INFORMATION ONLY

1RP-4715

DELINEATION REPORT
Salado Draw Produced/ Brackish Water Release
Lea County, New Mexico

Latitude: 32.0225°
Longitude: -103.6436°

Project No. 17-0154-01

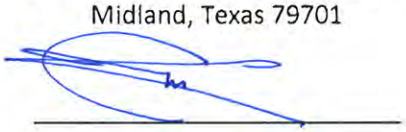
July 18, 2017

Prepared for:

Chevron USA Inc.
6301 Deauville Boulevard
Midland, Texas 79706

Prepared by:

Larson & Associates, Inc.
507 N. Marienfeld Street, Suite 205
Midland, Texas 79701



Mark J. Larson, P.G.

Certified Professional Geologist #10490

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Contents

Tables

Figures

Appendices

1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this delineation report on behalf of Chevron USA Inc. (Chevron) for a produced/brackish water release from a frac flat hose in Unit I (NE/4, SE/4), Section 29, Township 26 South, Range 35 East, in Lea County, New Mexico (Site). The Site is located about 30 miles southwest of Jal, New Mexico. The geodetic position is 32.0225° and -103.6436°. Chevron submitted the initial C-141 on June 7, 2017. The New Mexico Oil Conservation Division (OCD) District 1 assigned the release remediation permit number 1RP-4715. Chevron submitted an amended C-141 after an error was discovered in the GPS coordinate on the OCD approved C-141. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The release occurred on May 26, 2017, after a tractor trailer ran over a 12 inch above-ground frac flat hose. Approximately 620 barrels (bbl) of produced water and brackish water was spilled with about 260 bbl recovered with a vacuum truck. The water was returned to the tanks. The spill occurred on the north side of a caliche lease road and flowed east to west adjacent the north side of the road for a distance of about 760 feet. The spill crossed over the lease road to the south flowed east to west for a distance of about 190 feet. The spill on the north side of the lease road was contained the lease road and berm of a high pressure gas pipeline for a lateral distance between about 2 and 15 feet. The spill area on the south side of the lease road was about 7 feet in width. No surface water or vegetation was affected from the spill.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is about 3,130feet above mean sea level (MSL);
- The topography slopes gently to the south and southeast;
- No surface water features are present within 1 mile of the Site;
- The surface soil is designated "Pyote and Maljamar fine sands" consisting of about 30 inches of fine sand underlain by fine sandy loam to approximately 60 inches;
- The soil is sandy eolian deposits derived from sedimentary rock; and
- Groundwater occurs at about 150 feet below ground surface (bgs) according to records from the New Mexico Office of the State Engineer (NMOSE) and U.S. Geological Survey.

1.2 Recommended Remediation Action Levels

Recommended remediation action levels (RRALs) were calculated for benzene, total BTEX (benzene, ethylbenzene, toluene and xylenes) and total petroleum hydrocarbons (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	>100 feet	0
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0

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

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

Additionally, OCD requires vertical delineation to 600 mg/Kg for chloride where groundwater depth is greater than 100 feet.

2.0 SPILL DELINEATION

2.1 EM-38 Conductivity Survey

On June 6, 2017, LAI personnel used an electromagnetic (EM-38) terrain conductivity meter to qualitatively assess the spill. The EM-38 is a hand-held instrument manufactured by Geonics, Ltd., in Toronto, Ontario, Canada, and was operated in the vertical dipole (VD) mode. The EM-38 has exploration capabilities from approximately 0 to 4.9 feet bgs in the VD mode. A background location (S-5) was established southwest of the area to measure the conductivity of unaffected soil which was measured at 4.2 millimhos per meter (mmhos/m). The maximum EM-38 VD readings from the spill area on the north side of the lease road ranged from 54 mmhos/m near the spill origin (S-2) to 77.5 mmhos/m west of the spill at S-3. The EM-38 VD readings ranged between about 12 and 18 times background. The maximum EM-38 VD reading from the spill area on the south side of the lease road was 32.3 mmhos/m at S-7 located directly south of the spill origin. An EM-38 VD reading was collected about 50 feet south (S-6) to qualitatively assess the horizontal limit of the spill. The EM-38 VD reading at S-6 was 3.3 mmhhos/m and less than the background reading. Figure 3 presents a Site drawing showing the locations of maximum EM-38 VD readings and the EM-38 VD values and the background location (BG).

2.2 Soil Samples

On June 6, 2017, LAI personnel used direct-push technology (DPT) to collect soil samples at six (6) locations (S-1 through S-6 and S-7) and background (S-5). DPT uses hydraulics to push or percussion hammer and stainless steel core barrel approximately 4 feet in length into the subsurface. The core barrel retrieves a soil core approximately 1.7 inches in diameter and about 4 feet in length depending on recovery. The core barrel is equipped with dedicated polyethylene liners to minimize possible cross contamination between samples. Soil samples were collected to a maximum depth of about 11 feet bgs near the spill origin (S-2). Background samples (S-5) were collected to about 3 feet bgs. Soil samples from the remaining location were collected to a maximum depth of about 6 feet bgs where sample collection terminated due to caliche. The borings were plugged with bentonite and locations were recorded with a Trimble® global position system (GPS) receiver. Figure 3 presents the soil sample locations.

The soil samples were collected in glass containers that were hand delivered under chain of custody and preservation Permian Basin Environmental Lab (PBEL), in Midland, Texas. The laboratory analyzed the upper sample (0 to 1 foot) from each location, including background, for total petroleum hydrocarbons (TPH) including gasoline range organics (GRO), diesel range organics (DRO) and oil range organics (ORO)

by EPA SW-846 Method 8015. All samples including the background samples were analyzed for chloride by EPA Method 300. Table 1 presents the investigation sample laboratory analytical data summary. Appendix A presents the laboratory report. Appendix B presents photographs.

Referring to Table 1, TPH was below the analytical method reporting limit and RRAL in the upper sample (0 to 1 foot) from each boring location therefore no additional samples were analyzed for TPH. Chloride was analyzed in all samples including the background samples from location S-5. The background chloride concentrations were less than the method reporting limit of 1.00 to 1.02 milligrams per kilogram (mg/Kg). The highest chloride values were reported in soil samples S-7 located directly opposite of the spill origin on the south side of the lease road. Chloride was reported in soil samples S-7, 0 to 1 foot and S-7, 2 to 3 feet at 1,130 mg/Kg and 1,090 mg/Kg, respectively. Chloride decreased below the OCD delineation limit of 600 mg/Kg in samples from location S-2 at 6 to 7 feet (12.5 mg/Kg), 8 to 9 feet (<1.19 mg/Kg), 9 to 10 feet (<1.06 mg/Kg) and 10 to 11 feet (<1.15 mg/Kg). The spill was delineated laterally in soil samples S-6 in which chloride was less than the method reporting limits. The spill did not extend beyond the 16 inch frac flat hose north of the road and is assumed to be limited to the area between the road and a high pressure gas pipeline for a distance between about 2 and 15 feet.

