0.7	--	--	<27.2	<27.2	<27.2	<27.2	115
	10	2/08/2017	In-Situ	0.7	--	--	--	--	--	--	--
	15	2/08/2017	In-Situ	1.0	--	--	<26.6	<26.6	<26.6	<26.6	26.5
	20	2/08/2017	In-Situ	11	--	--	--	--	--	--	--
	25	2/08/2017	In-Situ	25	--	--	<26.0	<26.0	<26.0	<26.0	19.9
			In-Situ								
***SB-12**	0	2/08/2017	In-Situ	5.5	--	--	<26.0	<26.0	<26.0	<26.0	8.55

Table 1

1RP-2664

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Targa Midstream Services, LLC, Epperson 16" Pipeline Release Site 1

Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Status	PID (ppm)	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:					**10**	**50**				**100**	***250**
***SB-12**	5	2/08/2017	In-Situ	1.5	--	--	<27.5	131	<27.5	**131**	738
	10	2/08/2017	In-Situ	3.6	--	--	--	--	--	--	--
	15	2/08/2017	In-Situ	11	--	--	<27.2	<27.2	<27.2	<27.2	834
	20	2/08/2017	In-Situ	9.0	--	--	--	--	--	--	--
	25	2/08/2017	In-Situ	32	--	--	<25.8	<25.8	<25.8	<25.8	126
			In-Situ								
***SB-13**	0	2/08/2017	In-Situ	1.6	--	--	<26.9	42.0	27.1	69.1	15.5
	5	2/08/2017	In-Situ	1.1	--	--	<27.5	52.5	29.2	81.7	593
	10	2/08/2017	In-Situ	0.7	--	--	--	--	--	--	--
	15	2/08/2017	In-Situ	2.5	--	--	<27.2	38.3	<27.2	38.2	193
	20	2/08/2017	In-Situ	16	--	--	--	--	--	--	--
	25	2/08/2017	In-Situ	23	--	--	<25.8	<25.8	<25.8	<25.8	22.0
			In-Situ								
***SB-14**	0	2/08/2017	In-Situ	2.1	0.0281	0.0281	<26.0	74.4	<26.0	74.4	546
	5	2/08/2017	In-Situ	2,600	0.45	**83.16**	1,450	444	<272	**1,894**	31.3
	10	2/08/2017	In-Situ	190	<0.0215	1.4841	112	<26.9	<26.9	**112**	10.5
	15	2/08/2017	In-Situ	130	--	--	<25.8	42.2	33.5	75.7	18.3
	20	2/08/2017	In-Situ	88	--	--	<26.6	<26.6	<26.6	<26.6	60.8
	25	2/08/2017	In-Situ	49	--	--	--	--	--	--	--
			In-Situ								
***SB-15**	0	2/09/2017	In-Situ	1.5	--	--	<27.2	46.5	<27.2	46.5	38.2
	5	2/09/2017	In-Situ	0.6	--	--	<28.1	<28.1	<28.1	<28.1	5.46
	10	2/09/2017	In-Situ	0.4	--	--	--	--	--	--	--
	15	2/09/2017	In-Situ	0.8	--	--	<26.0	<26.0	<26.0	<26.0	8.53
	20	2/09/2017	In-Situ	5.0	--	--	--	--	--	--	--
	25	2/09/2017	In-Situ	6.1	--	--	<25.5	<25.5	<25.5	<25.5	4.27
			In-Situ								

Notes: Laboratory analysis performed by Trace Analysis, Inc., Lubbock, Texas by EPA Methods 8021B, 8015M and 300

*: Anaylsis performed by Permian Basin Environmental Lab, Midland, Texas

**: OCD delineation limit

Depth reported in feet below ground surface (bgs)

mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)

Bold and highlighted indicates that analyte was detected above the OCD recommended remediation action level (RRAL)

Figures

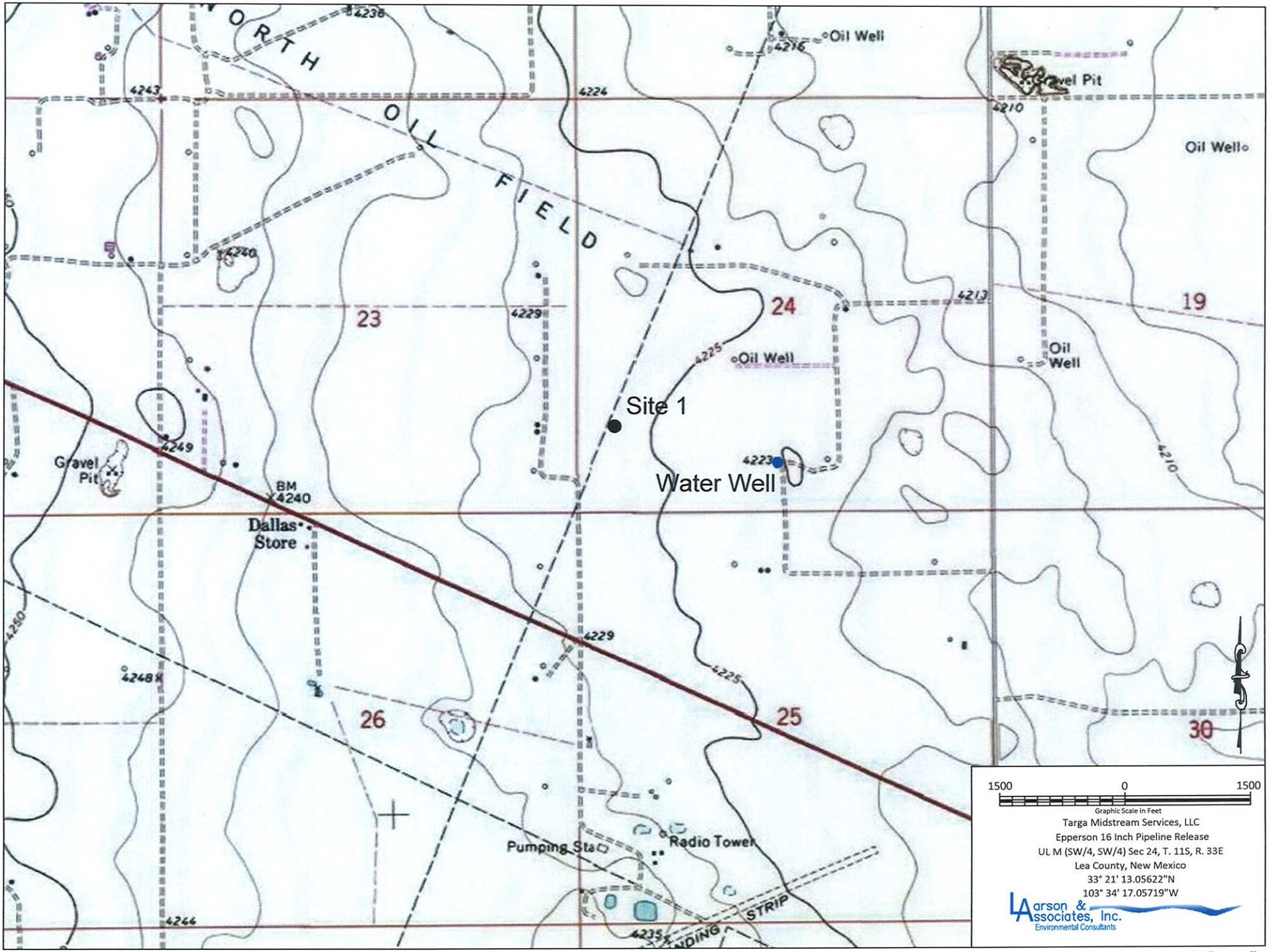

Figure 1 - Topographic Map

8.5" x 11"

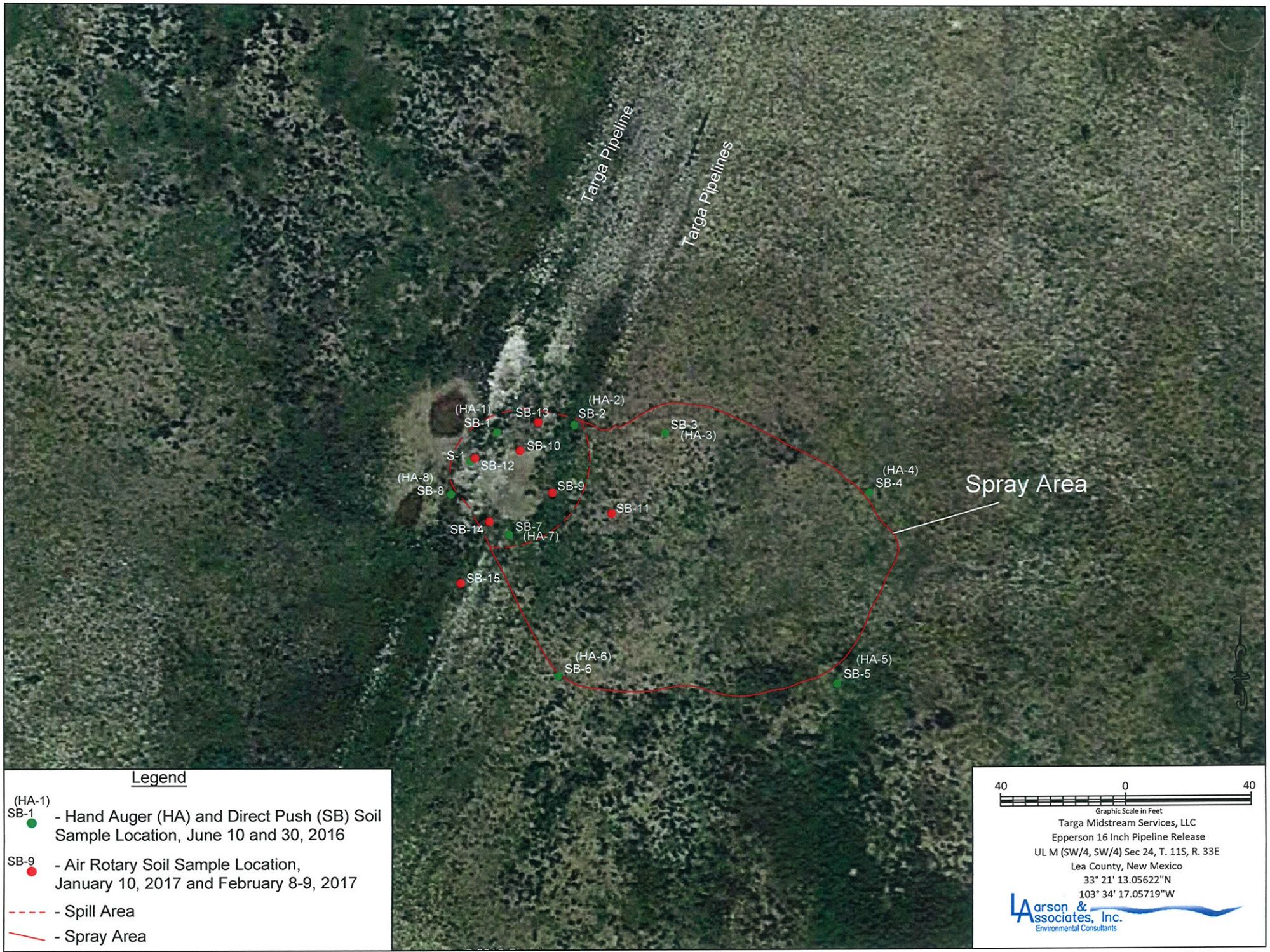

Figure 2 - Aerial Map

8.5" x 11"

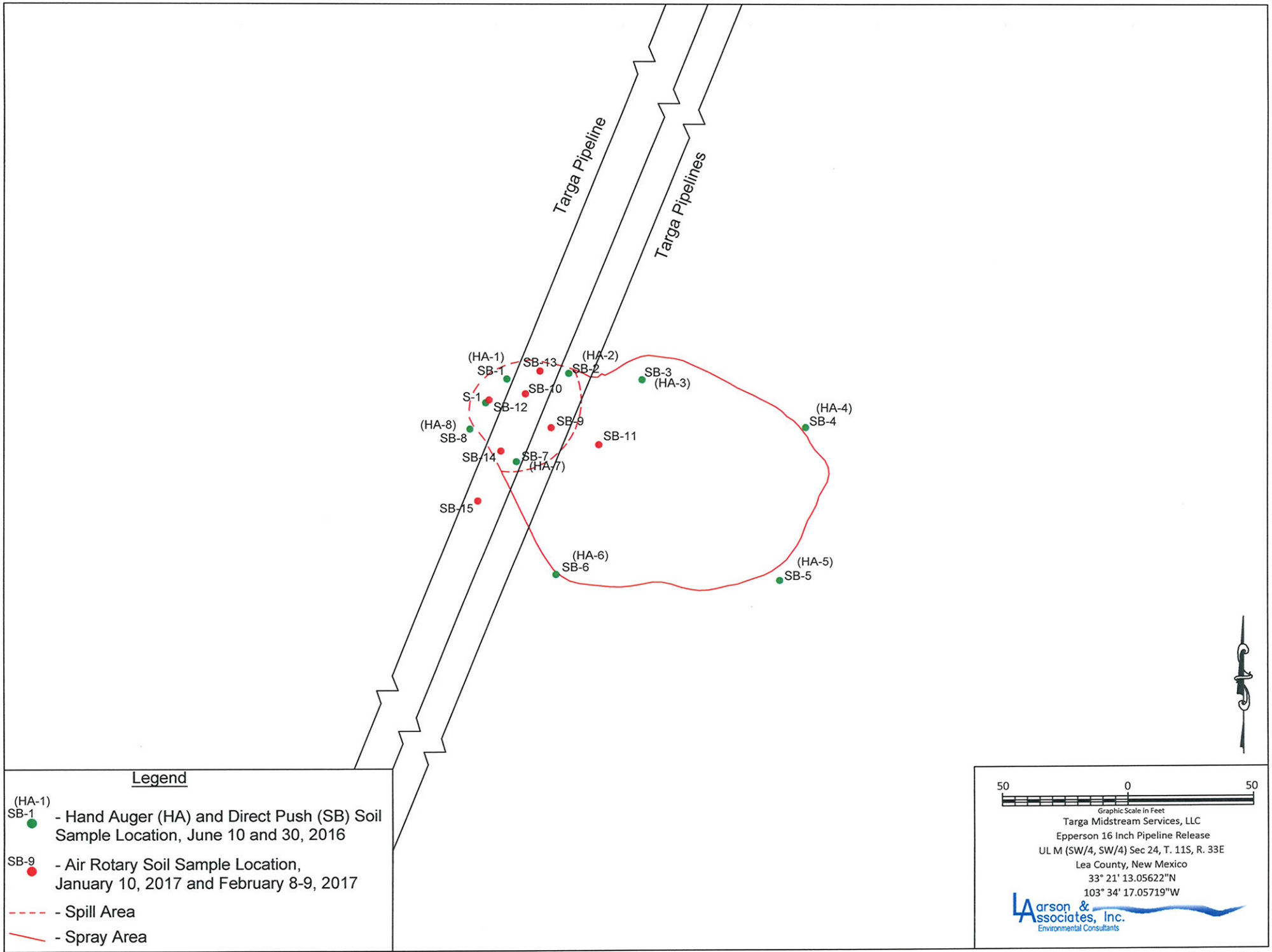

Figure 3 - Site Map

8.5" x 11"

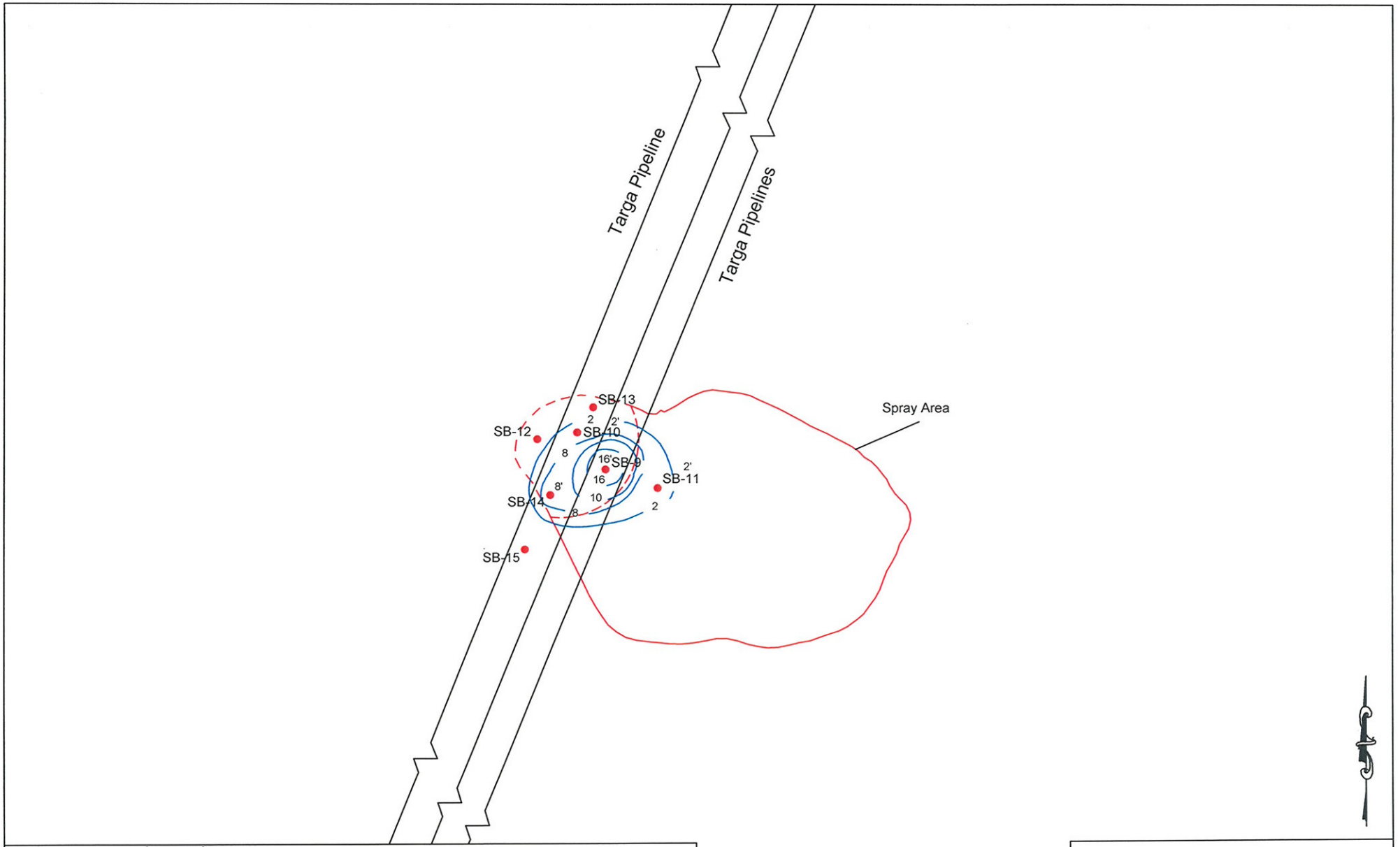

Figure 4 - Site Map Showing Proposed Remediation Area

8.5" x 11"

Appendix A

Laboratory Reports

Summary Report

Michael Gant
Larson and Associates, Inc.