3.0 CONCLUSIONS

The following conclusions are based on the results of the spill delineation:

1. The spill occurred along the caliche lease road and did not affect vegetation or surface water;
2. Groundwater occurs at about 150 feet bgs;
3. No fresh water wells or surface water are located within 1,000 horizontal feet of the spill;
4. Soil samples were collected at six (6) locations representing the highest EM-38 VD readings from 0 to 4.9 feet bgs;
5. TPH was less than the analytical method reporting limits in soil samples from 0 to 1 foot bgs, therefore, no additional soil samples were analyzed for TPH;
6. Chloride was delineated vertically and horizontally to 600 mg/Kg except locations S-1 and S-7;
7. Chloride was delineated vertically below 600 mg/Kg in the deepest boring (S-2) located adjacent to the spill origin.

4.0 RECOMMENDATIONS

Chevron believes no further action is required for this spill event due to depth to groundwater exceeding 100 feet in depth and no surface water within 1,000 horizontal feet. The spill occurred on the edge of caliche lease road and did not affect vegetation. Therefore, Chevron requests OCD to close the remediation permit (1RP-4715). Appendix C presents the initial C-141, amended C-141 and final C-141.

Tables

Table 1
Delineation Soil Sample Analytical Data Summary
Chevron North America E1, Salado Draw Produced Water Spill
UL M (SW/4, SW/4), Section 24, Township 26 South, Range 32 East
Lea County, New Mexico
N32° 01' 21.19" W103° 38' 13.22"

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:			10	50				5,000	*600
S-1	0 - 1	6/2/2017	<0.00109	<0.00761	<27.2	<27.2	<27.2	<27.2	354
	1 - 2	6/2/2017	--	--	--	--	--	--	417
	2 - 3	6/2/2017	--	--	--	--	--	--	616
	4 -5	6/2/2017	--	--	--	--	--	--	415
	5 - 6	6/2/2017	--	--	--	--	--	--	657
S-2	0 - 1	6/2/2017	<0.00103	<0.00721	<25.8	<25.8	<25.8	<25.8	877
	1 - 2	6/2/2017	--	--	--	--	--	--	486
	2 - 3	6/2/2017	--	--	--	--	--	--	338
	4 -5	6/2/2017	--	--	--	--	--	--	784
	5 - 6	6/2/2017	--	--	--	--	--	--	625
	6 - 7	6/2/2017							12.5
	8 - 9	6/2/2017							<1.19
	9 - 10	6/2/2017							<1.06
	10 - 11	6/2/2017							<1.15
S-3	0 - 1	6/2/2017	<0.00118	<0.00824	<29.4	<29.4	<29.4	<29.4	332
	1 - 2	6/2/2017	--	--	--	--	--	--	843
	2 - 3	6/2/2017	--	--	--	--	--	--	873
	4 -5	6/2/2017	--	--	--	--	--	--	49.2
	5 - 6	6/2/2017	--	--	--	--	--	--	82.0
S-4	0 - 1	6/2/2017	<0.00104	<0.00724	<26.0	<26.0	<26.0	<26.0	811
	1 - 2	6/2/2017	--	--	--	--	--	--	608
	2 - 3	6/2/2017	--	--	--	--	--	--	692
	3 - 4	6/2/2017	--	--	--	--	--	--	691

Table 1
Delineation Soil Sample Analytical Data Summary
Chevron North America E2, Salado Draw Produced Water Spill
UL M (SW/4, SW/4), Section 24, Township 26 South, Range 32 East
Lea County, New Mexico
N32° 01' 21.19" W103° 38' 13.22"

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:			**10**	**50**				**5,000**	***600**
	4 -5	6/2/2017	--	--	--	--	--	--	1,010
	5 - 6	6/2/2017	--	--	--	--	--	--	788
S-5	0 - 1	6/2/2017	<0.00100	<0.00700	<25.0	<25.0	<25.0	<25.0	<1.00
	1 - 2	6/2/2017	--	--	--	--	--	--	<1.01
	2 - 3	6/2/2017	--	--	--	--	--	--	<1.02
S-6	0 - 1	6/2/2017	--	--	--	--	--	--	<1.00
	1 - 2	6/2/2017	--	--	--	--	--	--	<1.14
	2 - 3	6/2/2017	--	--	--	--	--	--	<1.03
	4 -5	6/2/2017	--	--	--	--	--	--	<0.01
	5 - 6	6/2/2017	--	--	--	--	--	--	<1.04
S-7	0 - 1	6/2/2017	<0.00108	0.01	<26.9	<26.9	<26.9	<26.9	1,130
	1 - 2	6/2/2017	--	--	--	--	--	--	417
	2 - 3	6/2/2017	--	--	--	--	--	--	1,090
	4 -5	6/2/2017	--	--	--	--	--	--	121
	5 - 6	6/2/2017	--	--	--	--	--	--	30.6

Notes: Analysis performed by Xenco Laboratories, Lubbock, Texas by EPA SW-846 Methods 8021B (BTEX), 8015M (TPH) and 300 (chloride).

*: OCD delineation limit

Depth in feet below ground surface (bgs)

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

Figures

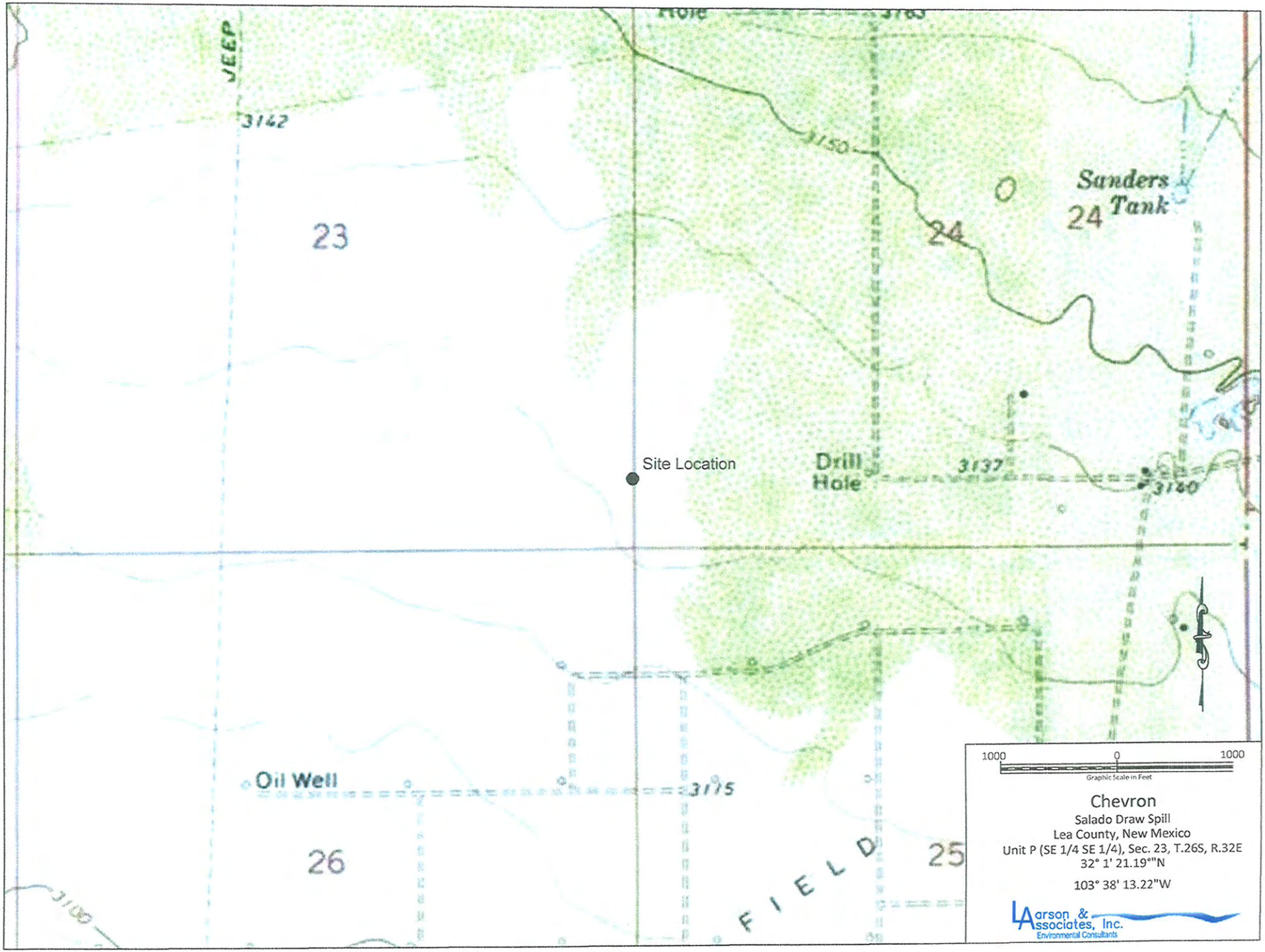

Figure 1 - Topographic Map

Figure 2 - Aerial Map

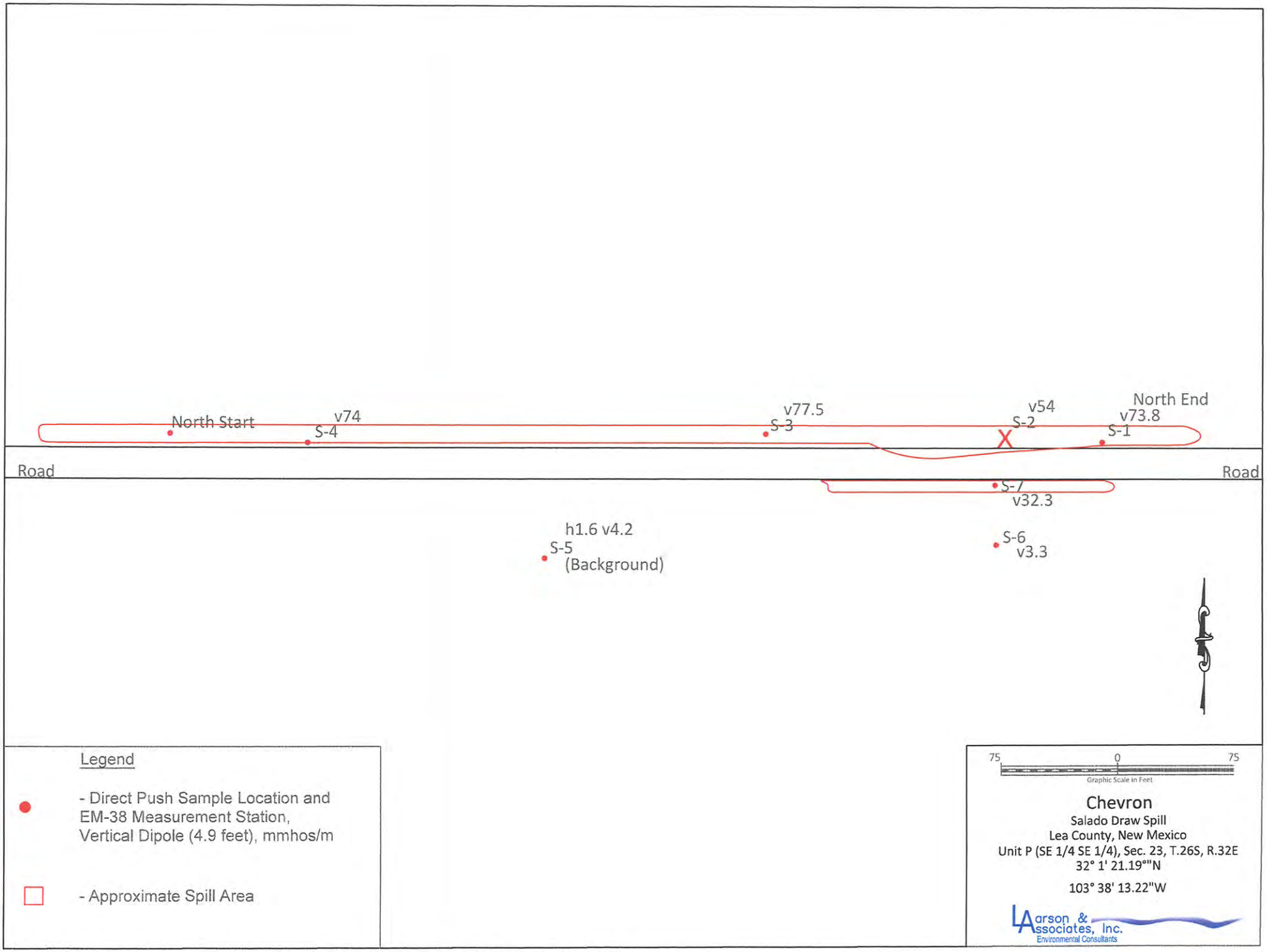

Figure 3 - Site Map Showing Approximate Spill area According to Chevron Drawing

Appendix A
Laboratory Report

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: Salado Draw
Project Number: 17-0154-01
Location:

Lab Order Number: 7F05002

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704516-16-7

Report Date: 06/14/17

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

Project: Salado Draw
Project Number: 17-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-1 0-1	7F05002-01	Soil	06/02/17 13:00	06-05-2017 09:45
S-1 1-2	7F05002-02	Soil	06/02/17 13:00	06-05-2017 09:45
S-1 2-3	7F05002-03	Soil	06/02/17 13:00	06-05-2017 09:45
S-1 4-5	7F05002-04	Soil	06/02/17 13:20	06-05-2017 09:45
S-1 5-6	7F05002-05	Soil	06/02/17 13:20	06-05-2017 09:45
S-2 0-1	7F05002-11	Soil	06/02/17 13:50	06-05-2017 09:45
S-2 1-2	7F05002-12	Soil	06/02/17 13:50	06-05-2017 09:45
S-2 2-3	7F05002-13	Soil	06/02/17 13:50	06-05-2017 09:45
S-2 4-5	7F05002-14	Soil	06/02/17 13:55	06-05-2017 09:45
S-2 5-6	7F05002-15	Soil	06/02/17 13:55	06-05-2017 09:45
S-2 6-7	7F05002-16	Soil	06/02/17 13:55	06-05-2017 09:45
S-2 8-9	7F05002-17	Soil	06/02/17 14:05	06-05-2017 09:45
S-2 9-10	7F05002-18	Soil	06/02/17 14:05	06-05-2017 09:45
S-2 10-11	7F05002-19	Soil	06/02/17 14:05	06-05-2017 09:45
S-3 0-1	7F05002-20	Soil	06/02/17 14:40	06-05-2017 09:45
S-3 1-2	7F05002-21	Soil	06/02/17 14:40	06-05-2017 09:45
S-3 2-3	7F05002-22	Soil	06/02/17 14:40	06-05-2017 09:45
S-3 4-5	7F05002-23	Soil	06/02/17 14:50	06-05-2017 09:45
S-3 5-6	7F05002-24	Soil	06/02/17 14:50	06-05-2017 09:45
S-4 0-1	7F05002-30	Soil	06/02/17 15:20	06-05-2017 09:45
S-4 1-2	7F05002-31	Soil	06/02/17 15:20	06-05-2017 09:45
S-4 2-3	7F05002-32	Soil	06/02/17 15:20	06-05-2017 09:45
S-4 3-4	7F05002-33	Soil	06/02/17 15:20	06-05-2017 09:45
S-4 4-5	7F05002-34	Soil	06/02/17 15:30	06-05-2017 09:45
S-4 5-6	7F05002-35	Soil	06/02/17 15:30	06-05-2017 09:45
S-5 0-1	7F05002-41	Soil	06/02/17 16:00	06-05-2017 09:45
S-5 1-2	7F05002-42	Soil	06/02/17 16:00	06-05-2017 09:45
S-5 2-3	7F05002-43	Soil	06/02/17 16:00	06-05-2017 09:45
S-6 0-1	7F05002-44	Soil	06/02/17 16:10	06-05-2017 09:45
S-6 1-2	7F05002-45	Soil	06/02/17 16:10	06-05-2017 09:45
S-6 2-3	7F05002-46	Soil	06/02/17 16:10	06-05-2017 09:45
S-6 4-5	7F05002-47	Soil	06/02/17 16:15	06-05-2017 09:45
S-6 5-6	7F05002-48	Soil	06/02/17 16:15	06-05-2017 09:45
S-7 0-1	7F05002-51	Soil	06/02/17 16:30	06-05-2017 09:45

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Salado Draw Project Number: 17-0154-01 Project Manager: Mark Larson	Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-7 1-2	7F05002-52	Soil	06/02/17 16:30	06-05-2017 09:45
S-7 2-3	7F05002-53	Soil	06/02/17 16:30	06-05-2017 09:45
S-7 4-5	7F05002-54	Soil	06/02/17 16:40	06-05-2017 09:45
S-7 5-6	7F05002-55	Soil	06/02/17 16:40	06-05-2017 09:45

S-1 0-1

7F05002-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Toluene	ND	0.00217	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*90.3 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*87.4 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	354	1.09	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	8.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P7F0802	06/07/17	06/08/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7F0802	06/07/17	06/08/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7F0802	06/07/17	06/08/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*131 %*	*70-130*		*P7F0802*	*06/07/17*	*06/08/17*	*TPH 8015M*	*S-GC1*
Surrogate: o-Terphenyl		*136 %*	*70-130*		*P7F0802*	*06/07/17*	*06/08/17*	*TPH 8015M*	*S-GC1*
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	06/07/17	06/08/17	calc	

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S-1 1-2

7F05002-02 (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	417	1.16	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	14.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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S-1 2-3

7F05002-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**616**	1.04	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Salado Draw Project Number: 17-0154-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-1 4-5

7F05002-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	416	1.19	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	16.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Salado Draw Project Number: 17-0154-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-1 5-6

7F05002-05 (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	657	1.05	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

S-2 0-1

7F05002-11 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Toluene	ND	0.00206	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Ethylbenzene	ND	0.00103	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (p/m)	ND	0.00206	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (o)	ND	0.00103	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*85.8 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*91.3 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	877	1.03	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	3.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*104 %*	*70-130*		*P7F0903*	*06/08/17*	*06/08/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*109 %*	*70-130*		*P7F0903*	*06/08/17*	*06/08/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	06/08/17	06/08/17	calc	

S-2 1-2

7F05002-12 (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	486	1.12	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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S-2 2-3

7F05002-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**338**	1.15	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 4-5

7F05002-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	784	1.19	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 5-6

7F05002-15 (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	625	1.06	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	6.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 6-7

7F05002-16 (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	**12.5**	1.11	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 8-9

7F05002-17 (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	ND	1.19	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	16.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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S-2 9-10

7F05002-18 (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	ND	1.06	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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S-2 10-11

7F05002-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.15	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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S-3 0-1