P. O. Box 50685
Midland, TX 79710

Report Date: June 17, 2016

Work Order: 16061310

Project Name: Epperson 16 Pipeline Release
Project Number: 16-0120-01

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
421536	HA-1	soil	2016-06-10	13:25	2016-06-13
421537	HA-2	soil	2016-06-10	13:34	2016-06-13
421538	HA-3	soil	2016-06-10	13:38	2016-06-13
421539	HA-4	soil	2016-06-10	13:48	2016-06-13
421540	HA-5	soil	2016-06-10	13:54	2016-06-13
421541	HA-6	soil	2016-06-10	14:00	2016-06-13
421542	HA-7	soil	2016-06-10	14:08	2016-06-13
421543	HA-8	soil	2016-06-10	14:15	2016-06-13

Sample - Field Code		TPH DRO DRO (mg/Kg)		TPH GRO GRO (mg/Kg)
421536 - HA-1		<50.0		<4.00
421537 - HA-2		<50.0		<4.00
421538 - HA-3		<50.0		<4.00
421539 - HA-4		<50.0		<4.00
421540 - HA-5		<50.0		<4.00
421541 - HA-6		<50.0		<4.00
421542 - HA-7		<50.0		<4.00
421543 - HA-8		<50.0		<4.00

Sample: 421536 - HA-1

Param	Flag	Result	Units	RL
Chloride		**68.4**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 421537 - HA-2

Param	Flag	Result	Units	RL
Chloride		**843**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 421538 - HA-3

Param	Flag	Result	Units	RL
Chloride		<25.0	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 421539 - HA-4

Param	Flag	Result	Units	RL
Chloride		<25.0	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 421540 - HA-5

Param	Flag	Result	Units	RL
Chloride		<25.0	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 421541 - HA-6

Param	Flag	Result	Units	RL
Chloride		<25.0	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 421542 - HA-7

Param	Flag	Result	Units	RL
Chloride		**405**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 421543 - HA-8

Param	Flag	Result	Units	RL
Chloride		**40.5**	mg/Kg	25
ORO	Qs	<50.0	mg/Kg	50

TRACEANALYSIS, INC.

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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Michael Gant
Larson and Associates, Inc.

P. O. Box 50685
Midland, TX, 79710

Report Date: June 17, 2016

Work Order: 16061310

Project Name: Epperson 16 Pipeline Release
Project Number: 16-0120-01

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
421536	HA-1	soil	2016-06-10	13:25	2016-06-13
421537	HA-2	soil	2016-06-10	13:34	2016-06-13
421538	HA-3	soil	2016-06-10	13:38	2016-06-13
421539	HA-4	soil	2016-06-10	13:48	2016-06-13
421540	HA-5	soil	2016-06-10	13:54	2016-06-13
421541	HA-6	soil	2016-06-10	14:00	2016-06-13
421542	HA-7	soil	2016-06-10	14:08	2016-06-13
421543	HA-8	soil	2016-06-10	14:15	2016-06-13

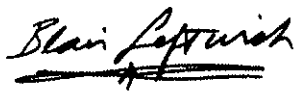
Notes

- **Work Order 16061310:** 4-5 Day rush

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 30 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Johnny Grindstaff, Operations Manager

Report Contents

Case Narrative

Samples for project Epperson 16 Pipeline Release were received by TraceAnalysis, Inc. on 2016-06-13 and assigned to work order 16061310. Samples for work order 16061310 were received intact at a temperature of -5.0 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (IC)	E 300.0	110902	2016-06-16 at 15:00	130866	2016-06-16 at 21:50
Chloride (IC)	E 300.0	110911	2016-06-16 at 15:00	130884	2016-06-17 at 09:29
TPH DRO	S 8015 D	110860	2016-06-15 at 11:00	130817	2016-06-16 at 08:11
TPH GRO	S 8015 D	110874	2016-06-16 at 12:58	130856	2016-06-17 at 07:12
TPH ORO	S 8015 D	110860	2016-06-15 at 11:00	130818	2016-06-16 at 08:13

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16061310 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 421536 - HA-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	130884	Date Analyzed:	2016-06-17	Analyzed By:	RL
Prep Batch:	110911	Sample Preparation:	2016-06-16	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,4,6	**68.4**	mg/Kg	1	25.0

Sample: 421536 - HA-1

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130817	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1,2,3,4	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	26.9	mg/Kg	1	25.0	108	58.2 - 150

Sample: 421536 - HA-1

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	130856	Date Analyzed:	2016-06-17	Analyzed By:	AK
Prep Batch:	110874	Sample Preparation:	2016-06-16	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.91	mg/Kg	1	2.00	96	70 - 130

continued . . .

sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			2.07	mg/Kg	1	2.00	104	70 - 130

Sample: 421536 - HA-1

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130818	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			27.9	mg/Kg	1	25.0	112	70 - 130
n-Triacontane	Qsr	Qsr	36.8	mg/Kg	1	25.0	147	70 - 130

Sample: 421537 - HA-2

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	130866	Date Analyzed:	2016-06-16	Analyzed By:	RL
Prep Batch:	110902	Sample Preparation:	2016-06-16	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,4,6	**843**	mg/Kg	5	25.0

Sample: 421537 - HA-2

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130817	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3,4	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	19.8	mg/Kg	1	25.0	79	58.2 - 150

Sample: 421537 - HA-2

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	130856	Date Analyzed:	2016-06-17	Analyzed By:	AK
Prep Batch:	110874	Sample Preparation:	2016-06-16	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	mg/Kg	1	2.00	102	70 - 130

Sample: 421537 - HA-2

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130818	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			19.9	mg/Kg	1	25.0	80	70 - 130
n-Triacontane			22.4	mg/Kg	1	25.0	90	70 - 130

Sample: 421538 - HA-3

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	130866	Date Analyzed:	2016-06-16	Analyzed By:	RL
Prep Batch:	110902	Sample Preparation:	2016-06-16	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,4,6	<25.0	mg/Kg	1	25.0

Sample: 421538 - HA-3

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130817	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3,4	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	20.3	mg/Kg	1	25.0	81	58.2 - 150

Sample: 421538 - HA-3

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	130856	Date Analyzed:	2016-06-17	Analyzed By:	AK
Prep Batch:	110874	Sample Preparation:	2016-06-16	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.85	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	70 - 130

Sample: 421538 - HA-3

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130818	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

continued ...

sample 421538 continued ...

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			20.3	mg/Kg	1	25.0	81	70 - 130
n-Triacontane			21.7	mg/Kg	1	25.0	87	70 - 130

Sample: 421539 - HA-4

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	130866	Date Analyzed:	2016-06-16	Analyzed By:	RL
Prep Batch:	110902	Sample Preparation:	2016-06-16	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,4,6	<25.0	mg/Kg	1	25.0

Sample: 421539 - HA-4

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130817	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3,4	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	19.3	mg/Kg	1	25.0	77	58.2 - 150

Sample: 421539 - HA-4

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	130856	Date Analyzed:	2016-06-17	Analyzed By:	AK
Prep Batch:	110874	Sample Preparation:	2016-06-16	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	mg/Kg	1	2.00	102	70 - 130

Sample: 421539 - HA-4

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130818	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			20.4	mg/Kg	1	25.0	82	70 - 130
n-Triacontane			24.7	mg/Kg	1	25.0	99	70 - 130

Sample: 421540 - HA-5

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	130866	Date Analyzed:	2016-06-16	Analyzed By:	RL
Prep Batch:	110902	Sample Preparation:	2016-06-16	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,4,6	<25.0	mg/Kg	1	25.0

Sample: 421540 - HA-5

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130817	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3,4	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	19.1	mg/Kg	1	25.0	76	58.2 - 150

Sample: 421540 - HA-5

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	130856	Date Analyzed:	2016-06-17	Analyzed By:	AK
Prep Batch:	110874	Sample Preparation:	2016-06-16	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	1	2.00	100	70 - 130

Sample: 421540 - HA-5

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130818	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			18.8	mg/Kg	1	25.0	75	70 - 130

continued ...

sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			20.4	mg/Kg	1	25.0	82	70 - 130

Sample: 421541 - HA-6

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	130866	Date Analyzed:	2016-06-16	Analyzed By:	RL
Prep Batch:	110902	Sample Preparation:	2016-06-16	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,4,6	<25.0	mg/Kg	1	25.0

Sample: 421541 - HA-6

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130817	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3,4	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	22.2	mg/Kg	1	25.0	89	58.2 - 150

Sample: 421541 - HA-6

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	130856	Date Analyzed:	2016-06-17	Analyzed By:	AK
Prep Batch:	110874	Sample Preparation:	2016-06-16	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	70 - 130

Sample: 421541 - HA-6

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130818	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			22.4	mg/Kg	1	25.0	90	70 - 130
n-Triacontane			26.6	mg/Kg	1	25.0	106	70 - 130

Sample: 421542 - HA-7

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	130866	Date Analyzed:	2016-06-16	Analyzed By:	RL
Prep Batch:	110902	Sample Preparation:	2016-06-16	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,4,6	**405**	mg/Kg	2	25.0

Sample: 421542 - HA-7

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130817	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3,4	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	19.0	mg/Kg	1	25.0	76	58.2 - 150

Sample: 421542 - HA-7

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 130856
Prep Batch: 110874
Analytical Method: S 8015 D
Date Analyzed: 2016-06-17
Sample Preparation: 2016-06-16
Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.85	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.98	mg/Kg	1	2.00	99	70 - 130

Sample: 421542 - HA-7

Laboratory: Lubbock
Analysis: TPH ORO
QC Batch: 130818
Prep Batch: 110860
Analytical Method: S 8015 D
Date Analyzed: 2016-06-16
Sample Preparation: 2016-06-15
Prep Method: N/A
Analyzed By: HJ
Prepared By: HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			19.6	mg/Kg	1	25.0	78	70 - 130
n-Triacontane			20.9	mg/Kg	1	25.0	84	70 - 130

Sample: 421543 - HA-8

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 130866
Prep Batch: 110902
Analytical Method: E 300.0
Date Analyzed: 2016-06-16
Sample Preparation: 2016-06-16
Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,4,6	**40.5**	mg/Kg	1	25.0

Sample: 421543 - HA-8

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130817	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3,4	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	20.1	mg/Kg	1	25.0	80	58.2 - 150

Sample: 421543 - HA-8

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	130856	Date Analyzed:	2016-06-17	Analyzed By:	AK
Prep Batch:	110874	Sample Preparation:	2016-06-16	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.80	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	70 - 130

Sample: 421543 - HA-8

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	130818	Date Analyzed:	2016-06-16	Analyzed By:	HJ
Prep Batch:	110860	Sample Preparation:	2016-06-15	Prepared By:	HJ

continued ...

sample 421543 continued ...

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	Qs,U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			19.9	mg/Kg	1	25.0	80	70 - 130
n-Triacontane			19.7	mg/Kg	1	25.0	79	70 - 130

Method Blanks

Method Blank (1) QC Batch: 130817

QC Batch: 130817 Date Analyzed: 2016-06-16 Analyzed By: HJ
Prep Batch: 110860 QC Preparation: 2016-06-15 Prepared By: HJ

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1,2,3,4	<8.47	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	26.1	mg/Kg	1	25.0	104	58.2 - 150

Method Blank (1) QC Batch: 130818

QC Batch: 130818 Date Analyzed: 2016-06-16 Analyzed By: HJ
Prep Batch: 110860 QC Preparation: 2016-06-15 Prepared By: HJ

Parameter	Flag	Cert	MDL Result	Units	RL
ORO			<7.48	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			26.5	mg/Kg	1	25.0	106	70 - 130
n-Triacontane			27.6	mg/Kg	1	25.0	110	70 - 130

Method Blank (1) QC Batch: 130856

QC Batch: 130856 Date Analyzed: 2016-06-17 Analyzed By: AK
Prep Batch: 110874 QC Preparation: 2016-06-16 Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		5	<1.76	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.85	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.77	mg/Kg	1	2.00	88	70 - 130

Method Blank (1) QC Batch: 130866

QC Batch: 130866 Date Analyzed: 2016-06-16 Analyzed By: RL
Prep Batch: 110902 QC Preparation: 2016-06-16 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		3,4,6	<4.44	mg/Kg	25

Method Blank (1) QC Batch: 130884

QC Batch: 130884 Date Analyzed: 2016-06-17 Analyzed By: RL
Prep Batch: 110911 QC Preparation: 2016-06-16 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		3,4,6	<4.44	mg/Kg	25

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 130817
Prep Batch: 110860

Date Analyzed: 2016-06-16
QC Preparation: 2016-06-15

Analyzed By: HJ
Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3,4	542	mg/Kg	1	500	<8.47	108	68.5 - 136

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3,4	537	mg/Kg	1	500	<8.47	107	68.5 - 136	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	3	29.8	29.3	mg/Kg	1	25.0	119	117	58.2 - 150

Laboratory Control Spike (LCS-1)

QC Batch: 130818
Prep Batch: 110860

Date Analyzed: 2016-06-16
QC Preparation: 2016-06-15

Analyzed By: HJ
Prepared By: HJ

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	29.8	29.3	mg/Kg	1	25.0	119	117	70 - 130
n-Triacontane	26.3	25.2	mg/Kg	1	25.0	105	101	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 130856
Prep Batch: 110874

Date Analyzed: 2016-06-17
QC Preparation: 2016-06-16

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		5	18.2	mg/Kg	1	20.0	<1.76	91	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		5	20.9	mg/Kg	1	20.0	<1.76	104	70 - 130	14	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.88	1.85	mg/Kg	1	2.00	94	92	70 - 130
4-Bromofluorobenzene (4-BFB)	1.96	1.95	mg/Kg	1	2.00	98	98	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 130866
Prep Batch: 110902
Date Analyzed: 2016-06-16
QC Preparation: 2016-06-16
Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,4,6	246	mg/Kg	1	250	<4.44	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3,4,6	241	mg/Kg	1	250	<4.44	96	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 130884
Prep Batch: 110911
Date Analyzed: 2016-06-17
QC Preparation: 2016-06-16
Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,4,6	239	mg/Kg	1	250	<4.44	96	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3.4.6	234	mg/Kg	1	250	<4.44	94	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 421543

QC Batch: 130817
Prep Batch: 110860

Date Analyzed: 2016-06-16
QC Preparation: 2016-06-15

Analyzed By: HJ
Prepared By: HJ

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3,4	488	mg/Kg	1	500	<8.47	98	49.3 - 138

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3,4	448	mg/Kg	1	500	<8.47	90	49.3 - 138	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	3	25.0	23.7	mg/Kg	1	25	100	95	58.2 - 150

Matrix Spike (MS-1) Spiked Sample: 421543

QC Batch: 130818
Prep Batch: 110860

Date Analyzed: 2016-06-16
QC Preparation: 2016-06-15

Analyzed By: HJ
Prepared By: HJ

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	25.0	23.7	mg/Kg	1	25	100	95	70 - 130
n-Triacontane	19.8	21.8	mg/Kg	1	25	79	87	70 - 130

Matrix Spike (MS-1) Spiked Sample: 421472

QC Batch: 130856
Prep Batch: 110874

Date Analyzed: 2016-06-17
QC Preparation: 2016-06-16

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		5	15.3	mg/Kg	1	20.0	<1.76	76	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		5	18.0	mg/Kg	1	20.0	<1.76	90	70 - 130	16	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.82	1.76	mg/Kg	1	2	91	88	70 - 130
4-Bromofluorobenzene (4-BFB)	2.36	2.37	mg/Kg	1	2	118	118	70 - 130

Matrix Spike (MS-1) Spiked Sample: 421543

QC Batch: 130866
Prep Batch: 110902

Date Analyzed: 2016-06-16
QC Preparation: 2016-06-16

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,4,6	288	mg/Kg	1	250	40.5	99	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3,4,6	271	mg/Kg	1	250	40.5	92	80 - 120	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 421536

QC Batch: 130884
Prep Batch: 110911

Date Analyzed: 2016-06-17
QC Preparation: 2016-06-16

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,4,6	290	mg/Kg	1	250	68.4	89	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3,4,6	294	mg/Kg	1	250	68.4	90	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-1)

QC Batch: 130817 Date Analyzed: 2016-06-16 Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3,4	mg/Kg	500	565	113	80 - 120	2016-06-16

Standard (CCV-2)

QC Batch: 130817 Date Analyzed: 2016-06-16 Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3,4	mg/Kg	500	546	109	80 - 120	2016-06-16

Standard (CCV-1)

QC Batch: 130856 Date Analyzed: 2016-06-17 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		5	mg/Kg	1.00	0.923	92	80 - 120	2016-06-17

Standard (CCV-2)

QC Batch: 130856 Date Analyzed: 2016-06-17 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		5	mg/Kg	1.00	0.839	84	80 - 120	2016-06-17

Standard (CCV-3)

QC Batch: 130856 Date Analyzed: 2016-06-17 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		5	mg/Kg	1.00	1.07	107	80 - 120	2016-06-17

Standard (CCV-1)

QC Batch: 130866 Date Analyzed: 2016-06-16 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3,4,6	mg/Kg	25.0	24.2	97	90 - 110	2016-06-16

Standard (CCV-2)

QC Batch: 130866 Date Analyzed: 2016-06-16 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3,4,6	mg/Kg	25.0	24.0	96	90 - 110	2016-06-16

Standard (CCV-1)

QC Batch: 130884 Date Analyzed: 2016-06-17 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3,4,6	mg/Kg	25.0	25.4	102	90 - 110	2016-06-17

Standard (CCV-2)

QC Batch: 130884 Date Analyzed: 2016-06-17 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3,4,6	mg/Kg	25.0	22.7	91	90 - 110	2016-06-17

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-16-12	Lubbock
5	NELAP	T104704392-14-8	Midland
6		2015-066	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.

F	Description
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

WO#: 16061310

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 6/13/2016 PAGE 1 OF 1

PO #: _____ LAB WORK ORDER #: 16061310

PROJECT LOCATION OR NAME: Eppesson 16 Pipeline Release

LAI PROJECT #: 16-0120-01 COLLECTOR: Michael Gant

TRRP report? ☐ Yes ☐ No

TIME ZONE: Time zone/State:

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
HA-1		6/10/16	1:25	S	1				X			42/536
HA-2			1:34	S	1				X			537
HA-3			1:38	S	1				X			538
HA-4			1:48	S	1				X			539
HA-5			1:54	S	1				X			540
HA-6			2:00	S	1				X			541
HA-7			2:08	S	1				X			542
HA-8			2:15	S	1				X			543
TOTAL												

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 X | DIESEL - MOD 8015 X ORO X | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE X ANIONS ☐ ALKALINITY ☐ (300.0)

RELINQUISHED BY:(Signature) Michael Gant — DATE/TIME 6/13/2016 10:11 — RECEIVED BY: (Signature) Nancy H 6/13/16 10:11

RELINQUISHED BY:(Signature) Nancy H — DATE/TIME 6/13/16 10:30 — RECEIVED BY: (Signature) Brenda Wood

RELINQUISHED BY:(Signature) — DATE/TIME — RECEIVED BY: (Signature) 6/14/16 4.1/4.5

TURN AROUND TIME

NORMAL ☐
1 DAY ☐
2 DAY ☐
OTHER X
4-5 days

LABORATORY USE ONLY:

RECEIVING TEMP: 5.0 THERM #: IR-1

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED

☐ CARRIER BILL # _____

☑ HAND DELIVERED

AJ

Summary Report

Michael Gant
Larson and Associates, Inc.

P. O. Box 50685
Midland, TX 79710

Report Date: July 15, 2016

Work Order: 16070822

Project Name: Epperson 16" Pipeline Site 1
Project Number: 16-0120-01

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
423743	SB-1-1	soil	2016-06-30	11:40	2016-07-08
423744	SB-1-2	soil	2016-06-30	11:40	2016-07-08
423745	SB-1-3	soil	2016-06-30	11:40	2016-07-08
423746	SB-1-4	soil	2016-06-30	11:40	2016-07-08
423747	SB-1-5	soil	2016-06-30	11:40	2016-07-08
423748	SB-1-6	soil	2016-06-30	11:40	2016-07-08
423749	SB-3-1	soil	2016-06-30	11:17	2016-07-08
423750	SB-4-1	soil	2016-06-30	10:55	2016-07-08
423751	SB-5-1	soil	2016-06-30	11:04	2016-07-08
423752	SB-6-1	soil	2016-06-30	11:10	2016-07-08
423753	SB-8-1	soil	2016-06-30	11:23	2016-07-08
423754	SB-8-2	soil	2016-06-30	11:25	2016-07-08
423755	SB-8-3	soil	2016-06-30	11:25	2016-07-08
423756	SB-8-4	soil	2016-06-30	11:25	2016-07-08
423757	SB-8-5	soil	2016-06-30	11:30	2016-07-08
423758	SB-8-6	soil	2016-06-30	11:30	2016-07-08
423759	SB-8-7	soil	2016-06-30	11:30	2016-07-08
423760	SB-8-8	soil	2016-06-30	11:30	2016-07-08

Sample - Field Code	TPH DRO DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
423743 - SB-1-1	<50.0	<4.24
423744 - SB-1-2	<50.0	<4.24
423745 - SB-1-3	<50.0	<4.24
423746 - SB-1-4	<50.0	<4.24
423747 - SB-1-5	<50.0	<4.24
423748 - SB-1-6	<50.0	<4.24
423749 - SB-3-1	<50.0	<4.24

continued ...

... continued

Sample - Field Code	TPH DRO DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
423750 - SB-4-1	<50.0	<4.24
423751 - SB-5-1	<50.0	<4.24
423752 - SB-6-1	<50.0	<4.24
423753 - SB-8-1	<50.0	<4.24
423754 - SB-8-2	<50.0	<4.24
423755 - SB-8-3	<50.0	<4.24
423756 - SB-8-4	<50.0	<4.24
423757 - SB-8-5	<50.0	<4.24
423758 - SB-8-6	<50.0	<4.24
423759 - SB-8-7	<50.0	<4.24
423760 - SB-8-8	<50.0	<4.24

Sample: 423743 - SB-1-1

Param	Flag	Result	Units	RL
Chloride		**145**	mg/Kg	25
ORO	Qs	<50.0	mg/Kg	50

Sample: 423744 - SB-1-2

Param	Flag	Result	Units	RL
Chloride		**71.0**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423745 - SB-1-3

Param	Flag	Result	Units	RL
Chloride		**536**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423746 - SB-1-4

Param	Flag	Result	Units	RL
Chloride		**708**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423747 - SB-1-5

continued ...

sample 423747 continued ...

Param	Flag	Result	Units	RL
Chloride		**518**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423748 - SB-1-6

Param	Flag	Result	Units	RL
Chloride		**434**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423749 - SB-3-1

Param	Flag	Result	Units	RL
Chloride		<25.0	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423750 - SB-4-1

Param	Flag	Result	Units	RL
Chloride		<25.0	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423751 - SB-5-1

Param	Flag	Result	Units	RL
Chloride		<25.0	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423752 - SB-6-1

Param	Flag	Result	Units	RL
Chloride		<25.0	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423753 - SB-8-1

continued ...

sample 423753 continued ...

Param	Flag	Result	Units	RL
Chloride		**476**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423754 - SB-8-2

Param	Flag	Result	Units	RL
Chloride		**1850**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423755 - SB-8-3

Param	Flag	Result	Units	RL
Chloride		**1440**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423756 - SB-8-4

Param	Flag	Result	Units	RL
Chloride		**884**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423757 - SB-8-5

Param	Flag	Result	Units	RL
Chloride		**469**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423758 - SB-8-6

Param	Flag	Result	Units	RL
Chloride		**452**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423759 - SB-8-7

continued ...

sample 423759 continued ...

Param	Flag	Result	Units	RL
Param	Flag	Result	Units	RL
Chloride		**519**	mg/Kg	25
ORO		<50.0	mg/Kg	50

Sample: 423760 - SB-8-8

Param	Flag	Result	Units	RL
Chloride		**295**	mg/Kg	25
ORO		<50.0	mg/Kg	50

TRACEANALYSIS, INC.

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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Michael Gant
Larson and Associates, Inc.

P. O. Box 50685
Midland, TX, 79710

Report Date: July 15, 2016

Work Order: 16070822

Project Name: Epperson 16" Pipeline Site 1
Project Number: 16-0120-01

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
423743	SB-1-1	soil	2016-06-30	11:40	2016-07-08
423744	SB-1-2	soil	2016-06-30	11:40	2016-07-08
423745	SB-1-3	soil	2016-06-30	11:40	2016-07-08
423746	SB-1-4	soil	2016-06-30	11:40	2016-07-08
423747	SB-1-5	soil	2016-06-30	11:40	2016-07-08
423748	SB-1-6	soil	2016-06-30	11:40	2016-07-08
423749	SB-3-1	soil	2016-06-30	11:17	2016-07-08
423750	SB-4-1	soil	2016-06-30	10:55	2016-07-08
423751	SB-5-1	soil	2016-06-30	11:04	2016-07-08
423752	SB-6-1	soil	2016-06-30	11:10	2016-07-08
423753	SB-8-1	soil	2016-06-30	11:23	2016-07-08
423754	SB-8-2	soil	2016-06-30	11:25	2016-07-08
423755	SB-8-3	soil	2016-06-30	11:25	2016-07-08
423756	SB-8-4	soil	2016-06-30	11:25	2016-07-08
423757	SB-8-5	soil	2016-06-30	11:30	2016-07-08
423758	SB-8-6	soil	2016-06-30	11:30	2016-07-08
423759	SB-8-7	soil	2016-06-30	11:30	2016-07-08
423760	SB-8-8	soil	2016-06-30	11:30	2016-07-08

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 44 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Johnny Grindstaff, Operations Manager

Report Contents

Case Narrative

Samples for project Epperson 16" Pipeline Site 1 were received by TraceAnalysis, Inc. on 2016-07-08 and assigned to work order 16070822. Samples for work order 16070822 were received intact at a temperature of 4.6 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (IC)	E 300.0	111403	2016-07-13 at 12:00	131454	2016-07-13 at 15:27
Chloride (IC)	E 300.0	111403	2016-07-13 at 12:00	131482	2016-07-14 at 08:28
Chloride (IC)	E 300.0	111403	2016-07-13 at 12:00	131495	2016-07-14 at 13:05
TPH DRO	S 8015 D	111363	2016-07-12 at 14:00	131410	2016-07-13 at 09:59
TPH GRO	S 8015 D	111315	2016-07-08 at 15:00	131369	2016-07-12 at 07:07
TPH ORO	S 8015 D	111363	2016-07-12 at 14:00	131411	2016-07-13 at 10:02

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16070822 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 423743 - SB-1-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131454	Date Analyzed:	2016-07-13	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		3,5	**145**	mg/Kg	5	25.0

Sample: 423743 - SB-1-1

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.2	mg/Kg	1	25.0	113	58.2 - 150

Sample: 423743 - SB-1-1

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.19	mg/Kg	1.06	2.00	110	70 - 130

continued ...

sample continued . . .

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			2.32	mg/Kg	1.06	2.00	116	70 - 130

Sample: 423743 - SB-1-1

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	Qs,U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.2	mg/Kg	1	25.0	113	70 - 130
n-Triacontane			30.4	mg/Kg	1	25.0	122	70 - 130

Sample: 423744 - SB-1-2

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131482	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	**71.0**	mg/Kg	1	25.0

Sample: 423744 - SB-1-2

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			29.5	mg/Kg	1	25.0	118	58.2 - 150

Sample: 423744 - SB-1-2

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.14	mg/Kg	1.06	2.00	107	70 - 130
4-Bromofluorobenzene (4-BFB)			2.17	mg/Kg	1.06	2.00	108	70 - 130

Sample: 423744 - SB-1-2

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.5	mg/Kg	1	25.0	114	70 - 130
n-Triacontane			31.0	mg/Kg	1	25.0	124	70 - 130

Sample: 423745 - SB-1-3

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131482	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	**536**	mg/Kg	10	25.0

Sample: 423745 - SB-1-3

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			30.8	mg/Kg	1	25.0	123	58.2 - 150

Sample: 423745 - SB-1-3

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolnene (TFT)			2.15	mg/Kg	1.06	2.00	108	70 - 130
4-Bromofluorobenzene (4-BFB)			2.16	mg/Kg	1.06	2.00	108	70 - 130

Sample: 423745 - SB-1-3

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

continued ...

sample 423745 continued . . .

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			30.8	mg/Kg	1	25.0	123	70 - 130
n-Triacontane			30.1	mg/Kg	1	25.0	120	70 - 130

Sample: 423746 - SB-1-4

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131482	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	**708**	mg/Kg	10	25.0

Sample: 423746 - SB-1-4

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.4	mg/Kg	1	25.0	114	58.2 - 150

Sample: 423746 - SB-1-4

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.25	mg/Kg	1.06	2.00	112	70 - 130
4-Bromofluorobenzene (4-BFB)			2.18	mg/Kg	1.06	2.00	109	70 - 130

Sample: 423746 - SB-1-4

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.4	mg/Kg	1	25.0	114	70 - 130
n-Triacontane			30.7	mg/Kg	1	25.0	123	70 - 130

Sample: 423747 - SB-1-5

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131482	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3.5	**518**	mg/Kg	10	25.0

Sample: 423747 - SB-1-5

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.2	mg/Kg	1	25.0	113	58.2 - 150

Sample: 423747 - SB-1-5

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.18	mg/Kg	1.06	2.00	109	70 - 130
4-Bromofluorobenzene (4-BFB)			2.15	mg/Kg	1.06	2.00	108	70 - 130

Sample: 423747 - SB-1-5

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.2	mg/Kg	1	25.0	113	70 - 130

continued . . .

sample continued . . .

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			28.1	mg/Kg	1	25.0	112	70 - 130

Sample: 423748 - SB-1-6

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131482	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		3,5	**434**	mg/Kg	10	25.0

Sample: 423748 - SB-1-6

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			29.8	mg/Kg	1	25.0	119	58.2 - 150

Sample: 423748 - SB-1-6

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.25	mg/Kg	1.06	2.00	112	70 - 130
4-Bromofluorobenzene (4-BFB)			2.24	mg/Kg	1.06	2.00	112	70 - 130

Sample: 423748 - SB-1-6

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			29.8	mg/Kg	1	25.0	119	70 - 130
n-Triacontane			30.1	mg/Kg	1	25.0	120	70 - 130

Sample: 423749 - SB-3-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131454	Date Analyzed:	2016-07-13	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	<25.0	mg/Kg	1	25.0

Sample: 423749 - SB-3-1

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			27.0	mg/Kg	1	25.0	108	58.2 - 150

Sample: 423749 - SB-3-1

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.16	mg/Kg	1.06	2.00	108	70 - 130
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1.06	2.00	106	70 - 130

Sample: 423749 - SB-3-1

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			27.0	mg/Kg	1	25.0	108	70 - 130
n-Triacontane			26.2	mg/Kg	1	25.0	105	70 - 130

Sample: 423750 - SB-4-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131454	Date Analyzed:	2016-07-13	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		3,5	<25.0	mg/Kg	1	25.0

Sample: 423750 - SB-4-1

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			26.7	mg/Kg	1	25.0	107	58.2 - 150

Sample: 423750 - SB-4-1

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.23	mg/Kg	1.06	2.00	112	70 - 130
4-Bromofluorobenzene (4-BFB)			2.18	mg/Kg	1.06	2.00	109	70 - 130

Sample: 423750 - SB-4-1

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

continued ...

sample 423750 continued ...

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			26.7	mg/Kg	1	25.0	107	70 - 130
n-Triacontane			27.2	mg/Kg	1	25.0	109	70 - 130

Sample: 423751 - SB-5-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131454	Date Analyzed:	2016-07-13	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	<25.0	mg/Kg	1	25.0

Sample: 423751 - SB-5-1

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			27.1	mg/Kg	1	25.0	108	58.2 - 150

Sample: 423751 - SB-5-1

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.14	mg/Kg	1.06	2.00	107	70 - 130
4-Bromofluorobenzene (4-BFB)			2.17	mg/Kg	1.06	2.00	108	70 - 130

Sample: 423751 - SB-5-1

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			27.1	mg/Kg	1	25.0	108	70 - 130
n-Triacontane			27.7	mg/Kg	1	25.0	111	70 - 130

Sample: 423752 - SB-6-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131454	Date Analyzed:	2016-07-13	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	<25.0	mg/Kg	1	25.0

Sample: 423752 - SB-6-1

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			30.0	mg/Kg	1	25.0	120	58.2 - 150

Sample: 423752 - SB-6-1

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1.06	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)			2.19	mg/Kg	1.06	2.00	110	70 - 130

Sample: 423752 - SB-6-1

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			30.0	mg/Kg	1	25.0	120	70 - 130

continued . . .

sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			31.6	mg/Kg	1	25.0	126	70 - 130

Sample: 423753 - SB-8-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131482	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride		3,5	**476**		mg/Kg	5	25.0

Sample: 423753 - SB-8-1

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
DRO	U	1,2,3		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			32.5	mg/Kg	1	25.0	130	58.2 - 150

Sample: 423753 - SB-8-1

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
GRO	U	4		<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.22	mg/Kg	1.06	2.00	111	70 - 130
4-Bromofluorobenzene (4-BFB)			2.26	mg/Kg	1.06	2.00	113	70 - 130

Sample: 423753 - SB-8-1

Laboratory: Lubbock
Analysis: TPH ORO — Analytical Method: S 8015 D — Prep Method: N/A
QC Batch: 131411 — Date Analyzed: 2016-07-13 — Analyzed By: HJ
Prep Batch: 111363 — Sample Preparation: 2016-07-12 — Prepared By: HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			31.8	mg/Kg	1	25.0	127	70 - 130
n-Triacontane			30.2	mg/Kg	1	25.0	121	70 - 130

Sample: 423754 - SB-8-2

Laboratory: Lubbock
Analysis: Chloride (IC) — Analytical Method: E 300.0 — Prep Method: N/A
QC Batch: 131482 — Date Analyzed: 2016-07-14 — Analyzed By: RL
Prep Batch: 111403 — Sample Preparation: 2016-07-13 — Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	**1850**	mg/Kg	10	25.0

Sample: 423754 - SB-8-2

Laboratory: Lubbock
Analysis: TPH DRO — Analytical Method: S 8015 D — Prep Method: N/A
QC Batch: 131410 — Date Analyzed: 2016-07-13 — Analyzed By: HJ
Prep Batch: 111363 — Sample Preparation: 2016-07-12 — Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			29.5	mg/Kg	1	25.0	118	58.2 - 150

Sample: 423754 - SB-8-2

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.18	mg/Kg	1.06	2.00	109	70 - 130
4-Bromofluorobenzene (4-BFB)			2.22	mg/Kg	1.06	2.00	111	70 - 130

Sample: 423754 - SB-8-2

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			29.5	mg/Kg	1	25.0	118	70 - 130
n-Triacontane			27.7	mg/Kg	1	25.0	111	70 - 130

Sample: 423755 - SB-8-3

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131482	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride		3,5	**1440**	mg/Kg	10	25.0

Sample: 423755 - SB-8-3

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			31.2	mg/Kg	1	25.0	125	58.2 - 150

Sample: 423755 - SB-8-3

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.17	mg/Kg	1.06	2.00	108	70 - 130
4-Bromofluorobenzene (4-BFB)			2.16	mg/Kg	1.06	2.00	108	70 - 130

Sample: 423755 - SB-8-3

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

continued ...

sample 423755 continued ...