7F05002-20 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00118	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Toluene	ND	0.00235	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Ethylbenzene	ND	0.00118	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (p/m)	ND	0.00235	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (o)	ND	0.00118	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*86.8 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*90.3 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**332**	1.18	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.4	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*105 %*	*70-130*		*P7F0903*	*06/08/17*	*06/08/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P7F0903*	*06/08/17*	*06/08/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	1	[CALC]	06/08/17	06/08/17	calc	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Salado Draw Project Number: 17-0154-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-3 1-2

7F05002-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**843**	1.10	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-3 2-3

7F05002-22 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	873	1.09	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	8.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Salado Draw Project Number: 17-0154-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-3 4-5

7F05002-23 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**49.2**	1.23	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**19.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-3 5-6

7F05002-24 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**82.0**	1.08	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-4 0-1

7F05002-30 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00104	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Toluene	ND	0.00208	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*84.5 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*91.0 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**811**	1.04	mg/kg dry	1	P7F0905	06/09/17	06/13/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*97.5 %*	*70-130*		*P7F0903*	*06/08/17*	*06/08/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*101 %*	*70-130*		*P7F0903*	*06/08/17*	*06/08/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	06/08/17	06/08/17	calc	

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S-4 1-2

7F05002-31 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**608**	1.05	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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S-4 2-3

7F05002-32 (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	**692**	1.05	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Salado Draw Project Number: 17-0154-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-4 3-4

7F05002-33 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	691	1.05	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	5.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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S-4 4-5

7F05002-34 (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	**1010**	1.08	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-4 5-6

7F05002-35 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**788**	1.05	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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S-5 0-1

7F05002-41 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00100	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Toluene	ND	0.00200	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (o)	ND	0.00100	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*88.4 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*92.6 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.00	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	ND	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.0	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
>C12-C28	ND	25.0	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
>C28-C35	ND	25.0	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P7F0903*	*06/08/17*	*06/08/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P7F0903*	*06/08/17*	*06/08/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.0	mg/kg dry	1	[CALC]	06/08/17	06/08/17	calc	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-5 1-2

7F05002-42 (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	ND	1.01	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**1.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-5 2-3

7F05002-43 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.02	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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S-6 0-1

7F05002-44 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.00	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	ND	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Salado Draw Project Number: 17-0154-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-6 1-2

7F05002-45 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.14	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Salado Draw Project Number: 17-0154-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-6 2-3

7F05002-46 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-6 4-5

7F05002-47 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.01	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	1.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-6 5-6

7F05002-48 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.04	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	4.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Larson & Associates, Inc.	Project: Salado Draw	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-7 0-1

7F05002-51 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Toluene	ND	0.00215	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P7F0804	06/08/17	06/08/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*93.4 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*88.8 %*	*75-125*		*P7F0804*	*06/08/17*	*06/08/17*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1130**	1.08	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7F0903	06/08/17	06/08/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*110 %*	*70-130*		*P7F0903*	*06/08/17*	*06/08/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P7F0903*	*06/08/17*	*06/08/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	06/08/17	06/08/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

S-7 1-2

7F05002-52 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**417**	1.05	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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Midland TX, 79710	Project Manager: Mark Larson	

S-7 2-3

7F05002-53 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1090**	1.05	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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Midland TX, 79710	Project Manager: Mark Larson	

S-7 4-5

7F05002-54 (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	121	1.09	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	8.0	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

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Midland TX, 79710	Project Manager: Mark Larson	

S-7 5-6

7F05002-55 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**30.6**	1.10	mg/kg dry	1	P7F0906	06/09/17	06/13/17	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P7F0705	06/07/17	06/07/17	ASTM D2216	

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7F0804 - General Preparation (GC)										
Blank (P7F0804-BLK1)			Prepared & Analyzed: 06/08/17							
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	*0.0535*		"	*0.0600*		*89.2*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0561*		"	*0.0600*		*93.4*	*75-125*			
LCS (P7F0804-BS1)			Prepared & Analyzed: 06/08/17							
Benzene	0.118	0.00100	mg/kg wet	0.100		118	70-130			
Toluene	0.109	0.00200	"	0.100		109	70-130			
Ethylbenzene	0.116	0.00100	"	0.100		116	70-130			
Xylene (p/m)	0.204	0.00200	"				70-130			
Xylene (o)	0.104	0.00100	"				70-130			
Surrogate: 1,4-Difluorobenzene	*0.0603*		"	*0.0600*		*101*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0579*		"	*0.0600*		*96.5*	*75-125*			
LCS Dup (P7F0804-BSD1)			Prepared & Analyzed: 06/08/17							
Benzene	0.123	0.00100	mg/kg wet	0.100		123	70-130	4.22	20	
Toluene	0.112	0.00200	"	0.100		112	70-130	2.50	20	
Ethylbenzene	0.118	0.00100	"	0.100		118	70-130	2.24	20	
Xylene (p/m)	0.206	0.00200	"				70-130		20	
Xylene (o)	0.104	0.00100	"				70-130		20	
Surrogate: 4-Bromofluorobenzene	*0.0565*		"	*0.0600*		*94.2*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0611*		"	*0.0600*		*102*	*75-125*			
Matrix Spike (P7F0804-MS1)	**Source: 7F07002-14**		Prepared & Analyzed: 06/08/17							
Benzene	0.141	0.00101	mg/kg dry	0.202	ND	69.8	80-120			QM-05
Toluene	0.101	0.00202	"	0.202	ND	49.8	80-120			QM-05
Ethylbenzene	0.0725	0.00101	"	0.202	ND	35.9	80-120			QM-05
Xylene (p/m)	0.128	0.00202	"		ND		80-120			
Xylene (o)	0.0673	0.00101	"		ND		80-120			
Surrogate: 1,4-Difluorobenzene	*0.0647*		"	*0.0606*		*107*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0595*		"	*0.0606*		*98.1*	*75-125*			

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

Project: Salado Draw
Project Number: 17-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7F0804 - General Preparation (GC)										
Matrix Spike Dup (P7F0804-MSD1)	**Source: 7F07002-14**			Prepared & Analyzed: 06/08/17						
Benzene	0.164	0.00101	mg/kg dry	0.202	ND	81.1	80-120	15.1	20	
Toluene	0.128	0.00202	"	0.202	ND	63.3	80-120	23.9	20	QM-05
Ethylbenzene	0.111	0.00101	"	0.202	ND	54.9	80-120	41.8	20	QM-05
Xylene (p/m)	0.189	0.00202	"		ND		80-120		20	
Xylene (o)	0.0999	0.00101	"		ND		80-120		20	
Surrogate: 4-Bromofluorobenzene	*0.0617*		"	*0.0606*		*102*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0640*		"	*0.0606*		*106*	*75-125*			