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			31.2	mg/Kg	1	25.0	125	70 - 130
n-Triacontane			30.8	mg/Kg	1	25.0	123	70 - 130

Sample: 423756 - SB-8-4

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131482	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	**884**	mg/Kg	10	25.0

Sample: 423756 - SB-8-4

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			30.3	mg/Kg	1	25.0	121	58.2 - 150

Sample: 423756 - SB-8-4

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.21	mg/Kg	1.06	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)			2.13	mg/Kg	1.06	2.00	106	70 - 130

Sample: 423756 - SB-8-4

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			30.3	mg/Kg	1	25.0	121	70 - 130
n-Triacontane			28.5	mg/Kg	1	25.0	114	70 - 130

Sample: 423757 - SB-8-5

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131495	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	**469**	mg/Kg	10	25.0

Sample: 423757 - SB-8-5

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			32.2	mg/Kg	1	25.0	129	58.2 - 150

Sample: 423757 - SB-8-5

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.18	mg/Kg	1.06	2.00	109	70 - 130
4-Bromofluorobenzene (4-BFB)			2.10	mg/Kg	1.06	2.00	105	70 - 130

Sample: 423757 - SB-8-5

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			32.2	mg/Kg	1	25.0	129	70 - 130

continued ...

sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			30.8	mg/Kg	1	25.0	123	70 - 130

Sample: 423758 - SB-8-6

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131495	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	**452**	mg/Kg	10	25.0

Sample: 423758 - SB-8-6

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.5	mg/Kg	1	25.0	114	58.2 - 150

Sample: 423758 - SB-8-6

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.19	mg/Kg	1.06	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)			2.09	mg/Kg	1.06	2.00	104	70 - 130

Sample: 423758 - SB-8-6

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.5	mg/Kg	1	25.0	114	70 - 130
n-Triacontane			26.5	mg/Kg	1	25.0	106	70 - 130

Sample: 423759 - SB-8-7

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131495	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		3,5	**519**	mg/Kg	10	25.0

Sample: 423759 - SB-8-7

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.0	mg/Kg	1	25.0	112	58.2 - 150

Sample: 423759 - SB-8-7

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.15	mg/Kg	1.06	2.00	108	70 - 130
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1.06	2.00	104	70 - 130

Sample: 423759 - SB-8-7

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			28.0	mg/Kg	1	25.0	112	70 - 130
n-Triacontane			27.3	mg/Kg	1	25.0	109	70 - 130

Sample: 423760 - SB-8-8

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	131495	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	Sample Preparation:	2016-07-13	Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		3,5	**295**	mg/Kg	5	25.0

Sample: 423760 - SB-8-8

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131410	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			27.1	mg/Kg	1	25.0	108	58.2 - 150

Sample: 423760 - SB-8-8

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	131369	Date Analyzed:	2016-07-12	Analyzed By:	AK
Prep Batch:	111315	Sample Preparation:	2016-07-08	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1.06	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)			2.02	mg/Kg	1.06	2.00	101	70 - 130

Sample: 423760 - SB-8-8

Laboratory:	Lubbock				
Analysis:	TPH ORO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	131411	Date Analyzed:	2016-07-13	Analyzed By:	HJ
Prep Batch:	111363	Sample Preparation:	2016-07-12	Prepared By:	HJ

continued ...

sample 423760 continued ...

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	U		<7.48	<50.0	<50.0	<50.0	mg/Kg	1	7.48	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			27.1	mg/Kg	1	25.0	108	70 - 130
n-Triacontane			28.1	mg/Kg	1	25.0	112	70 - 130

Method Blanks

Method Blank (1) QC Batch: 131369

QC Batch: 131369 Date Analyzed: 2016-07-12 Analyzed By: AK
Prep Batch: 111315 QC Preparation: 2016-07-08 Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		4	<1.86	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1.06	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			1.81	mg/Kg	1.06	2.00	90	70 - 130

Method Blank (1) QC Batch: 131410

QC Batch: 131410 Date Analyzed: 2016-07-13 Analyzed By: HJ
Prep Batch: 111363 QC Preparation: 2016-07-12 Prepared By: HJ

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1,2,3	<8.47	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			26.8	mg/Kg	1	25.0	107	58.2 - 150

Method Blank (1) QC Batch: 131411

QC Batch: 131411 Date Analyzed: 2016-07-13 Analyzed By: HJ
Prep Batch: 111363 QC Preparation: 2016-07-12 Prepared By: HJ

Parameter	Flag	Cert	MDL Result	Units	RL
ORO			<7.48	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			26.8	mg/Kg	1	25.0	107	70 - 130
n-Triacontane			27.1	mg/Kg	1	25.0	108	70 - 130

Method Blank (1) QC Batch: 131454

QC Batch: 131454 Date Analyzed: 2016-07-13 Analyzed By: RL
Prep Batch: 111403 QC Preparation: 2016-07-13 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		3,5	<4.44	mg/Kg	25

Method Blank (1) QC Batch: 131482

QC Batch: 131482 Date Analyzed: 2016-07-14 Analyzed By: RL
Prep Batch: 111403 QC Preparation: 2016-07-13 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		3,5	<4.44	mg/Kg	25

Method Blank (1) QC Batch: 131495

QC Batch: 131495 Date Analyzed: 2016-07-14 Analyzed By: RL
Prep Batch: 111403 QC Preparation: 2016-07-13 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		3,5	<4.44	mg/Kg	25

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 131369
Prep Batch: 111315
Date Analyzed: 2016-07-12
QC Preparation: 2016-07-08
Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		4	24.1	mg/Kg	1.06	20.0	<1.86	120	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		4	24.9	mg/Kg	1.06	20.0	<1.86	124	70 - 130	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.13	2.13	mg/Kg	1.06	2.00	106	106	70 - 130
4-Bromofluorobenzene (4-BFB)	2.06	2.08	mg/Kg	1.06	2.00	103	104	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 131410
Prep Batch: 111363
Date Analyzed: 2016-07-13
QC Preparation: 2016-07-12
Analyzed By: HJ
Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	610	mg/Kg	1	500	<8.47	122	68.5 - 136

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	606	mg/Kg	1	500	<8.47	121	68.5 - 136	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	33.2	34.8	mg/Kg	1	25.0	133	139	58.2 - 150

Laboratory Control Spike (LCS-1)

QC Batch: 131411
Prep Batch: 111363
Date Analyzed: 2016-07-13
QC Preparation: 2016-07-12
Analyzed By: HJ
Prepared By: HJ

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	31.9	32.1	mg/Kg	1	25.0	128	128	70 - 130
n-Triacontane	24.5	24.1	mg/Kg	1	25.0	98	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 131454
Prep Batch: 111403
Date Analyzed: 2016-07-13
QC Preparation: 2016-07-13
Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,5	230	mg/Kg	1	250	<4.44	92	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3,5	228	mg/Kg	1	250	<4.44	91	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 131482
Prep Batch: 111403
Date Analyzed: 2016-07-14
QC Preparation: 2016-07-13
Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,5	233	mg/Kg	1	250	<4.44	93	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3,5	228	mg/Kg	1	250	<4.44	91	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 131495 | Date Analyzed: 2016-07-14 | Analyzed By: RL
Prep Batch: 111403 | QC Preparation: 2016-07-13 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3.5	239	mg/Kg	1	250	<4.44	96	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3.5	245	mg/Kg	1	250	<4.44	98	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 423749

QC Batch: 131369
Prep Batch: 111315

Date Analyzed: 2016-07-12
QC Preparation: 2016-07-08

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		4	19.8	mg/Kg	1.06	20.0	<1.86	99	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		4	22.2	mg/Kg	1.06	20.0	<1.86	111	70 - 130	11	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.04	2.05	mg/Kg	1.06	2	102	102	70 - 130
4-Bromofluorobenzene (4-BFB)	2.21	2.20	mg/Kg	1.06	2	110	110	70 - 130

Matrix Spike (MS-1) Spiked Sample: 423743

QC Batch: 131410
Prep Batch: 111363

Date Analyzed: 2016-07-13
QC Preparation: 2016-07-12

Analyzed By: HJ
Prepared By: HJ

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	605	mg/Kg	1	500	<8.47	121	49.3 - 138

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	585	mg/Kg	1	500	<8.47	117	49.3 - 138	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	36.3	36.7	mg/Kg	1	25	145	147	58.2 - 150

Matrix Spike (MS-1) Spiked Sample: 423743

QC Batch: 131411 | Date Analyzed: 2016-07-13 | Analyzed By: HJ
Prep Batch: 111363 | QC Preparation: 2016-07-12 | Prepared By: HJ

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	29.9	29.5	mg/Kg	1	25	120	118	70 - 130
n-Triacontane	24.5	25.2	mg/Kg	1	25	98	101	70 - 130

Matrix Spike (MS-1) Spiked Sample: 423752

QC Batch: 131454 | Date Analyzed: 2016-07-13 | Analyzed By: RL
Prep Batch: 111403 | QC Preparation: 2016-07-13 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,5	230	mg/Kg	1	250	17.1	85	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3,5	226	mg/Kg	1	250	17.1	84	80 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 423762

QC Batch: 131482 | Date Analyzed: 2016-07-14 | Analyzed By: RL
Prep Batch: 111403 | QC Preparation: 2016-07-13 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,5	956	mg/Kg	5	250	742	86	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	Qs	Qs	1090	mg/Kg	5	250	742	139	80 - 120	13	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 423772

QC Batch:	131495	Date Analyzed:	2016-07-14	Analyzed By:	RL
Prep Batch:	111403	QC Preparation:	2016-07-13	Prepared By:	RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3.5	412	mg/Kg	5	250	131	112	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3.5	358	mg/Kg	5	250	131	91	80 - 120	14	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-1)

QC Batch: 131369 Date Analyzed: 2016-07-12 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		4	mg/Kg	1.00	1.20	120	80 - 120	2016-07-12

Standard (CCV-2)

QC Batch: 131369 Date Analyzed: 2016-07-12 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		4	mg/Kg	1.00	1.05	105	80 - 120	2016-07-12

Standard (CCV-3)

QC Batch: 131369 Date Analyzed: 2016-07-12 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		4	mg/Kg	1.00	1.08	108	80 - 120	2016-07-12

Standard (CCV-1)

QC Batch: 131410 Date Analyzed: 2016-07-13 Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/Kg	500	600	120	80 - 120	2016-07-13

Standard (CCV-2)

QC Batch: 131410 Date Analyzed: 2016-07-13 Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/Kg	500	513	103	80 - 120	2016-07-13

Standard (CCV-1)

QC Batch: 131454 Date Analyzed: 2016-07-13 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3,5	mg/Kg	25.0	22.6	90	90 - 110	2016-07-13

Standard (CCV-2)

QC Batch: 131454 Date Analyzed: 2016-07-13 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3,5	mg/Kg	25.0	23.3	93	90 - 110	2016-07-13

Standard (CCV-1)

QC Batch: 131482 Date Analyzed: 2016-07-14 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3,5	mg/Kg	25.0	24.2	97	90 - 110	2016-07-14

Standard (CCV-2)

QC Batch: 131482 Date Analyzed: 2016-07-14 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3.5	mg/Kg	25.0	24.5	98	90 - 110	2016-07-14

Standard (CCV-1)

QC Batch: 131495 Date Analyzed: 2016-07-14 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3.5	mg/Kg	25.0	24.1	96	90 - 110	2016-07-14

Standard (CCV-2)

QC Batch: 131495 Date Analyzed: 2016-07-14 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3.5	mg/Kg	25.0	25.0	100	90 - 110	2016-07-14

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	NELAP	T104704219-16-12	Lubbock
4	NELAP	T104704392-14-8	Midland
5		2015-066	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.

F	Description
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

WO#: 160708 22

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

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

DATE: 7/8/2016 PAGE 1 OF 2

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: Epperson 16" Site 1

LAI PROJECT #: 16-0120-01 COLLECTOR: Michael Gant

Data Reported to:

TRRP report? ☐ Yes ☐ No

TIME ZONE: Time zone/State: MST/NM

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

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

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 X | DIESEL - MOD 8015 X | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE (300.0) ANIONS ☐ ALKALINITY ☐ | GRO X DRO X

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	FIELD NOTES
SB-1-1		6/30	11:40	S	1				X		423743
SB-1-2			11:40		1				X		744
SB-1-3			11:40		1				X		745
SB-1-4			11:40		1				X		746
SB-1-5			11:40		1				X		747
SB-1-6			11:40		1				X		748
SB-3-1			11:17		1				X		749
SB-4-1			10:55		1				X		750
SB-5-1			11:04		1				X		751
SB-6-1			11:10		1				X		752
SB-8-1			11:23		1				X		753
SB-8-2			11:25		1				X		754
SB-8-3			11:25		1				X		755
SB-8-4			11:25		1				X		756
SB-8-5			11:30		1				X		757
TOTAL											

RELINQUISHED BY:(Signature) Michael Gant DATE/TIME 7/8 11:18 RECEIVED BY: (Signature) Nalley H 7/8/16 11:18

RELINQUISHED BY:(Signature) Nalley H DATE/TIME 7/8/16 12:30 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature) Brenda Wood 7/12/16 3.9/4.3

TURN AROUND TIME

NORMAL ☐ NJ
1 DAY ☐
2 DAY ☐
OTHER ☒ 3 day

LABORATORY USE ONLY:

RECEIVING TEMP: 4.6 THERM #: IR-1

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED

☐ CARRIER BILL # 2S ZT930116

☐ HAND DELIVERED

WO#: 16070822

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 7/8/2016 PAGE 2 OF 2

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: Epperson 16" Site 1

LAI PROJECT #: 16-0120-01 COLLECTOR: Michael Gant

TRRP report? ☐ Yes ☐ No

TIME ZONE: Time zone/State: MST/NM

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SB-8-6		6/30	11:30	S	1				X		BTEX ☐ MTBE ☐ TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 X DIESEL - MOD 8015 X CRO X VOC 8260 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ 8082 PCBS ☐ TCLP - METALS (RCRA) ☐ TCLP VOC ☐ TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ TOTAL METALS (RCRA) ☐ OTHER LIST ☐ LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ RCI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ pH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PECHLORATE ☐ CHLORIDE X ANIONS ☐ ALKALINITY ☐ (300.0)	423758
SB-8-7		6/30	11:30	S	1				X			423759
SB-8-8		6/30	11:30	S	1				X			423760
TOTAL												

RELINQUISHED BY:(Signature) _____ DATE/TIME 7/8 11:18 RECEIVED BY: (Signature) _____ 7/8/16 11:18

RELINQUISHED BY:(Signature) _____ DATE/TIME 7/8/16 12:30 RECEIVED BY: (Signature) _____

RELINQUISHED BY:(Signature) _____ DATE/TIME 7/12/16 RECEIVED BY: (Signature) _____ 3.9/4.3

TURN AROUND TIME
NORMAL ☐
1 DAY ☐ KJ
2 DAY ☐
OTHER ☐ 3 Day

LABORATORY USE ONLY:
RECEIVING TEMP: 4.6 THERM #: IR-1
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # 25 ZT 930116
☐ HAND DELIVERED

Summary Report

Michael Gant
Larson and Associates, Inc.

P. O. Box 50685
Midland, TX 79710

Report Date: November 2, 2016

Work Order: 16102108

Project Location: N/A
Project Name: Epperson16 Site 1
Project Number: 16-0120-01

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
430551	S-1-10	soil	2016-10-18	10:50	2016-10-21
430552	S-1-12	soil	2016-10-18	10:55	2016-10-21
430553	S-1-14	soil	2016-10-18	11:05	2016-10-21
430554	S-1-16	soil	2016-10-18	11:15	2016-10-21

Sample: 430551 - S-1-10

Param	Flag	Result	Units	RL
Chloride		**393**	mg/Kg	25

Sample: 430552 - S-1-12

Param	Flag	Result	Units	RL
Chloride		**951**	mg/Kg	25

Sample: 430553 - S-1-14

Param	Flag	Result	Units	RL
Chloride		**989**	mg/Kg	25

Sample: 430554 - S-1-16

Param	Flag	Result	Units	RL
Chloride		**1580**	mg/Kg	25

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Michael Gant
Larson and Associates, Inc.

P. O. Box 50685
Midland, TX, 79710

Report Date: November 2, 2016

Work Order: 16102108

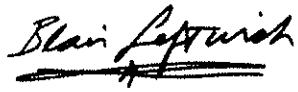
Project Location: N/A
Project Name: Epperson16 Site 1
Project Number: 16-0120-01

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
430551	S-1-10	soil	2016-10-18	10:50	2016-10-21
430552	S-1-12	soil	2016-10-18	10:55	2016-10-21
430553	S-1-14	soil	2016-10-18	11:05	2016-10-21
430554	S-1-16	soil	2016-10-18	11:15	2016-10-21

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.



Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Johnny Grindstaff, Operations Manager

Report Contents

Case Narrative

Samples for project Epperson16 Site 1 were received by TraceAnalysis, Inc. on 2016-10-21 and assigned to work order 16102108. Samples for work order 16102108 were received intact at a temperature of -2.9 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (IC)	E 300.0	113264	2016-10-31 at 12:00	133622	2016-11-01 at 12:37

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16102108 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 430551 - S-1-10

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	133622	Date Analyzed:	2016-11-01	Analyzed By:	RL
Prep Batch:	113264	Sample Preparation:	2016-10-31	Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		3,4	**393**	mg/Kg	5	25.0

Sample: 430552 - S-1-12

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	133622	Date Analyzed:	2016-11-01	Analyzed By:	RL
Prep Batch:	113264	Sample Preparation:	2016-10-31	Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		3,4	**951**	mg/Kg	5	25.0

Sample: 430553 - S-1-14

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	133622	Date Analyzed:	2016-11-01	Analyzed By:	RL
Prep Batch:	113264	Sample Preparation:	2016-10-31	Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		3,4	**989**	mg/Kg	5	25.0

Sample: 430554 - S-1-16

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	133622	Date Analyzed:	2016-11-01	Analyzed By:	RL
Prep Batch:	113264	Sample Preparation:	2016-10-31	Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		3,4	**1580**	mg/Kg	5	25.0

Method Blanks

Method Blank (1) QC Batch: 133622

QC Batch:	133622	Date Analyzed:	2016-11-01	Analyzed By:	RL
Prep Batch:	113264	QC Preparation:	2016-10-31	Prepared By:	RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		3,4	<4.44	mg/Kg	25

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 133622 | Date Analyzed: 2016-11-01 | Analyzed By: RL
Prep Batch: 113264 | QC Preparation: 2016-10-31 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,4	255	mg/Kg	1	250	<4.44	102	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3,4	256	mg/Kg	1	250	<4.44	102	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 430560

QC Batch: 133622 | Date Analyzed: 2016-11-01 | Analyzed By: RL
Prep Batch: 113264 | QC Preparation: 2016-10-31 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,4	275	mg/Kg	1	250	24.3	100	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		3,4	278	mg/Kg	1	250	24.3	101	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-1)

QC Batch: 133622 | Date Analyzed: 2016-11-01 | Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3,4	mg/Kg	25.0	27.2	109	90 - 110	2016-11-01

Standard (CCV-2)

QC Batch: 133622 | Date Analyzed: 2016-11-01 | Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		3,4	mg/Kg	25.0	26.6	106	90 - 110	2016-11-01

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	NELAP	T104704219-16-13	Lubbock
4		2015-066	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

1610206

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 10/21/2016 PAGE 1 OF 1

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: Epperson 16 Site 1

LAI PROJECT #: 16-0120-01 COLLECTOR: Michael Gant

TRRP report? ☐ Yes ☐ No

TIME ZONE: Time zone/State: MST / NM

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4, ☐ NaOH	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
S-1-10		10/18	10:50	S	1				X		☐ 300.0	430551
S-1-12		10/18	10:55	S	1				X		☐ 300.0	430552
S-1-14		10/18	11:05	S	1				X		☐ 300.0	430553
S-1-16		10/18	11:15	S	1				X		☐ 300.0	430554
TOTAL												

ANALYSES: ☐ BTEX ☐ MTBE ☐ TRPH #18.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 ☐ DIESEL - MOD 8015 ☐ VOC 8260 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8082 PCBS ☐ 8151 HERBICIDES ☐ TCLP - METALS (RCRA) ☐ TCLP VOC ☐ TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ TOTAL METALS (RCRA) ☐ OTHER LIST ☐ LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ RCI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ pH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PECHLORATE ☐ CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐ 300.0

RELINQUISHED BY:(Signature) DATE/TIME: 10/21/16 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME: 10-21-16 15:30 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME: 10/25/16 RECEIVED BY: (Signature) Brenda Ward

TRACE 25 ZU 318492 3.9/4.0

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

LABORATORY USE ONLY:
RECEIVING TEMP: 2.9 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # ☒
☐ HAND DELIVERED

Certificate of Analysis Summary 543776

Larson and Associates, Inc., Midland, TX

Project Name: Epperson 16inch Site 1

Project Id: 16-0120-01
Contact: Mark Larson
Project Location:

Date Received in Lab: Wed Jan-11-17 08:30 am
Report Date: 13-JAN-17
Project Manager: Liz Givens

Analysis Requested													
	Lab Id:	543776-001		543776-002		543776-003		543776-004		543776-005		543776-006	
	Field Id:	SB-9 16'		SB-9 18'		SB-9 20'		SB-9 25'		SB-9 30'		SB-9 35'	
	Depth:	16- ft		18- ft		20- ft		25- ft		30- ft		35- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-10-17 10:45		Jan-10-17 10:50		Jan-10-17 11:00		Jan-10-17 11:05		Jan-10-17 11:07		Jan-10-17 11:09	
BTEX by EPA 8021B	***Extracted:***	Jan-11-17 09:45		Jan-11-17 09:45		Jan-11-17 09:45							
	Analyzed:	Jan-11-17 10:58		Jan-11-17 11:17		Jan-11-17 11:33							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Benzene		0.119	0.0749	0.161	0.0767	0.0857	0.0761						
Toluene		2.04	0.0998	2.53	0.102	1.92	0.101						
Ethylbenzene		2.51	0.0998	2.27	0.102	2.40	0.101						
m_p-Xylenes		3.69	0.0998	3.26	0.102	3.53	0.101						
o-Xylene		1.13	0.150	0.907	0.153	0.984	0.152						
Total Xylenes		4.82	0.0998	4.17	0.102	4.51	0.101						
Total BTEX		9.49	0.0749	9.13	0.0767	8.92	0.0761						
Inorganic Anions by EPA 300/300.1	***Extracted:***	Jan-11-17 10:00		Jan-11-17 10:00		Jan-11-17 10:00		Jan-11-17 10:00		Jan-11-17 10:00		Jan-11-17 10:00	
	Analyzed:	Jan-11-17 13:58		Jan-11-17 14:05		Jan-11-17 14:12		Jan-11-17 14:19		Jan-11-17 14:26		Jan-11-17 14:47	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		280	5.00	17.2	5.00	136	5.00	93.1	5.00	25.8	5.00	24.6	5.00
TPH By SW8015 Mod	***Extracted:***	Jan-11-17 16:40		Jan-11-17 16:40		Jan-11-17 16:40		Jan-11-17 16:40		Jan-11-17 16:40		Jan-11-17 16:40	
	Analyzed:	Jan-11-17 23:24		Jan-11-17 23:48		Jan-12-17 00:12		Jan-12-17 00:37		Jan-12-17 01:00		Jan-12-17 01:26	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		280	15.0	68.0	15.0	105	15.0	17.8	14.9	19.9	15.0	<15.0	15.0
C10-C28 Diesel Range Hydrocarbons		69.7	15.0	27.4	15.0	67.2	15.0	15.4	14.9	22.4	15.0	19.7	15.0
C28-C35 Oil Range Hydrocarbons		<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0
Total TPH		350	15.0	95.4	15.0	172	15.0	33.2	14.9	42.3	15.0	19.7	15.0

Liz Givens
Project Manager

Certificate of Analysis Summary 543776

Larson and Associates, Inc., Midland, TX

Project Name: Epperson 16inch Site 1

Project Id: 16-0120-01
Contact: Mark Larson
Project Location:

Date Received in Lab: Wed Jan-11-17 08:30 am
Report Date: 13-JAN-17
Project Manager: Liz Givens

Analysis Requested							
	Lab Id:	543776-007					
	Field Id:	SB-9 40'					
	Depth:	40- ft					
	Matrix:	SOIL					
	Sampled:	Jan-10-17 11:10					
Inorganic Anions by EPA 300/300.1	***Extracted:***	Jan-11-17 10:00					
	Analyzed:	Jan-11-17 15:15					
	Units/RL:	mg/kg RL					
Chloride		24.6 5.00					
TPH By SW8015 Mod	***Extracted:***	Jan-11-17 16:40					
	Analyzed:	Jan-12-17 01:50					
	Units/RL:	mg/kg RL					
C6-C10 Gasoline Range Hydrocarbons		<15.0 15.0					
C10-C28 Diesel Range Hydrocarbons		<15.0 15.0					
C28-C35 Oil Range Hydrocarbons		<15.0 15.0					
Total TPH		<15.0 15.0					

Liz Givens
Project Manager

Analytical Report 543776

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Epperson 16inch Site 1

16-0120-01

13-JAN-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

13-JAN-17

Project Manager: **Mark Larson**
Larson and Associates, Inc.
P. O. Box 50685
Midland, TX 79710

Reference: XENCO Report No(s): **543776**
Epperson 16inch Site 1
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 543776. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 543776 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Liz Givens
Project Manager

Sample Cross Reference 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SB-9 16'	S	01-10-17 10:45	16 ft	543776-001
SB-9 18'	S	01-10-17 10:50	18 ft	543776-002
SB-9 20'	S	01-10-17 11:00	20 ft	543776-003
SB-9 25'	S	01-10-17 11:05	25 ft	543776-004
SB-9 30'	S	01-10-17 11:07	30 ft	543776-005
SB-9 35'	S	01-10-17 11:09	35 ft	543776-006
SB-9 40'	S	01-10-17 11:10	40 ft	543776-007

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:
Batch: LBA-3007393 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analytical Results 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id:	**SB-9 16'**	Matrix:	Soil	Date Received:	01.11.17 08.30
Lab Sample Id:	543776-001	Date Collected:	01.10.17 10.45	Sample Depth:	16 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNR			% Moisture:	
Analyst:	MNR	Date Prep:	01.11.17 10.00	Basis:	Wet Weight
Seq Number:	3007312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**280**	5.00	mg/kg	01.11.17 13.58		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	01.11.17 16.40	Basis:	Wet Weight
Seq Number:	3007291				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	**280**	15.0	mg/kg	01.11.17 23.24		1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**69.7**	15.0	mg/kg	01.11.17 23.24		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	01.11.17 23.24	U	1
Total TPH	PHC635	**350**	15.0	mg/kg	01.11.17 23.24		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	01.11.17 23.24	
o-Terphenyl	84-15-1	97	%	70-135	01.11.17 23.24	

Certificate of Analytical Results 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id:	**SB-9 16'**	Matrix:	Soil	Date Received:	01.11.17 08.30
Lab Sample Id:	543776-001	Date Collected:	01.10.17 10.45	Sample Depth:	16 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	01.11.17 09.45	Basis:	Wet Weight
Seq Number:	3007393				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.119**	0.0749	mg/kg	01.11.17 10.58		50
Toluene	108-88-3	**2.04**	0.0998	mg/kg	01.11.17 10.58		50
Ethylbenzene	100-41-4	**2.51**	0.0998	mg/kg	01.11.17 10.58		50
m_p-Xylenes	179601-23-1	**3.69**	0.0998	mg/kg	01.11.17 10.58		50
o-Xylene	95-47-6	**1.13**	0.150	mg/kg	01.11.17 10.58		50
Total Xylenes	1330-20-7	**4.82**	0.0998	mg/kg	01.11.17 10.58		50
Total BTEX		**9.49**	0.0749	mg/kg	01.11.17 10.58		50

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	86	%	80-120	01.11.17 10.58	
4-Bromofluorobenzene	460-00-4	84	%	80-120	01.11.17 10.58	

Certificate of Analytical Results 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id:	**SB-9 18'**	Matrix:	Soil	Date Received:	01.11.17 08.30
Lab Sample Id:	543776-002	Date Collected:	01.10.17 10.50	Sample Depth:	18 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNR			% Moisture:	
Analyst:	MNR	Date Prep:	01.11.17 10.00	Basis:	Wet Weight
Seq Number:	3007312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**17.2**	5.00	mg/kg	01.11.17 14.05		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	01.11.17 16.40	Basis:	Wet Weight
Seq Number:	3007291				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	**68.0**	15.0	mg/kg	01.11.17 23.48		1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**27.4**	15.0	mg/kg	01.11.17 23.48		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	01.11.17 23.48	U	1
Total TPH	PHC635	**95.4**	15.0	mg/kg	01.11.17 23.48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	01.11.17 23.48	
o-Terphenyl	84-15-1	107	%	70-135	01.11.17 23.48	

Certificate of Analytical Results 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id:	**SB-9 18'**	Matrix:	Soil	Date Received:	01.11.17 08.30
Lab Sample Id:	543776-002	Date Collected:	01.10.17 10.50	Sample Depth:	18 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	01.11.17 09.45	Basis:	Wet Weight
Seq Number:	3007393				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.161**	0.0767	mg/kg	01.11.17 11.17		50
Toluene	108-88-3	**2.53**	0.102	mg/kg	01.11.17 11.17		50
Ethylbenzene	100-41-4	**2.27**	0.102	mg/kg	01.11.17 11.17		50
m_p-Xylenes	179601-23-1	**3.26**	0.102	mg/kg	01.11.17 11.17		50
o-Xylene	95-47-6	**0.907**	0.153	mg/kg	01.11.17 11.17		50
Total Xylenes	1330-20-7	**4.17**	0.102	mg/kg	01.11.17 11.17		50
Total BTEX		**9.13**	0.0767	mg/kg	01.11.17 11.17		50

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	81	%	80-120	01.11.17 11.17	
4-Bromofluorobenzene	460-00-4	85	%	80-120	01.11.17 11.17	

Certificate of Analytical Results 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id:	**SB-9 20'**	Matrix:	Soil	Date Received:	01.11.17 08.30
Lab Sample Id:	543776-003	Date Collected:	01.10.17 11.00	Sample Depth:	20 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNR			% Moisture:	
Analyst:	MNR	Date Prep:	01.11.17 10.00	Basis:	Wet Weight
Seq Number:	3007312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**136**	5.00	mg/kg	01.11.17 14.12		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	01.11.17 16.40	Basis:	Wet Weight
Seq Number:	3007291				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	**105**	15.0	mg/kg	01.12.17 00.12		1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**67.2**	15.0	mg/kg	01.12.17 00.12		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	01.12.17 00.12	U	1
Total TPH	PHC635	**172**	15.0	mg/kg	01.12.17 00.12		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	01.12.17 00.12	
o-Terphenyl	84-15-1	95	%	70-135	01.12.17 00.12	

Certificate of Analytical Results 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id:	**SB-9 20'**	Matrix:	Soil	Date Received:	01.11.17 08.30
Lab Sample Id:	543776-003	Date Collected:	01.10.17 11.00	Sample Depth:	20 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	01.11.17 09.45	Basis:	Wet Weight
Seq Number:	3007393				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.0857**	0.0761	mg/kg	01.11.17 11.33		50
Toluene	108-88-3	**1.92**	0.101	mg/kg	01.11.17 11.33		50
Ethylbenzene	100-41-4	**2.40**	0.101	mg/kg	01.11.17 11.33		50
m_p-Xylenes	179601-23-1	**3.53**	0.101	mg/kg	01.11.17 11.33		50
o-Xylene	95-47-6	**0.984**	0.152	mg/kg	01.11.17 11.33		50
Total Xylenes	1330-20-7	**4.51**	0.101	mg/kg	01.11.17 11.33		50
Total BTEX		**8.92**	0.0761	mg/kg	01.11.17 11.33		50

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	82	%	80-120	01.11.17 11.33	
4-Bromofluorobenzene	460-00-4	84	%	80-120	01.11.17 11.33	

Certificate of Analytical Results 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id:	**SB-9 25'**	Matrix:	Soil	Date Received:	01.11.17 08.30
Lab Sample Id:	543776-004	Date Collected:	01.10.17 11.05	Sample Depth:	25 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNR			% Moisture:	
Analyst:	MNR	Date Prep:	01.11.17 10.00	Basis:	Wet Weight
Seq Number:	3007312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**93.1**	5.00	mg/kg	01.11.17 14.19		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	01.11.17 16.40	Basis:	Wet Weight
Seq Number:	3007291				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	**17.8**	14.9	mg/kg	01.12.17 00.37		1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**15.4**	14.9	mg/kg	01.12.17 00.37		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<14.9	14.9	mg/kg	01.12.17 00.37	U	1
Total TPH	PHC635	**33.2**	14.9	mg/kg	01.12.17 00.37		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	01.12.17 00.37	
o-Terphenyl	84-15-1	103	%	70-135	01.12.17 00.37	

Certificate of Analytical Results 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id:	**SB-9 30'**	Matrix:	Soil	Date Received:	01.11.17 08.30
Lab Sample Id:	543776-005	Date Collected:	01.10.17 11.07	Sample Depth:	30 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNR			% Moisture:	
Analyst:	MNR	Date Prep:	01.11.17 10.00	Basis:	Wet Weight
Seq Number:	3007312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**25.8**	5.00	mg/kg	01.11.17 14.26		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	01.11.17 16.40	Basis:	Wet Weight
Seq Number:	3007291				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	**19.9**	15.0	mg/kg	01.12.17 01.00		1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**22.4**	15.0	mg/kg	01.12.17 01.00		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	01.12.17 01.00	U	1
Total TPH	PHC635	**42.3**	15.0	mg/kg	01.12.17 01.00		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	01.12.17 01.00	
o-Terphenyl	84-15-1	98	%	70-135	01.12.17 01.00	

Certificate of Analytical Results 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id:	**SB-9 35'**	Matrix:	Soil	Date Received:	01.11.17 08.30
Lab Sample Id:	543776-006	Date Collected:	01.10.17 11.09	Sample Depth:	35 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNR			% Moisture:	
Analyst:	MNR	Date Prep:	01.11.17 10.00	Basis:	Wet Weight
Seq Number:	3007312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.6**	5.00	mg/kg	01.11.17 14.47		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	01.11.17 16.40	Basis:	Wet Weight
Seq Number:	3007291				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	<15.0	15.0	mg/kg	01.12.17 01.26	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**19.7**	15.0	mg/kg	01.12.17 01.26		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	01.12.17 01.26	U	1
Total TPH	PHC635	**19.7**	15.0	mg/kg	01.12.17 01.26		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	01.12.17 01.26	
o-Terphenyl	84-15-1	93	%	70-135	01.12.17 01.26	

Certificate of Analytical Results 543776

Larson and Associates, Inc., Midland, TX

Epperson 16inch Site 1

Sample Id:	**SB-9 40'**	Matrix:	Soil	Date Received:	01.11.17 08.30
Lab Sample Id:	543776-007	Date Collected:	01.10.17 11.10	Sample Depth:	40 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNR			% Moisture:	
Analyst:	MNR	Date Prep:	01.11.17 10.00	Basis:	Wet Weight
Seq Number:	3007312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.6**	5.00	mg/kg	01.11.17 15.15		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	01.11.17 16.40	Basis:	Wet Weight
Seq Number:	3007291				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	<15.0	15.0	mg/kg	01.12.17 01.50	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	01.12.17 01.50	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	01.12.17 01.50	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	01.12.17 01.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	01.12.17 01.50	
o-Terphenyl	84-15-1	99	%	70-135	01.12.17 01.50	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

\+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

QC Summary 543776

Larson and Associates, Inc.

Epperson 16inch Site 1

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3007312 Matrix: Solid Date Prep: 01.11.17
MB Sample Id: 718320-1-BLK LCS Sample Id: 718320-1-BKS LCSD Sample Id: 718320-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	263	105	266	106	90-110	1	20	mg/kg	01.11.17 12:33	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3007312 Matrix: Soil Date Prep: 01.11.17
Parent Sample Id: 543775-001 MS Sample Id: 543775-001 S MSD Sample Id: 543775-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7090	2500	9620	101	9660	103	90-110	0	20	mg/kg	01.11.17 12:55	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3007312 Matrix: Soil Date Prep: 01.11.17
Parent Sample Id: 543776-005 MS Sample Id: 543776-005 S MSD Sample Id: 543776-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	25.8	250	299	109	294	107	90-110	2	20	mg/kg	01.11.17 14:33	

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3007291 Matrix: Solid Date Prep: 01.10.17
MB Sample Id: 718316-1-BLK LCS Sample Id: 718316-1-BKS LCSD Sample Id: 718316-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	858	86	970	97	70-135	12	35	mg/kg	01.10.17 22:39	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	912	91	925	93	70-135	1	35	mg/kg	01.10.17 22:39	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		99		102		70-135	%	01.10.17 22:39
o-Terphenyl	88		96		96		70-135	%	01.10.17 22:39

QC Summary 543776

Larson and Associates, Inc.

Epperson 16inch Site 1

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3007291 — Matrix: Soil — Date Prep: 01.10.17
Parent Sample Id: 543563-001 — MS Sample Id: 543563-001 S — MSD Sample Id: 543563-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	999	829	83	845	85	70-135	2	35	mg/kg	01.10.17 23:59	
C10-C28 Diesel Range Hydrocarbons	<15.0	999	1040	104	965	97	70-135	7	35	mg/kg	01.10.17 23:59	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		104		70-135	%	01.10.17 23:59
o-Terphenyl	98		99		70-135	%	01.10.17 23:59

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3007393 — Matrix: Solid — Date Prep: 01.11.17
MB Sample Id: 718350-1-BLK — LCS Sample Id: 718350-1-BKS — LCSD Sample Id: 718350-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00149	0.0996	0.0980	98	0.103	104	70-130	5	35	mg/kg	01.11.17 08:19	
Toluene	<0.00199	0.0996	0.0874	88	0.0953	96	70-130	9	35	mg/kg	01.11.17 08:19	
Ethylbenzene	<0.00199	0.0996	0.100	100	0.107	108	71-129	7	35	mg/kg	01.11.17 08:19	
m_p-Xylenes	<0.00199	0.199	0.198	99	0.208	105	70-135	5	35	mg/kg	01.11.17 08:19	
o-Xylene	<0.00299	0.0996	0.0942	95	0.0989	99	71-133	5	35	mg/kg	01.11.17 08:19	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	84		104		97		80-120	%	01.11.17 08:19
4-Bromofluorobenzene	97		119		108		80-120	%	01.11.17 08:19

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3007393 — Matrix: Soil — Date Prep: 01.11.17
Parent Sample Id: 543608-008 — MS Sample Id: 543608-008 S — MSD Sample Id: 543608-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.0255	0.100	0.0873	62	0.100	74	70-130	14	35	mg/kg	01.11.17 08:52	X
Toluene	0.261	0.100	0.231	0	0.258	0	70-130	11	35	mg/kg	01.11.17 08:52	X
Ethylbenzene	0.254	0.100	0.165	0	0.213	0	71-129	25	35	mg/kg	01.11.17 08:52	X
m_p-Xylenes	0.697	0.200	0.618	0	0.610	0	70-135	1	35	mg/kg	01.11.17 08:52	X
o-Xylene	0.211	0.100	0.182	0	0.184	0	71-133	1	35	mg/kg	01.11.17 08:52	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		113		80-120	%	01.11.17 08:52
4-Bromofluorobenzene	101		115		80-120	%	01.11.17 08:52

mark@laenvironmental.com

CHAIN-OF-CUSTODY

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

Data Reported to: MARK LARSON

DATE: 1-10-2017 PAGE 1 OF 1

PO #: LAB WORK ORDER #: 543174

PROJECT LOCATION OR NAME: Eppersen Ibach Site 1

LAI PROJECT #: 16-0120-01 COLLECTOR: TW JM

TRRP report? ☐ Yes ☑ No

TIME ZONE: Time zone/State: NM

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☑ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☑	DIESEL - MOD 8015 ☑	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	6081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 300.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☑ ANIONS ☐ ALKALINITY ☐	8260	FIELD NOTES
SB-9 16'		1-10-17	10:45	S	1				X		X		X	X													X		LF Benzene
SB-9 18'			10:50								X		X	X													X		is about 10 mg/kg
SB-9 20'			11:00								X		X	X													X		; BTEX is
SB-9 25'			11:05										X	X													X		about 50 mg/kg
SB-9 30'			11:07										X	X													X		Run 25' - 40'
SB-9 35'			11:09										X	X													X		
SB-9 40'			11:10										X	X													X		

Temp: IR ID:R-8
CF:+ 0.1 4.9
Corrected Temp: 5.0

TOTAL

RELINQUISHED BY:(Signature) DATE/TIME 1-11-17 8:30 RECEIVED BY: (Signature) 1.11.17 830

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

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

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

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

Final 1.000

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 01/11/2017 08:30:00 AM

Work Order #: 543776

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seal present on shipping container/ cooler?	N/A
#5 *Custody Seals intact on shipping container/ cooler?	N/A
#6 Custody Seals intact on sample bottles?	N/A
#7 *Custody Seals Signed and dated?	N/A
#8 *Chain of Custody present?	Yes
#9 Sample instructions complete on Chain of Custody?	Yes
#10 Any missing/extra samples?	No
#11 Chain of Custody signed when relinquished/ received?	Yes
#12 Chain of Custody agrees with sample label(s)?	Yes
#13 Container label(s) legible and intact?	Yes
#14 Sample matrix/ properties agree with Chain of Custody?	Yes
#15 Samples in proper container/ bottle?	Yes
#16 Samples properly preserved?	Yes
#17 Sample container(s) intact?	Yes
#18 Sufficient sample amount for indicated test(s)?	Yes
#19 All samples received within hold time?	Yes
#20 Subcontract of sample(s)?	N/A
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by: Jessica Kramer — Date: 01/11/2017

Jessica Kramer

Checklist reviewed by: Brandi Ritchinson — Date: 01/12/2017

Brandi Ritcherson

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

PBELAB

Analytical Report

Prepared for:

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

Project: Epperson Site 1
Project Number: 16-0120-01
Location: New Mexico

Lab Order Number: 7B10001

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704156-16-6

Report Date: 02/17/17

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

Project: Epperson Site 1
Project Number: 16-0120-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-9 0'	7B10001-01	Soil	02/08/17 10:30	02-10-2017 09:30
SB-9 5'	7B10001-02	Soil	02/08/17 10:42	02-10-2017 09:30
SB-9 10'	7B10001-03	Soil	02/08/17 10:46	02-10-2017 09:30
SB-9 15'	7B10001-04	Soil	02/08/17 10:51	02-10-2017 09:30
SB-11 0'	7B10001-05	Soil	02/08/17 10:57	02-10-2017 09:30
SB-11 5'	7B10001-06	Soil	02/08/17 11:04	02-10-2017 09:30
SB-11 15'	7B10001-08	Soil	02/08/17 11:11	02-10-2017 09:30
SB-11 25'	7B10001-10	Soil	02/08/17 11:20	02-10-2017 09:30
SB-10 0'	7B10001-11	Soil	02/08/17 11:35	02-10-2017 09:30
SB-10 5'	7B10001-12	Soil	02/08/17 11:42	02-10-2017 09:30
SB-10 10'	7B10001-13	Soil	02/08/17 11:46	02-10-2017 09:30
SB-10 15'	7B10001-14	Soil	02/08/17 11:50	02-10-2017 09:30
SB-10 20'	7B10001-15	Soil	02/08/17 11:55	02-10-2017 09:30
SB-10 25'	7B10001-16	Soil	02/08/17 12:00	02-10-2017 09:30
SB-12 0'	7B10001-17	Soil	02/08/17 12:49	02-10-2017 09:30
SB-12 5'	7B10001-18	Soil	02/08/17 12:57	02-10-2017 09:30
SB-12 15'	7B10001-20	Soil	02/08/17 13:07	02-10-2017 09:30
SB-12 20'	7B10001-21	Soil	02/08/17 13:07	02-10-2017 09:30
SB-12 25'	7B10001-22	Soil	02/08/17 13:18	02-10-2017 09:30
SB-14 0'	7B10001-23	Soil	02/08/17 14:35	02-10-2017 09:30
SB-14 5'	7B10001-24	Soil	02/08/17 14:39	02-10-2017 09:30
SB-14 10'	7B10001-25	Soil	02/08/17 14:43	02-10-2017 09:30
SB-14 15'	7B10001-26	Soil	02/08/17 14:50	02-10-2017 09:30
SB-14 20'	7B10001-27	Soil	02/08/17 14:52	02-10-2017 09:30
SB-13 0'	7B10001-29	Soil	02/08/17 15:05	02-10-2017 09:30
SB-13 5'	7B10001-30	Soil	02/08/17 15:10	02-10-2017 09:30
SB-13 15'	7B10001-32	Soil	02/08/17 15:20	02-10-2017 09:30
SB-13 25'	7B10001-34	Soil	02/08/17 15:27	02-10-2017 09:30
SB-10 30'	7B10001-35	Soil	02/08/17 12:40	02-10-2017 09:30
SB-15 0'	7B10001-36	Soil	02/09/17 09:35	02-10-2017 09:30
SB-15 5'	7B10001-37	Soil	02/09/17 09:38	02-10-2017 09:30
SB-15 10'	7B10001-38	Soil	02/09/17 09:43	02-10-2017 09:30
SB-15 15'	7B10001-39	Soil	02/09/17 09:49	02-10-2017 09:30
SB-15 25'	7B10001-41	Soil	02/09/17 09:59	02-10-2017 09:30

SB-9 0'

7B10001-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.0361**	0.0217	mg/kg dry	20	P7B1601	02/15/17	02/15/17	EPA 8021B	
Toluene	ND	0.0435	mg/kg dry	20	P7B1601	02/15/17	02/15/17	EPA 8021B	
Ethylbenzene	**0.0250**	0.0217	mg/kg dry	20	P7B1601	02/15/17	02/15/17	EPA 8021B	
Xylene (p/m)	ND	0.0435	mg/kg dry	20	P7B1601	02/15/17	02/15/17	EPA 8021B	
Xylene (o)	ND	0.0217	mg/kg dry	20	P7B1601	02/15/17	02/15/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P7B1601*	*02/15/17*	*02/15/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*105 %*	*75-125*		*P7B1601*	*02/15/17*	*02/15/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2970**	27.2	mg/kg dry	25	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C12-C28	**496**	27.2	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C28-C35	**124**	27.2	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*99.0 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*116 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**620**	27.2	mg/kg dry	1	[CALC]	02/15/17	02/15/17	calc	

Larson & Associates, Inc.	Project: Epperson Site 1	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-9 5'

7B10001-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**855**	11.6	mg/kg dry	10	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.1	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*97.4 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*111 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

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

Project: Epperson Site 1
Project Number: 16-0120-01
Project Manager: Mark Larson

Fax: (432) 687-0456

SB-9 10'

7B10001-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.0491**	0.0217	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Toluene	**0.424**	0.0435	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Ethylbenzene	**0.891**	0.0217	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Xylene (p/m)	**1.53**	0.0435	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Xylene (o)	**0.648**	0.0217	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*90.4 %*	*75-125*		*P7B1305*	*02/10/17*	*02/10/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P7B1305*	*02/10/17*	*02/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**6870**	27.2	mg/kg dry	25	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**143**	27.2	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C12-C28	**76.4**	27.2	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*102 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*111 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**219**	27.2	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

Larson & Associates, Inc.	Project: Epperson Site 1	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-9 15'

7B10001-04 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.286**	0.0211	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Toluene	**6.08**	0.0421	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Ethylbenzene	**4.50**	0.0211	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Xylene (p/m)	**7.30**	0.0421	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Xylene (o)	**2.78**	0.0211	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*88.1 %*	*75-125*		*P7B1305*	*02/10/17*	*02/10/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*99.5 %*	*75-125*		*P7B1305*	*02/10/17*	*02/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**527**	1.05	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**371**	132	mg/kg dry	5	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C12-C28	**146**	132	mg/kg dry	5	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	132	mg/kg dry	5	P7B1404	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*104 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**517**	132	mg/kg dry	5	[CALC]	02/10/17	02/10/17	calc	

SB-11 0'

7B10001-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**17.3**	1.08	mg/kg dry	1	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C12-C28	**144**	26.9	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C28-C35	**50.7**	26.9	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.0 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*116 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**195**	26.9	mg/kg dry	1	[CALC]	02/15/17	02/15/17	calc	

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P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-11 5'

7B10001-06 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**115**	1.09	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.2 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*107 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

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P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-11 15'

7B10001-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**26.5**	1.06	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.1 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

Larson & Associates, Inc.	Project: Epperson Site 1	Fax: (432) 687-0456
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Midland TX, 79710	Project Manager: Mark Larson	

SB-11 25'

7B10001-10 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**19.9**	1.04	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*97.6 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*111 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

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SB-10 0'

7B10001-11 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**11.2**	1.08	mg/kg dry	1	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C12-C28	**85.8**	26.9	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C28-C35	**31.2**	26.9	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.1 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*115 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**117**	26.9	mg/kg dry	1	[CALC]	02/15/17	02/15/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-10 5'

7B10001-12 (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	**887**	11.4	mg/kg dry	10	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.4	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.5 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*107 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-10 10'

7B10001-13 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**492**	5.49	mg/kg dry	5	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*83.5 %*	*70-130*		*P7B1404*	*02/10/17*	*02/13/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*97.0 %*	*70-130*		*P7B1404*	*02/10/17*	*02/13/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	02/10/17	02/13/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-10 15'

7B10001-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	**0.0483**	0.0213	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Toluene	**0.113**	0.0426	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Ethylbenzene	**0.162**	0.0213	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Xylene (p/m)	**0.381**	0.0426	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Xylene (o)	**0.146**	0.0213	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*94.1 %*	*75-125*		*P7B1305*	*02/10/17*	*02/10/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		*P7B1305*	*02/10/17*	*02/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**260**	1.06	mg/kg dry	1	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*88.5 %*	*70-130*		*P7B1404*	*02/10/17*	*02/13/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*103 %*	*70-130*		*P7B1404*	*02/10/17*	*02/13/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	02/10/17	02/13/17	calc	

SB-10 20'

7B10001-15 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.0848**	0.0211	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Toluene	**0.776**	0.0421	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Ethylbenzene	**0.584**	0.0211	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Xylene (p/m)	**1.51**	0.0421	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Xylene (o)	**0.572**	0.0211	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*106 %*	*75-125*		*P7B1305*	*02/10/17*	*02/10/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*90.7 %*	*75-125*		*P7B1305*	*02/10/17*	*02/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**5.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**96.8**	26.3	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*91.5 %*	*70-130*		*P7B1404*	*02/10/17*	*02/13/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*104 %*	*70-130*		*P7B1404*	*02/10/17*	*02/13/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**96.8**	26.3	mg/kg dry	1	[CALC]	02/10/17	02/13/17	calc	

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Midland TX, 79710

Project: Epperson Site 1
Project Number: 16-0120-01
Project Manager: Mark Larson

Fax: (432) 687-0456

SB-10 25'

7B10001-16 (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	**47.7**	1.02	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.4 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*107 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

SB-12 0'

7B10001-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**8.55**	1.04	mg/kg dry	1	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*89.7 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	02/15/17	02/15/17	calc	

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Project: Epperson Site 1
Project Number: 16-0120-01
Project Manager: Mark Larson

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SB-12 5'

7B10001-18 (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	**738**	11.0	mg/kg dry	10	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C12-C28	**131**	27.5	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P7B1404	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.4 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P7B1404*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**131**	27.5	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-12 15'

7B10001-20 (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	**834**	5.43	mg/kg dry	5	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.4 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*109 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	02/10/17	02/11/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-12 20'

7B10001-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**7.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-12 25'

7B10001-22 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**126**	1.03	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.6 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*112 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	02/10/17	02/11/17	calc	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Epperson Site 1 Project Number: 16-0120-01 Project Manager: Mark Larson	Fax: (432) 687-0456

SB-14 0'

7B10001-23 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.0281**	0.0208	mg/kg dry	20	P7B1601	02/15/17	02/15/17	EPA 8021B	
Toluene	ND	0.0417	mg/kg dry	20	P7B1601	02/15/17	02/15/17	EPA 8021B	
Ethylbenzene	ND	0.0208	mg/kg dry	20	P7B1601	02/15/17	02/15/17	EPA 8021B	
Xylene (p/m)	ND	0.0417	mg/kg dry	20	P7B1601	02/15/17	02/15/17	EPA 8021B	
Xylene (o)	ND	0.0208	mg/kg dry	20	P7B1601	02/15/17	02/15/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*98.3 %*	*75-125*		*P7B1601*	*02/15/17*	*02/15/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*101 %*	*75-125*		*P7B1601*	*02/15/17*	*02/15/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**546**	1.04	mg/kg dry	1	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C12-C28	**74.4**	26.0	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.7 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*116 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**74.4**	26.0	mg/kg dry	1	[CALC]	02/15/17	02/15/17	calc	