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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 P7F0705 - * DEFAULT PREP *** **										
Blank (P7F0705-BLK1)				Prepared & Analyzed: 06/07/17						
% Moisture	ND	0.1	%							
Blank (P7F0705-BLK2)				Prepared & Analyzed: 06/07/17						
% Moisture	ND	0.1	%							
Duplicate (P7F0705-DUP1)	Source: 7F05002-54			Prepared & Analyzed: 06/07/17						
% Moisture	8.0	0.1	%		8.0			0.00	20	
Duplicate (P7F0705-DUP2)	Source: 7F06004-01			Prepared & Analyzed: 06/07/17						
% Moisture	9.0	0.1	%		9.0			0.00	20	
Batch P7F0905 - * DEFAULT PREP *** **										
Blank (P7F0905-BLK1)				Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7F0905-BS1)				Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	414	1.00	mg/kg wet	400		103	80-120			
LCS Dup (P7F0905-BSD1)				Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	411	1.00	mg/kg wet	400		103	80-120	0.706	20	
Duplicate (P7F0905-DUP1)	Source: 7F05002-01			Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	354	1.09	mg/kg dry		354			0.147	20	
Duplicate (P7F0905-DUP2)	Source: 7F05002-16			Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	12.1	1.11	mg/kg dry		12.5			2.98	20	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7F0905 - * DEFAULT PREP *** **										
Matrix Spike (P7F0905-MS1)	**Source: 7F05002-01**			Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	1460	1.09	mg/kg dry	1090	354	102	80-120			
Batch P7F0906 - * DEFAULT PREP *** **										
Blank (P7F0906-BLK1)				Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7F0906-BS1)				Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	420	1.00	mg/kg wet	400		105	80-120			
LCS Dup (P7F0906-BSD1)				Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	422	1.00	mg/kg wet	400		105	80-120	0.328	20	
Duplicate (P7F0906-DUP1)	**Source: 7F05002-31**			Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	608	1.05	mg/kg dry		608			0.00	20	
Duplicate (P7F0906-DUP2)	**Source: 7F05002-46**			Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	ND	1.03	mg/kg dry		ND				20	
Matrix Spike (P7F0906-MS1)	**Source: 7F05002-31**			Prepared: 06/09/17 Analyzed: 06/13/17						
Chloride	1720	1.05	mg/kg dry	1050	608	106	80-120			

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Project: Salado Draw
Project Number: 17-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7F0802 - TX 1005										
Blank (P7F0802-BLK1)				Prepared & Analyzed: 06/07/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*110*		"	*100*		*110*	*70-130*			
Surrogate: o-Terphenyl	*55.4*		"	*50.0*		*111*	*70-130*			
LCS (P7F0802-BS1)				Prepared & Analyzed: 06/07/17						
C6-C12	851	25.0	mg/kg wet	1000		85.1	75-125			
>C12-C28	798	25.0	"	1000		79.8	75-125			
Surrogate: 1-Chlorooctane	*99.9*		"	*100*		*99.9*	*70-130*			
Surrogate: o-Terphenyl	*47.2*		"	*50.0*		*94.4*	*70-130*			
LCS Dup (P7F0802-BSD1)				Prepared & Analyzed: 06/07/17						
C6-C12	850	25.0	mg/kg wet	1000		85.0	75-125	0.185	20	
>C12-C28	818	25.0	"	1000		81.8	75-125	2.39	20	
Surrogate: 1-Chlorooctane	*101*		"	*100*		*101*	*70-130*			
Surrogate: o-Terphenyl	*47.9*		"	*50.0*		*95.9*	*70-130*			
Matrix Spike (P7F0802-MS1)	**Source: 7F02014-01**			Prepared: 06/07/17 Analyzed: 06/08/17						
C6-C12	1000	30.9	mg/kg dry	1230	17.7	79.9	75-125			
>C12-C28	1430	30.9	"	1230	1250	13.9	75-125			QM-07
Surrogate: 1-Chlorooctane	*128*		"	*123*		*104*	*70-130*			
Surrogate: o-Terphenyl	*61.1*		"	*61.7*		*98.9*	*70-130*			
Matrix Spike Dup (P7F0802-MSD1)	**Source: 7F02014-01**			Prepared: 06/07/17 Analyzed: 06/08/17						
C6-C12	1010	30.9	mg/kg dry	1230	17.7	80.8	75-125	1.00	20	
>C12-C28	1510	30.9	"	1230	1250	20.7	75-125	39.5	20	QM-07
Surrogate: 1-Chlorooctane	*131*		"	*123*		*106*	*70-130*			
Surrogate: o-Terphenyl	*62.5*		"	*61.7*		*101*	*70-130*			

Larson & Associates, Inc.
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Midland TX, 79710

Project: Salado Draw
Project Number: 17-0154-01
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7F0903 - TX 1005										
Blank (P7F0903-BLK1)				Prepared & Analyzed: 06/08/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*107*		"	*100*		*107*	*70-130*			
Surrogate: o-Terphenyl	*55.0*		"	*50.0*		*110*	*70-130*			
LCS (P7F0903-BS1)				Prepared & Analyzed: 06/08/17						
C6-C12	816	25.0	mg/kg wet	1000		81.6	75-125			
>C12-C28	882	25.0	"	1000		88.2	75-125			
Surrogate: 1-Chlorooctane	*110*		"	*100*		*110*	*70-130*			
Surrogate: o-Terphenyl	*51.8*		"	*50.0*		*104*	*70-130*			
LCS Dup (P7F0903-BSD1)				Prepared & Analyzed: 06/08/17						
C6-C12	950	25.0	mg/kg wet	1000		95.0	75-125	15.2	20	
>C12-C28	842	25.0	"	1000		84.2	75-125	4.64	20	
Surrogate: 1-Chlorooctane	*106*		"	*100*		*106*	*70-130*			
Surrogate: o-Terphenyl	*50.0*		"	*50.0*		*100*	*70-130*			

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P.O. Box 50685	Project Number: 17-0154-01	
Midland TX, 79710	Project Manager: Mark Larson	

Notes and Definitions

S-GC1	Surrogate recovery outside of control limits. A second analysis confirmed the original results..
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: _____ Date: 6/14/2017

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 6/5/17 PAGE 1 OF 4
PO #: [crossed out] LAB WORK ORDER #: 7F05002
PROJECT LOCATION OR NAME: Salado Draw
LAI PROJECT #: 17-0154-01 COLLECTOR: Gerald Forbus / Carson Hughes