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P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 5'

7B10001-24 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.450**	0.217	mg/kg dry	200	P7B1305	02/10/17	02/13/17	EPA 8021B	
Toluene	**9.21**	0.435	mg/kg dry	200	P7B1305	02/10/17	02/13/17	EPA 8021B	
Ethylbenzene	**5.50**	0.217	mg/kg dry	200	P7B1305	02/10/17	02/13/17	EPA 8021B	
Xylene (p/m)	**46.9**	0.435	mg/kg dry	200	P7B1305	02/10/17	02/13/17	EPA 8021B	
Xylene (o)	**21.1**	0.217	mg/kg dry	200	P7B1305	02/10/17	02/13/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*90.5 %*	*75-125*		*P7B1305*	*02/10/17*	*02/13/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P7B1305*	*02/10/17*	*02/13/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**31.3**	1.09	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**1450**	272	mg/kg dry	10	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C12-C28	**444**	272	mg/kg dry	10	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C28-C35	ND	272	mg/kg dry	10	P7B1404	02/10/17	02/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*110 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*104 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**1890**	272	mg/kg dry	10	[CALC]	02/10/17	02/11/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-14 10'

7B10001-25 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.0215	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Toluene	**0.0671**	0.0430	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Ethylbenzene	**0.700**	0.0215	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Xylene (p/m)	**0.322**	0.0430	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Xylene (o)	**0.395**	0.0215	mg/kg dry	20	P7B1305	02/10/17	02/10/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*94.4 %*	*75-125*		*P7B1305*	*02/10/17*	*02/10/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*88.9 %*	*75-125*		*P7B1305*	*02/10/17*	*02/10/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**10.5**	1.08	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**112**	26.9	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7B1404	02/10/17	02/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.5 %*	*70-130*		*P7B1404*	*02/10/17*	*02/13/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*107 %*	*70-130*		*P7B1404*	*02/10/17*	*02/13/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**112**	26.9	mg/kg dry	1	[CALC]	02/10/17	02/13/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-14 15'

7B10001-26 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**18.3**	1.03	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C12-C28	**42.2**	25.8	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C28-C35	**33.5**	25.8	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.9 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**75.6**	25.8	mg/kg dry	1	[CALC]	02/10/17	02/11/17	calc	

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P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 20'

7B10001-27 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**60.8**	1.06	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.0 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	02/10/17	02/11/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-13 0'

7B10001-29 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**15.5**	1.08	mg/kg dry	1	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C12-C28	**42.0**	26.9	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C28-C35	**27.1**	26.9	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.0 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*109 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**69.1**	26.9	mg/kg dry	1	[CALC]	02/15/17	02/15/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-13 5'

7B10001-30 (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	**593**	5.49	mg/kg dry	5	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C12-C28	**52.5**	27.5	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C28-C35	**29.2**	27.5	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*99.3 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**81.7**	27.5	mg/kg dry	1	[CALC]	02/10/17	02/11/17	calc	

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P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-13 15'

7B10001-32 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**193**	1.09	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C12-C28	**38.2**	27.2	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7B1404	02/10/17	02/11/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*100 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*115 %*	*70-130*		*P7B1404*	*02/10/17*	*02/11/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**38.2**	27.2	mg/kg dry	1	[CALC]	02/10/17	02/11/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-13 25'

7B10001-34 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**22.0**	1.03	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*92.6 %*	*70-130*		*P7B1403*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*99.9 %*	*70-130*		*P7B1403*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-10 30'

7B10001-35 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**11.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	

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P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-15 0'

7B10001-36 (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	**38.2**	1.09	mg/kg dry	1	P7B1504	02/15/17	02/16/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C12-C28	**46.5**	27.2	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7B1604	02/15/17	02/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.6 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P7B1604*	*02/15/17*	*02/15/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**46.5**	27.2	mg/kg dry	1	[CALC]	02/15/17	02/15/17	calc	

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P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-15 5'

7B10001-37 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**5.46**	1.12	mg/kg dry	1	P7B1012	02/10/17	02/13/17	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.1	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.2 %*	*70-130*		*P7B1403*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P7B1403*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

Larson & Associates, Inc.	Project: Epperson Site 1	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-15 10'

7B10001-38 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	

Larson & Associates, Inc.	Project: Epperson Site 1	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-15 15'

7B10001-39 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**8.53**	1.04	mg/kg dry	1	P7B1013	02/10/17	02/13/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.4 %*	*70-130*		*P7B1403*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P7B1403*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

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P.O. Box 50685	Project Number: 16-0120-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-15 25'

7B10001-41 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**4.27**	1.02	mg/kg dry	1	P7B1013	02/10/17	02/13/17	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P7B1308	02/13/17	02/13/17	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P7B1403	02/10/17	02/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.0 %*	*70-130*		*P7B1403*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*100 %*	*70-130*		*P7B1403*	*02/10/17*	*02/10/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	02/10/17	02/10/17	calc	

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7B1305 - General Preparation (GC)										
Blank (P7B1305-BLK1)				Prepared & Analyzed: 02/10/17						
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	*0.0649*		"	*0.0600*		*108*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0662*		"	*0.0600*		*110*	*75-125*			
LCS (P7B1305-BS1)				Prepared & Analyzed: 02/10/17						
Benzene	0.0904	0.00100	mg/kg wet	0.100		90.4	70-130			
Toluene	0.0953	0.00200	"	0.100		95.3	70-130			
Ethylbenzene	0.111	0.00100	"	0.100		111	70-130			
Xylene (p/m)	0.202	0.00200	"	0.200		101	70-130			
Xylene (o)	0.101	0.00100	"	0.100		101	70-130			
Surrogate: 1,4-Difluorobenzene	*0.0666*		"	*0.0600*		*111*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0665*		"	*0.0600*		*111*	*75-125*			
LCS Dup (P7B1305-BSD1)				Prepared & Analyzed: 02/10/17						
Benzene	0.0913	0.00100	mg/kg wet	0.100		91.3	70-130	1.03	20	
Toluene	0.0983	0.00200	"	0.100		98.3	70-130	3.15	20	
Ethylbenzene	0.117	0.00100	"	0.100		117	70-130	5.33	20	
Xylene (p/m)	0.208	0.00200	"	0.200		104	70-130	3.07	20	
Xylene (o)	0.103	0.00100	"	0.100		103	70-130	1.78	20	
Surrogate: 4-Bromofluorobenzene	*0.0661*		"	*0.0600*		*110*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0683*		"	*0.0600*		*114*	*75-125*			
Matrix Spike (P7B1305-MS1)	**Source: 7B06003-02**			Prepared & Analyzed: 02/10/17						
Benzene	0.0847	0.00110	mg/kg dry	0.110	0.00229	75.0	80-120			
Toluene	0.0671	0.00220	"	0.110	0.00589	55.7	80-120			
Ethylbenzene	0.0523	0.00110	"	0.110	0.00591	42.2	80-120			
Xylene (p/m)	0.0904	0.00220	"	0.220	0.0221	31.1	80-120			
Xylene (o)	0.111	0.00110	"	0.110	0.0636	43.4	80-120			
Surrogate: 1,4-Difluorobenzene	*0.0695*		"	*0.0659*		*105*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0629*		"	*0.0659*		*95.4*	*75-125*			

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

Project: Epperson Site 1
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Project Manager: Mark Larson

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Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7B1305 - General Preparation (GC)										
Matrix Spike Dup (P7B1305-MSD1)	**Source: 7B06003-02**			Prepared & Analyzed: 02/10/17						
Benzene	0.0880	0.00110	mg/kg dry	0.110	0.00229	78.0	80-120	4.00	20	
Toluene	0.0717	0.00220	"	0.110	0.00589	59.8	80-120	7.22	20	
Ethylbenzene	0.0573	0.00110	"	0.110	0.00591	46.8	80-120	10.2	20	
Xylene (p/m)	0.0919	0.00220	"	0.220	0.0221	31.7	80-120	2.07	20	
Xylene (o)	0.118	0.00110	"	0.110	0.0636	49.3	80-120	12.8	20	
Surrogate: 4-Bromofluorobenzene	*0.0651*		"	*0.0659*		*98.7*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0680*		"	*0.0659*		*103*	*75-125*			
Batch P7B1601 - General Preparation (GC)										
Blank (P7B1601-BLK1)				Prepared & Analyzed: 02/15/17						
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	*0.0660*		"	*0.0600*		*110*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0625*		"	*0.0600*		*104*	*75-125*			
LCS (P7B1601-BS1)				Prepared & Analyzed: 02/15/17						
Benzene	0.0848	0.00100	mg/kg wet	0.100		84.8	70-130			
Toluene	0.0918	0.00200	"	0.100		91.8	70-130			
Ethylbenzene	0.107	0.00100	"	0.100		107	70-130			
Xylene (p/m)	0.191	0.00200	"	0.200		95.7	70-130			
Xylene (o)	0.0939	0.00100	"	0.100		93.9	70-130			
Surrogate: 1,4-Difluorobenzene	*0.0660*		"	*0.0600*		*110*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0685*		"	*0.0600*		*114*	*75-125*			

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Project: Epperson Site 1
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Project Manager: Mark Larson

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Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7B1601 - General Preparation (GC)										
LCS Dup (P7B1601-BSD1)				Prepared & Analyzed: 02/15/17						
Benzene	0.0881	0.00100	mg/kg wet	0.100		88.1	70-130	3.92	20	
Toluene	0.0955	0.00200	"	0.100		95.5	70-130	3.95	20	
Ethylbenzene	0.115	0.00100	"	0.100		115	70-130	7.78	20	
Xylene (p/m)	0.203	0.00200	"	0.200		102	70-130	5.99	20	
Xylene (o)	0.104	0.00100	"	0.100		104	70-130	9.80	20	
Surrogate: 1,4-Difluorobenzene	*0.0651*		"	*0.0600*		*108*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0689*		"	*0.0600*		*115*	*75-125*			
Matrix Spike (P7B1601-MS1)		**Source: 7B10001-23**		Prepared & Analyzed: 02/15/17						
Benzene	0.0615	0.0208	mg/kg dry	0.104	0.0281	32.0	80-120			QM-07
Toluene	0.0454	0.0417	"	0.104	0.0221	22.4	80-120			QM-07
Ethylbenzene	0.0590	0.0208	"	0.104	ND	56.6	80-120			QM-07
Xylene (p/m)	0.0608	0.0417	"	0.208	0.0321	13.8	80-120			QM-07
Xylene (o)	0.0427	0.0208	"	0.104	ND	41.0	80-120			QM-07
Surrogate: 4-Bromofluorobenzene	*0.0646*		"	*0.0625*		*103*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0628*		"	*0.0625*		*100*	*75-125*			
Matrix Spike Dup (P7B1601-MSD1)		**Source: 7B10001-23**		Prepared & Analyzed: 02/15/17						
Benzene	0.0498	0.0208	mg/kg dry	0.104	0.0281	20.8	80-120	42.4	20	QM-07
Toluene	0.0412	0.0417	"	0.104	0.0221	18.4	80-120	19.6	20	QM-07
Ethylbenzene	0.0373	0.0208	"	0.104	ND	35.8	80-120	45.0	20	QM-07
Xylene (p/m)	0.0602	0.0417	"	0.208	0.0321	13.5	80-120	2.20	20	QM-07
Xylene (o)	0.0290	0.0208	"	0.104	ND	27.8	80-120	38.4	20	QM-07
Surrogate: 1,4-Difluorobenzene	*0.0621*		"	*0.0625*		*99.3*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0603*		"	*0.0625*		*96.5*	*75-125*			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7B1012 - * DEFAULT PREP *** **										
Blank (P7B1012-BLK1)				Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7B1012-BS1)				Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	382	1.00	mg/kg wet	400		95.4	80-120			
LCS Dup (P7B1012-BSD1)				Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	383	1.00	mg/kg wet	400		95.9	80-120	0.442	20	
Duplicate (P7B1012-DUP1)		**Source: 7B10001-02**		Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	849	11.6	mg/kg dry		855			0.683	20	
Duplicate (P7B1012-DUP2)		**Source: 7B10001-20**		Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	838	5.43	mg/kg dry		834			0.462	20	
Matrix Spike (P7B1012-MS1)		**Source: 7B10001-02**		Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	1560	11.6	mg/kg dry	581	855	121	80-120			QM-07
Batch P7B1013 - * DEFAULT PREP *** **										
Blank (P7B1013-BLK1)				Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7B1013-BS1)				Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	409	1.00	mg/kg wet	400		102	80-120			
LCS Dup (P7B1013-BSD1)				Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	455	1.00	mg/kg wet	400		114	80-120	10.6	20	

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General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7B1013 - * DEFAULT PREP *** **										
Duplicate (P7B1013-DUP1)	**Source: 7B10003-01**			Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	19200	66.7	mg/kg dry		18900			1.67	20	
Duplicate (P7B1013-DUP2)	**Source: 7B10004-01**			Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	774	1.10	mg/kg dry		767			0.896	20	
Matrix Spike (P7B1013-MS1)	**Source: 7B10003-01**			Prepared: 02/10/17 Analyzed: 02/13/17						
Chloride	21000	66.7	mg/kg dry	1330	18900	154	80-120			QM-07
Batch P7B1308 - * DEFAULT PREP *** **										
Blank (P7B1308-BLK1)				Prepared & Analyzed: 02/13/17						
% Moisture	ND	0.1	%							
Duplicate (P7B1308-DUP1)	**Source: 7B10001-26**			Prepared & Analyzed: 02/13/17						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P7B1308-DUP2)	**Source: 7B10002-12**			Prepared & Analyzed: 02/13/17						
% Moisture	5.0	0.1	%		5.0			0.00	20	
Batch P7B1504 - * DEFAULT PREP *** **										
Blank (P7B1504-BLK1)				Prepared: 02/15/17 Analyzed: 02/16/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7B1504-BS1)				Prepared: 02/15/17 Analyzed: 02/16/17						
Chloride	398	1.00	mg/kg wet	400		99.4	80-120			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7B1504 - * DEFAULT PREP *** **										
LCS Dup (P7B1504-BSD1)				Prepared: 02/15/17 Analyzed: 02/16/17						
Chloride	414	1.00	mg/kg wet	400		104	80-120	4.06	20	
Duplicate (P7B1504-DUP1)		Source: 7B10001-01		Prepared: 02/15/17 Analyzed: 02/16/17						
Chloride	2960	27.2	mg/kg dry		2970			0.275	20	
Duplicate (P7B1504-DUP2)		Source: 7B10001-17		Prepared: 02/15/17 Analyzed: 02/16/17						
Chloride	8.65	1.04	mg/kg dry		8.55			1.09	20	
Matrix Spike (P7B1504-MS1)		Source: 7B10001-01		Prepared: 02/15/17 Analyzed: 02/16/17						
Chloride	4290	27.2	mg/kg dry	1090	2970	121	80-120			

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7B1403 - TX 1005										
Blank (P7B1403-BLK1)				Prepared & Analyzed: 02/10/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*89.8*		"	*100*		*89.8*	*70-130*			
Surrogate: o-Terphenyl	*50.0*		"	*50.0*		*100*	*70-130*			
LCS (P7B1403-BS1)				Prepared & Analyzed: 02/10/17						
C6-C12	806	25.0	mg/kg wet	1000		80.6	75-125			
>C12-C28	858	25.0	"	1000		85.8	75-125			
Surrogate: 1-Chlorooctane	*114*		"	*100*		*114*	*70-130*			
Surrogate: o-Terphenyl	*46.8*		"	*50.0*		*93.5*	*70-130*			
LCS Dup (P7B1403-BSD1)				Prepared & Analyzed: 02/10/17						
C6-C12	793	25.0	mg/kg wet	1000		79.3	75-125	1.67	20	
>C12-C28	784	25.0	"	1000		78.4	75-125	9.09	20	
Surrogate: 1-Chlorooctane	*105*		"	*100*		*105*	*70-130*			
Surrogate: o-Terphenyl	*40.8*		"	*50.0*		*81.5*	*70-130*			
Matrix Spike (P7B1403-MS1)	**Source: 7B10002-18**			Prepared: 02/10/17 Analyzed: 02/11/17						
C6-C12	846	26.3	mg/kg dry	1050	ND	80.3	75-125			
>C12-C28	889	26.3	"	1050	ND	84.5	75-125			
Surrogate: 1-Chlorooctane	*130*		"	*105*		*123*	*70-130*			
Surrogate: o-Terphenyl	*54.5*		"	*52.6*		*104*	*70-130*			
Matrix Spike Dup (P7B1403-MSD1)	**Source: 7B10002-18**			Prepared: 02/10/17 Analyzed: 02/11/17						
C6-C12	854	26.3	mg/kg dry	1050	ND	81.1	75-125	0.921	20	
>C12-C28	872	26.3	"	1050	ND	82.9	75-125	1.90	20	
Surrogate: 1-Chlorooctane	*120*		"	*105*		*114*	*70-130*			
Surrogate: o-Terphenyl	*56.1*		"	*52.6*		*107*	*70-130*			

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Project: Epperson Site 1
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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 P7B1404 - TX 1005										
Blank (P7B1404-BLK1)				Prepared & Analyzed: 02/10/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*92.1*		"	*100*		*92.1*	*70-130*			
Surrogate: o-Terphenyl	*53.8*		"	*50.0*		*108*	*70-130*			
LCS (P7B1404-BS1)				Prepared & Analyzed: 02/10/17						
C6-C12	1130	25.0	mg/kg wet	1000		113	75-125			
>C12-C28	1060	25.0	"	1000		106	75-125			
Surrogate: 1-Chlorooctane	*115*		"	*100*		*115*	*70-130*			
Surrogate: o-Terphenyl	*56.3*		"	*50.0*		*113*	*70-130*			
LCS Dup (P7B1404-BSD1)				Prepared & Analyzed: 02/10/17						
C6-C12	1190	25.0	mg/kg wet	1000		119	75-125	4.90	20	
>C12-C28	1090	25.0	"	1000		109	75-125	3.47	20	
Surrogate: 1-Chlorooctane	*107*		"	*100*		*107*	*70-130*			
Surrogate: o-Terphenyl	*50.5*		"	*50.0*		*101*	*70-130*			
Matrix Spike (P7B1404-MS1)	**Source: 7B10001-32**			Prepared: 02/10/17 Analyzed: 02/11/17						
C6-C12	1330	27.2	mg/kg dry	1090	ND	122	75-125			
>C12-C28	1330	27.2	"	1090	38.2	119	75-125			
Surrogate: 1-Chlorooctane	*141*		"	*109*		*130*	*70-130*			
Surrogate: o-Terphenyl	*68.7*		"	*54.3*		*126*	*70-130*			
Matrix Spike Dup (P7B1404-MSD1)	**Source: 7B10001-32**			Prepared: 02/10/17 Analyzed: 02/11/17						
C6-C12	1330	27.2	mg/kg dry	1090	ND	123	75-125	0.548	20	
>C12-C28	1380	27.2	"	1090	38.2	123	75-125	3.72	20	
Surrogate: 1-Chlorooctane	*127*		"	*109*		*117*	*70-130*			
Surrogate: o-Terphenyl	*64.7*		"	*54.3*		*119*	*70-130*			