TRRP report? ☐ Yes ☒ No

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

TIME ZONE: Time zone/State: MST/NM

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 ☑ Oho ☑ | 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 Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	ICE	BTEX	GASOLINE	DIESEL	CHLORIDE 300	Hold	FIELD NOTES
1	S-1 0-1		6/2/17	13:00	S	1	X	✓	✓	✓	✓		
2	S-1 1-2										✓		
3	S-1 2-3			X							✓		
4	S-1 4-5			13:20							✓		
5	S-1 5-6										✓		
6	S-1 6-7			X								✓	
7	S-1 7-8			13:35								✓	
8	S-1 8-9											✓	
9	S-1 9-10											✓	
10	S-1 10-11			X								✓	
11	S-2 0-1			13:50				✓	✓	✓	✓		
12	S-2 1-2										✓		
13	S-2 2-3			X							✓		
14	S-2 4-5			13:55							✓		
15	S-2 5-6		X	13:55	X	X	X				✓		

TOTAL

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	6/5	[signature] 6-5-17 9:45
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
PBELab		

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

LABORATORY USE ONLY: NCF
RECEIVING TEMP: 1.0 THERM #:
CUSTODY SEALS - ☐ BROKEN ☑ INTACT ☐ NOT USED
☐ CARRIER BILL #
☑ HAND DELIVERED

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 6/5/17 PAGE 2 OF 4
PO #: LAB WORK ORDER #: 1F05002
PROJECT LOCATION OR NAME: Salado Draw
LAI PROJECT #: 17-0154-01 COLLECTOR: CH/GF

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST/NM

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

	Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	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 ☐	XS	Hold	FIELD NOTES
16	S-2 6-7		6/2/17	13:55	S	1				X																		✓		✓	~
17	S-2 8-9			14:05																								✓		✓	~
18	S-2 9-10			X																								✓		✓	~
19	S-2 10-11																											✓		✓	~
20	S-3 0-1			14:40								✓		✓	✓													✓			
21	S-3 1-2																											✓			
22	S-3 2-3			X																								✓			
23	S-3 4-5			14:50																								✓			
24	S-3 5-6																											✓			
25	S-3 6-7			X																										✓	
26	S-3 8-9			15:00																										✓	
27	S-3 9-10																													✓	
28	S-3 10-11																													✓	
29	S-3 11-12			X																										✓	
30	S-4 0-1		X	15:20	X	X				X		✓		✓	✓													✓			
	TOTAL																														

RELINQUISHED BY:(Signature) [signature] DATE/TIME 6/5 RECEIVED BY: (Signature) [signature] 6.5.17 9:45

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

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

TBE Lab

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

LABORATORY USE ONLY: (FCi)
RECEIVING TEMP: [illegible] THERM #: —
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☑ HAND DELIVERED

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 6/5/17 PAGE 3 OF 4
PO #: _____ LAB WORK ORDER # E705002
PROJECT LOCATION OR NAME: Salado Draw
LAI PROJECT #: 17-0154-01 COLLECTOR: CH/GF

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 ☐ | 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

	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	300	Hold	FIELD NOTES
31	S-4 1-2		6/2/17	15:20	S	1				X																		✓			
32	S-4 2-3			↓	↓	↓				↓																		✓			
33	S-4 3-4			↓																								✓			
34	S-4 4-5			15:30																								✓			
35	S-4 5-6			↓																								✓			
36	S-4 6-7			↓																									✓		
37	S-4 7-8			↓																									✓		
38	S-4 8-9			15:40																									✓		
39	S-4 9-10			↓																									✓		
10	S-4 10-11			↓								✓	✓	✓															✓		
11	S-5 0-1			16:00								✓	✓	✓														✓			
12	S-5 1-2			↓																								✓			
13	S-5 2-3			↓																								✓			
14	S-6 0-1			16:10																								✓			
15	S-6 1-2		↓	16:10	↓	↓				↓																		✓			
	TOTAL																														

RELINQUISHED BY:(Signature) DATE/TIME 6/5 RECEIVED BY: (Signature) 6-5-17 9:45
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
PDE Lab

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

LABORATORY USE ONLY: NCFLI
RECEIVING TEMP: 0.0 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☑ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☑ HAND DELIVERED

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 6/5/17 PAGE 4 OF 4
PO #: LAB WORK ORDER #: 7F05002
PROJECT LOCATION OR NAME: Salado Draw
LAI PROJECT #: 17-0154-01 COLLECTOR: CH/GF

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 ☐, GASOLINE MOD 8015 ☑, DIESEL - MOD 8015 ☑, TPH 1005 ☐, TPH 1006 ☐, Ordo ☑, 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 Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	ICE	BTEX	GASOLINE MOD 8015	DIESEL - MOD 8015	CHLORIDE (300)	Hold	FIELD NOTES
46	S-6 2-3		6/2/17	16:10	S	1	X				✓		
47	S-6 4-5		↓	16:15	↓	↓	↓				✓		
48	S-6 5-6		↓	↓	↓	↓	↓				✓		
49	S-6 6-7		↓	↓	↓	↓	↓					✓	
50	S-6 7-8		↓	↓	↓	↓	↓					✓	
51	S-7 0-1		↓	16:30	↓	↓	↓	✓	✓	✓	✓		
52	S-7 1-2		↓	↓	↓	↓	↓				✓		
53	S-7 2-3		↓	↓	↓	↓	↓				✓		
54	S-7 4-5		↓	16:40	↓	↓	↓				✓		
55	S-7 5-6		↓	↓	↓	↓	↓				✓		
56	S-7 6-7		↓	↓	↓	↓	↓					✓	
57	S-7 7-8		↓	↓	↓	↓	↓					✓	
58	S-7 8-9		↓	16:50	↓	↓	↓					✓	
59	S-7 9-10		↓	↓	↓	↓	↓					✓	

TOTAL

RELINQUISHED BY: (Signature) [signature] DATE/TIME 6/5 RECEIVED BY: (Signature) [signature] 6-5-17 9:45
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) PBE Lab 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

Appendix B

Photographs

Direct Push Soil Sampling at Location S-2 (Spill Origin) Viewing West

Direct Push Soil Sampling at Location S-2 (Spill Origin) Viewing South

Damaged Frac Flat Hose and Spill Area Viewing West (Soil Sample Point S-4 in Background)

Soil Sample Location S-7 Viewing South

Appendix C

Initial and Final C-141

Appendix C

Initial and Final C-141

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Chevron USA Inc.	Contact Josepha DeLeon
Address 6301 Deauville Blvd., Midland, TX. 79706	Telephone No. 575-263-0424 Cell – 432-425-1528
Facility Name Salado Draw Area	Facility Type: Lease Road

Surface Owner	Mineral Owner	API No's.
Federal	Private	Not Applicable; spill occurred on lease road

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	29	26S	35E					Lea

Latitude 32.012119 Longitude -103.381322 INCORRECT GPS COORDINATES

NATURE OF RELEASE

Type of Release: Spill	Volume of Release: 620 barrels produced/brackish water	Volume Recovered: 260 barrels produced/brackish water
Source of Release: 12" frac flat hose	Date and Hour of Occurrence: 05/26/2017; 06:00 PM	Date and Hour of Discovery 05/26/2017; 06:00 PM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Olivia Yu; Maxey Brown – NMOCD Jim Amos - BLM	
By Whom? Amy Barnhill	Date and Hour: 05/27/2017; 03:20 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

RECEIVED
By Olivia Yu at 9:15 am, Jun 08, 2017

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

Describe Cause of Problem and Remedial Action Taken.*
A tractor trailer ran over above-ground 12" frac flat hose, releasing 620 barrels produced/brackish water on land. Recovered 260 barrels.

Describe Area Affected and Cleanup Action Taken.*
The spill to land was on disturbed ditch and did not impact vegetation nor flow to any sensitive habitat, or water way. Vacuum truck recovered 260 barrels. Remediation plan will be submitted.

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: JdeLeon	OIL CONSERVATION DIVISION
Printed Name: Josepha DeLeon	Approved by Environmental Specialist:
Title: HES Compliance Support - Environmental	Approval Date: 6/8/2017 Expiration Date:
E-mail Address: jdxd@chevron.com	Conditions of Approval: see attached directive Attached ☑
Date: 06/7/2017 Phone: 575-263-0424	

* Attach Additional Sheets If Necessary

1RP-4715 fOY1716526248 nOY1716526342

pOY1716526704

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _6/7/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-4715__ has been assigned. **Please refer to this case number in all future correspondence.**

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _7/8/2017_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

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

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

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

- Composite sampling is not generally allowed.

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

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

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

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

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

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

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

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Chevron USA Inc.	Contact Josepha DeLeon
Address 6301 Deauville Blvd., Midland, TX. 79706	Telephone No. 575-263-0424 Cell – 432-425-1528
Facility Name Salado Draw Area	Facility Type: Lease Road

Surface Owner Federal	Mineral Owner Private	API No's. Not Applicable; spill occurred on lease road

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	29	26S	35E					Lea

Latitude 32.012119 Longitude -103.381322

NATURE OF RELEASE

Type of Release: Spill	Volume of Release: 620 barrels produced/brackish water	Volume Recovered: 260 barrels produced/brackish water
Source of Release: 12" frac flat hose	Date and Hour of Occurrence: 05/26/2017; 06:00 PM	Date and Hour of Discovery 05/26/2017; 06:00 PM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Olivia Yu; Maxey Brown – NMOCD Jim Amos - BLM	
By Whom? Amy Barnhill	Date and Hour: 05/27/2017; 03:20 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

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

Describe Cause of Problem and Remedial Action Taken.*
A tractor trailer ran over above-ground 12" frac flat hose, releasing 620 barrels produced/brackish water on land. Recovered 260 barrels.

Describe Area Affected and Cleanup Action Taken.*
The spill to land was on disturbed ditch and did not impact vegetation nor flow to any sensitive habitat, or water way. Vacuum truck recovered 260 barrels. Remediation plan will be submitted.

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: JdeLeon	OIL CONSERVATION DIVISION Approved by Environmental Specialist:	
Printed Name: Josepha DeLeon		
Title: HES Compliance Support - Environmental	Approval Date:	Expiration Date:
E-mail Address: jdxd@chevron.com	Conditions of Approval:	Attached ☐
Date: 06/7/2017 Phone: 575-263-0424		

* Attach Additional Sheets If Necessary

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: Chevron USA Inc.	Contact: Josepha DeLeon
Address: 6301 Deauville Blvd., Midland, TX 79706	Telephone No.: (575) 263-0424
Facility Name: Salado Draw Area	Facility Type: Lease Road

Surface Owner: Federal	Mineral Owner: Private	Lease No. NA – spill occurred on lease road

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	29	26S	35E	700	South	50	East	Lea

Latitude: 32.012119° **Longitude: -103.381322°**

NATURE OF RELEASE

Type of Release: Produced/Brackish Water Spill	Volume of Release: 620 bbl	Volume Recovered: 260 bbl
Source of Release: 12" frac flat hose	Date and Hour of Occurrence: 05/26/2017; 06:00 pm	Date and Hour of Discovery: 05/26/2017; 06:00 pm
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Olivia Yu – Maxey Brown – NMOCD District 1, Jim Amos - BLM	
By Whom? Amy Barnhill	Date and Hour: 05/27/2017; 03:20 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

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

Describe Cause of Problem and Remedial Action Taken.* Tractor trailer ran over above-ground 12" frac flat hose, releasing 620 bbl of produces/brackish water adjacent to lease road. Recovered 260 bbl.

Describe Area Affected and Cleanup Action Taken.* Spill was restricted to area between lease road and berm for high pressure gas pipeline for a lateral distance between about 2 and 15 feet. Spill was blocked on east and west ends to prevent further migration and flowed south over lease road near the origin of the spill. Spill was contained on south side between the lease road and a poly flow line for a lateral distance between about 2 and 5 feet. The affected area on the north side of lease road measured approximately 760 feet in length. The affected area on the south side of the lease road measured about 190 feet in length. On June 2, 2017, personnel from Larson & Associates, Inc. conducted an EM-38 survey in the vertical dipole mode (0 to approximately 5 feet) along the length of the spill north and south of the lease road. Elevated conductivity relative to background was identified at six (6) locations between 12 and 18 times background. Soil samples were collected between 6 and 11 feet below ground surface (bgs) at the six (6) locations with conductivity greater than 12 to 18 times background. TPH was below the method reporting limit (RL) and RRAL (5,000 mg/Kg). Chloride was delineated below 600 mg/Kg in the deepest boring (S-2) located adjacent to the spill origin. Chevron requests no further action for 1RP-4715 based on depth to groundwater exceeding 100 feet and no surface water within 1,000 horizontal feet.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Josepha DeLeon	Approved by District Supervisor:	
Title: HES Compliance Support – Environmental	Approval Date:	Expiration Date:
E-mail Address: jdxd@chevron.com	Conditions of Approval:	Attached ☐
Date: 07-18-2017 Phone: (575) 263-0424		

* Attach Additional Sheets If Necessary