7B10001

CHAIN-OF-CUSTOD

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

DATE: 2-10-2017 PAGE 1 OF 3

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: Epperson site 1

LAI PROJECT #: 16-0120-01 COLLECTOR: Travis Williams

Data Reported to:

TRRP report? ☐ Yes ☑ No

TIME ZONE: Time zone/State: NM

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

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

ANALYSES: BTEX ☑ MTBE ☐ | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☑ | DIESEL - MOD 8015 ☑ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☑ ANIONS ☐ ALKALINITY ☐ | 300 | Hold | FIELD NOTES

OH (C-28-3)

	Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	BTEX	TRPH	GASOLINE	DIESEL	Hold	FIELD NOTES
1	SB-9 0'		2-8-17	10:30	S	1				X			✓	✓		✓	
2	5'			10:42									✓	✓			
3	10'			10:46								✓	✓	✓			
4	15'			10:51								✓	✓	✓			
5	SB-11 0'			10:57												✓	
6	5'			11:04									✓	✓			
7	10'			11:08												✓	
8	15'			11:11									✓	✓			
9	20'			11:15												✓	
10	25'			11:20									✓	✓			
11	SB-10 0'			11:35												✓	
12	5'			11:42									✓	✓			
13	10'			11:46									✓	✓			
14	15'			11:50								✓	✓	✓			
15	20'			11:55								✓	✓	✓			
	TOTAL																

RELINQUISHED BY:(Signature) DATE/TIME 9:30 2-10-17 RECEIVED BY: (Signature)

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

RELINQUISHED BY:(Signature) DATE/TIME 9:30 RECEIVED BY: (Signature)

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

LABORATORY USE ONLY:
RECEIVING TEMP: -0.2 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☑ HAND DELIVERED

CHAIN-OF-CUSTOD

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

DATE 2-10-17 PAGE 2 OF 3
PO #: LAB WORK ORDER #:
PROJECT LOCATION OR NAME: Epperson Site 1
LAI PROJECT #: 16-0126-01 COLLECTOR: Travis Hahn
Data Reported to:

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

	Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☑ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☑	DIESEL - MOD 8015 ☑	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☑ ANIONS ☐ ALKALINITY ☐	300	Water	FIELD NOTES
16	SB-10 25'		2-8-17	12:00	S	1				X				L	L													L			
17	SB-12 0'			12:49																									L		
18	5'			12:57										L	L													L			
19	10'			13:04																									L		
20	15'			13:07										L	L													L			
21	20'			13:11																									L		
22	25'			13:18										L	L													L			
23	SB-14 0'			14:35																									L		
24	5'			14:39								L		L	L													L			
25	10'			14:43								L		L	L													L			
26	15'			14:50										L	L													L			
27	20'			14:52										L	L													L			
28	25'			14:58																									L		
29	SB-13 0'			15:05																									L		
30	5'			15:10										L	L													L			
	TOTAL																														

RELINQUISHED BY:(Signature) Travis Hahn DATE/TIME 9:30 2-10-17 RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME 9:30 RECEIVED BY: (Signature)

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

LABORATORY USE ONLY:
RECEIVING TEMP: -0.2 THERM #:
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☑ HAND DELIVERED

CHAIN-OF-CUSTOD

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

DATE: 2-10-17 PAGE 3 OF 3

PO #: _____ LAB WORK ORDER #: _____

PROJECT LOCATION OR NAME: Epperson Site 1

LAI PROJECT #: 16-0120-01 COLLECTOR: Travis Counts

Data Reported to:

TRRP report? ☐ Yes ☑ No

TIME ZONE: Time zone/State: NM

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

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

ANALYSES: BTEX ☑ MTBE ☐ | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☑ C-25-35 | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☑ ANIONS ☐ ALKALINITY ☐ | TCLP | Metals | FIELD NOTES

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	BTEX	TRPH	GASOLINE	DIESEL	VOC	SVOC	8081	8082	TCLP-METALS	TCLP-PEST	TOTAL METALS	LEAD-TOTAL	RCI	TDS	pH	EXPLOSIVES	CHLORIDE	TCLP	Metals	FIELD NOTES
31 SB-13 10'		2-8-17	15:15		1				X				L	L													L		L	
32 15'			15:20																										L	
33 20'			15:22																											
34 25'			15:27										L	L													L		L	
35 SB-10 30'			12:40																										L	
36 SB-15 0'		2-9-17	9:35																										L	
37 5'			9:39										L	L															L	
38 10'			9:43																											
39 15'			9:49										L	L													L		L	
40 20'			9:52																											
41 25'			9:59										L	L													L			
42																														

TOTAL

RELINQUISHED BY:(Signature) _____ DATE/TIME 9:30 2-10-17 RECEIVED BY: (Signature) _____

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

RELINQUISHED BY:(Signature) _____ DATE/TIME 9:30 RECEIVED BY: (Signature) _____

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

LABORATORY USE ONLY:
RECEIVING TEMP: -0.2 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☑ HAND DELIVERED

Appendix B

Boring Logs

BORING RECORD

Start: 10:30
Finish: 10:51

DESCRIPTION LITHOLOGIC

GEOLOGIC UNIT	DEPTH	DESCRIPTION USCS	GRAPHIC LOG	PID READING (PPM X 100)	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING
	0	SM				2.3		0	10:30
	5	SM				3.0		5	10:40
	10	SM				750		10	10:46
	15					975		15	10:51
	20								
	25								

Topsoil - Very Fine - Fine Sand & Silt, Poorly Graded, 7.5YR, 2.5/3, Very Dark Brown

Fine- Very Fine Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 7/6, Reddish Yellow

Fine - Very Fine Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 8/3, Pink

Very Fine - Fine Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 8/3, Pink

TD: 15'

PID READING scale: 2 4 6 8 10 12 14 16 18

REMARKS: BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : 16-0120-01
HOLE DIAMETER : 5.5
LOCATION : Lea County, NM
LAI GEOLOGIST : T. Williams
DRILLING CONTRACTOR : Scarbrough Drilling
DRILLING METHOD : Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 2-8-2017

BORING NUMBER : SB-9

BORING RECORD

Start: 10:45
Finish: 11:10

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	SAMPLE NUMBER	PID READING	SAMPLE RECOVERY DEPTH	REMARKS
	15	Fine - Very Fine Sand w/ Caliche 7.5 YR, 8/3, Pinkish Brown, Well Sorted	SM			450.6	16'	10:45
		Very Fine Sand & Silt w/ Caliche 7.5 YR, 7/2, Pinkish Gray, Well Sorted	SM			752.7	18'	10:50
	20	Very Fine Sand & Silt 7.5 YR, 8/2, Well Sorted, Pinkish White	SM			683.6	20'	11:00
	25	Arkosic Sandstone & Very Fine Sand & Silt, 7.5 YR, 7/3, Pinkish Brown, Well Sorted	SM			172.7	25'	11:05
	30	Well Sorted Sandstone, 7.5YR 4/6 Strong Reddish Brown, Fine Grain	SP			267.3	30'	11:07
	35	Fine Grained Sandstone, 7.5YR, 4/6, Strong Reddish Brown, Moderately Sorted, Wet	SP			36.3	35'	11:09
	40	Fine Grained Sandstone, 7.5 YR, 5/6, Strong Brown, Moderately Sorted, Wet				20.2	40'	11:10
	45	TD = 40'						

PID READING: PPM X 100 (2 4 6 8 10 12 14 16 18)

BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : 16-0120-01
HOLE DIAMETER : 5"
LOCATION : Lea County, New Mexico
LAI GEOLOGIST : MG
DRILLING CONTRACTOR : SDI
DRILLING METHOD : Air Rotary

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE : 1/10/2017

BORING NUMBER : SB - 9

BORING RECORD

Start: 11:35
Finish: 12:40

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING (PPM X 50)	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING
	0	Topsoil - Very Fine - Fine Sand & Silt, Poorly Graded, 7.5YR, 3/3, Dark Brown	SM				.6		0	11:35
	5	Very Fine - Fine Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 6/2, Pinkish Grey	SM				4.1		5	11:42
	10	Very Fine - Fine Sand & Silt w/ Sandy Caliche, Poorly Sorted, 7.5YR, 8/3, Pink	SM				95		10	11:46
	15	Very Fine - Fine Sand & Silt w/ Sandy Caliche, Poorly Graded, 7.5YR, 7/3, Pink	SM				162		15	11:50
	20	Very Fine Silt w/ Fine Arkosic Sandstone, Poorly Graded, 7.5YR, 8/2, Pinkish White	SP				1030		20	11:55
	25	Very Hard Limestone w/ Sand, Poorly Graded, 7.5YR, 6/3, Light Brown	SP				51		25	12:00
	30	Fine Grained Sand, Poorly Graded, 7.5YR, 6/6, Reddish Yellow, Wet							30	12:40
		TD: 30'								

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : 16-0120-01
HOLE DIAMETER : 5.5
LOCATION : Lea County, NM
LAI GEOLOGIST : T. Williams
DRILLING CONTRACTOR : Scarbrough Drilling
DRILLING METHOD : Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 2-8-2017

BORING NUMBER : SB-10

BORING RECORD

Start: 10:57
Finish: 11:20

DESCRIPTION LITHOLOGIC

PID READING: PPM X 1 (2 4 6 8 10 12 14 16 18)

BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS
	0	Topsoil - Very Fine - Fine Sand & Silt, Poorly Graded, 7.5YR, 3/3, Dark Brown	SM			.5		0	10:57
	5	Very Fine - Fine Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 8/4, Pink	SM			.7		5	11:04
	10	Very Fine - Fine Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 8/4, Pink	SM			.7		10	11:08
	15	Very Fine - Fine Sand & Silt w/ Sandy Caliche, Poorly Graded, 7.5YR, 8/2, Pinkish White	SM			1		15	11:11
	20	Very Fine Silt w/ Arkosic Sandstone, Poorly Graded, 7.5YR, 8/2, Pinkish White	SP			11		20	11:15
	25	Minimal Very Fine Silt w/ Fine Arkosic Sandstone, Poorly Graded, 7.5YR, 7/4, Pink				25		25	11:20
		TD: 25'							

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : 16-0120-01
HOLE DIAMETER : 5.5
LOCATION : Lea County, NM
LAI GEOLOGIST : T. Williams
DRILLING CONTRACTOR : Scarbrough Drilling
DRILLING METHOD : Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 2-8-2017

BORING NUMBER : SB-11

BORING RECORD

Start: 15:05
Finish: 15:27

PPM X 2

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	SAMPLE NUMBER	PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING
	0	Topsoil - Very Fine - Fine Silt & Sand, Poorly Graded, 7.5YR, 3/3, Dark Brown	SM			1.6		0	15:05
	5	Very Fine Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 6/3, Light Brown	SM			1.1		5	15:10
	10	Fine Grained Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 8/4, Pink	SM			.7		10	15:15
	15	Fine Grained Arkosic Sandstone w/ Silt, Poorly Graded, 7.5YR, 8/3, Pink	SP			2.5		15	15:20
	20	Very Fine Silt with Arkosic Sandstone, Poorly Graded, 7.5YR, 8/3, Pink	SP			16		20	15:22
	25	Very Fine Silt w/ Fine Arkosic Sandstone, Poorly Graded, 7.5YR, 8/2, Pinkish White				4.6		23	15:27
		TD: 25'							

PID READING scale: 2 4 6 8 10 12 14 16 18

REMARKS: SOIL : _____ PPM; SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : 16-0120-01
HOLE DIAMETER : 5.5
LOCATION : Lea County, NM
LAI GEOLOGIST : T. Williams
DRILLING CONTRACTOR : Scarbrough Drilling
DRILLING METHOD : Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 2-8-2017

BORING NUMBER : SB-13

BORING RECORD

Start: 14:35
Finish: 14:58

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING (PPM X 100)	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING
	0	Topsoil - Very Fine - Fine Sand & Silt, Poorly Graded, 7.5YR, 3/3, Dark Brown	SM				2.1		0	14:35
	5	Fine- Very Fine Sand & Silt w/ Caliche Gravel Poorly Graded, 7.5YR, 7/4, Pink	SM				2600		5	14:39
	10	Very Fine- Fine Sand & Silt w/ Caliche Gravel, Poorly Graded, 7.5YR, 7/4, Pink	SM				190		10	14:43
	15	Very Fine Silt w/ Fine Arkosic Sandstone, Poorly Graded, 7.5YR, 8/2, Pinkish White	SP				130		15	14:50
	20	Very Fine Sand & Silt w/ Arkosic Sandstone & Limestone Gravels, Poorly Graded, 7.5YR, 8/2, Pinkish White	SP				88		20	14:52
	25	Very Fine Sand & Silt w/ Arkosic Sandstone, Poorly Graded, 7.5YR, 8/2, Pinkish White					49		25	14:58
		TD: 25'								

SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : 16-0120-01
HOLE DIAMETER : 5.5
LOCATION : Lea County, NM
LAI GEOLOGIST : T. Williams
DRILLING CONTRACTOR : Scarbrough Drilling
DRILLING METHOD : Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 2-8-2017

BORING NUMBER : SB-14

BORING RECORD

Start: 9:35
Finish: 9:59

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING (PPM X 1; 2 4 6 8 10 12 14 16 18)	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING
	0	Topsoil - Very Fine - Fine Sand & Silt, Poorly Graded, 7.5YR, 3/3, Dark Brown	SM				1.5		0	9:35
	5	Fine- Very Fine Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 8/3, Pink	SM				.6		5	9:38
	10	Fine - Very Fine Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 7/4, Pink	SM				.4		10	9:43
	15	Fine - Very Fine Sand & Silt w/ Caliche, Poorly Graded, 7.5YR, 8/3, Pink	SM				.8		15	9:49
	20	Fine Arkosic Sandstone, Poorly Graded w/ Limestone Gravels, 7.5YR, 8/2	SP				5		20	9:52
	25	Fine Arkosic Sandstone w/ Limestone Gravels, Poory Graded, 7.5YR, 7/2, Pinkish Grey					6.1		25	9:59
		TD: 25'								

SOIL : _____ PPM
SOIL : _____ PPM

- ONE CONTINUOUS AUGER SAMPLER
- STANDARD PENETRATION TEST
- UNDISTURBED SAMPLE
- WATER TABLE (24 HRS)
- WATER TABLE (TIME OF BORING)
- L LABORATORY TEST LOCATION
- \+ PENETROMETER (TONS/ SQ. FT)
- NR NO RECOVERY

JOB NUMBER : 16-0120-01
HOLE DIAMETER : 5.5
LOCATION : Lea County, NM
LAI GEOLOGIST : T. Williams
DRILLING CONTRACTOR : Scarbrough Drilling
DRILLING METHOD : Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 2-9-2017

BORING NUMBER : SB-15

Appendix C

Photographs

PHOTOGRAPHS

Epperson 16" Site #1 Viewing West, May 28, 2016

Epperson 16" Site #1 Viewing South, May 28, 2016

PHOTOGRAPHS

Epperson 16" Site #1 Viewing South, February 2, 2017

Epperson 16" Site #1 Viewing Southeast, February 2, 2017

PHOTOGRAPHS

Epperson 16" Site #1 Viewing Southwest, February 2, 2017

Appendix D

Initial C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Targa Midstream Services, LLC	Contact: Ralph England, Saunders Field Supervisor
Address: P.O. Box 1689, Lovington, NM 88269	Telephone No.: (575) 396-3221Ext. 224
Facility Name: Epperson 16" Pipeline (Release Site #1)	Facility Type: Natural Gas Pipeline

Surface Owner: Ricky Pierce	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	24	11 S	33 E	1,200	South	450	West	Lea

Latitude: N33° 21" 13.05622" **Longitude: W103° 34' 17.05719"**

NATURE OF RELEASE

Type of Release: Natural Gas Liquids	Volume of Release: Unknown	Volume Recovered: None
Source of Release: Pipeline Leak	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery: May 2016
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* Hole developed in 16 inch steel pipe due to external corrosion. Pipeline was shut-in repair leak and placed back into service. Larson & Associates, Inc. contracted to delineate and remediate soil impacted from natural gas liquids.

Describe Area Affected and Cleanup Action Taken.* NGL spray coated vegetation over area measuring about 100 x 100 feet. Affected soil area measures about 40 x 40 feet. Soil samples collected to delineate release vertically and horizontally. Will remediate to RRALs.

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

Signature: Ralph England	OIL CONSERVATION DIVISION
Printed Name: Ralph England	Approved by District Supervisor:
Title: Saunders Field Supervisor	Approval Date: 3/31/2017 Expiration Date:
E-mail Address: REngland@targaresources.com	Conditions of Approval: see attached directive Attached ☑
Date: 03-29-2017 Phone: (575) 396-3221Ext. 224	

* Attach Additional Sheets If Necessary

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fOY1709044496

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _3/29/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number __1R-_4664_ has been assigned. **Please refer to this case number in all future correspondence.**

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _4/31/2017_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

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

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

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

- Composite sampling is not generally allowed.

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

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

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

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

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

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

Jim Griswold
OCD Environmental Bureau Chief
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