APPROVED

By Olivia Yu at 8:28 am, May 01, 2018

NMOCD agrees that delineation is complete for 1RP-3979.

1RP-3979
DELINEATION Report
Devon Leases
Illegal Dumping
Lea County, New Mexico

LAI Project No. 17-0201-01

March 31, 2018

Prepared for:
Penroc Oil Corporation
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1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this delineation report on behalf of Penroc Oil Corporation (Penroc) for submittal to the New Mexico Oil Conservation (OCD) District I for spills relating to illegal dumping of produced fluids (crude oil and produced water) at four (4) locations (Sites) on oil and gas leases previously operated by Devon Energy Production (Devon), in Lea County, New Mexico. The Sites and locations are as follows:

- Site 1 Altbeir 10 State 1H, Unit N (SE/4, SW/4), Section 10, Township 18S, Range 36E 32° 45′ 24.43″ North, 103° 20′ 40.08″ West;
- Site 2 Dopplebock 8 State Com 1H, Unit B (NW/4, NE/4), Section 8, Township 18S, Range 36E 32° 46′ 06.37″ North, 103° 22′ 35.33″ West;
- Site 3 Dunkel 7 State 1H, Unit E (SW/4, NW/4), Section 17, Township 18S, Range 36 E 32° 44′ 51.76″ North, 103° 23′ 04.24″ West;
- Site 4 Guadalcanal State Com 1H, Unit D (NW/4, NW/4), Section 34, Township 17S, Range 36E 32° 47′ 51.96″ North, 103° 21′ 03.11″ West;

Figure 1 presents a topographic map showing the Site locations.

1.1 Background

The surface owner is the State of New Mexico State Land Office (SLO). On August 26, 2015, a surface tenant discovered unusual discoloration and tire tracks on the property. He notified the nearest lease operator, Devon, about illegal dumping of produced fluids in the vicinity of four Devon Leases. The illegal dumping was reported to the OCD (verbal communication with Thomas Oberding) on September 1, 2015. The initial C-141 was submitted on September 2, 2015 and assigned remediation permit number 1RP-3979.

On January 1, 2017, Penroc acquired the leases from Devon. Penroc was notified by SLO and OCD of an open remediation permit (1RP-3979) after Penroc requested a release from a lease after plugging a well. Penroc requested LAI to prepare a delineation plan to address 1RP-3979. LAI determined that GPS coordinates presented on the initial C-141 were incorrect therefore LAI relied on legal descriptions for the Sites as well as photographs and maps provided by Devon included with the initial C-141 to navigate to each Site. The C-141 described each spill based on proximity to the nearest oil and gas lease. Appendix A presents the initial C-141 and photographs and maps produced by Devon.

On November 8, 2017, LAI, on behalf of Penroc, submitted the delineation plan to OCD and SLO. The plan was approved by OCD on December 8, 2017 and by SLO on December 12, 2017. Appendix B presents OCD and SLO correspondence.

1.1.1 Altbeir 10 State 1H (Site 1)

On November 1, 2017 LAI personnel collected photographs at the Altbeir 10 State 1H in the same orientation as photographs by Devon and mapped the visible spill area. The spill appears to be just off the lease road to the north of the now plugged and abandoned well pad. The vegetative cover has

improved since the spill was initially documented, but scarring is visible. LAI mapped the impact area as about 9,400 square feet or about 0.22 acre. Devon also presented photographs and a map for an area of disturbed vegetation located about 2,000 feet west of the well pad. However, upon investigation, LAI personnel were not able to identify the release with the information provided by Devon.

1.1.2 Dopplebock 8 State Com 1H (Site 2)

On November 1, 2017 LAI personnel collected photographs at the Dopplebock 8 State Com 1H in the same orientation as the photographs taken by Devon and mapped the visible spill area. An area of discolored vegetation similar to what Devon photographed was visible along the east side of the lease road leading up to the tank battery. The area of discolored vegetation measures approximately 6,200 square feet or about 0.14 acre. There were no visible signs of impact within the tank battery pad.

1.1.3 Dunkel 7 State 1H (Site 3)

On November 1, 2017 LAI personnel collected photographs at the Dunkel 7 State 1H in the same orientation as the photographs taken by Devon and mapped the visible spill area. An area of discolored vegetation is located about 1 mile south of the Dunkel lease and measured about 5,700 square feet or about 0.13 acre. The spill is situated predominately on the lease road with a minor run over in the pasture on either side.

1.1.4 Guadalcanal State Com 1H (Site 4)

On November 6, 2017 LAI personnel conducted a site visit at the Guadalcanal State Com 1H. No impacted areas were discovered in or around the tank battery pad. An area of discolored vegetation is located approximately 2 miles west of the tank battery, along Arkansas Juncture, measuring about 4,811 square feet or about 0.11 acre.

1.2 Physical Setting

The physical setting is as follows:

1.2.1 Altbeir 10 State 1H (Site 1)

- The surface elevation is approximately 3,822 feet above mean sea level (msl);
- The surface topography slopes gently towards the southeast;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as "Portales loam, 0 to 3 percent slopes", consisting of 0 to 14 inches of loam underlain by 14 to 35 inches of clay loam;
- The surface geology is the Ogallala Formation (lower Pliocene to middle Miocene) consisting of alluvial and eolian deposits, and petrocalcic soils of the southern High Plains;
- Groundwater occurs in the Ogallala formation at approximately 55 feet below ground surface (bgs) (1991);
- The nearest fresh water well is located in Unit G (SW/4, NE/4) in Section 10, Township 18 South, Range 36 East about 0.40 miles northeast of the Site.

1.2.2 Dopplebock 8 State Com 1H (Site 2)

- The surface elevation is approximately 3,860 feet above msl;
- The surface topography slopes gently towards the northeast;
- There are no surface water features within 1,000 feet of the Site;

- The soils are designated as "Kimbrough-Lea complex, dry, 0 to 3 percent slopes", consisting of 0 to 3 inches of gravelly loam underlain by 3 to 10 inches of loam;
- The surface geology is the Ogallala Formation (lower Pliocene to middle Miocene) consisting of alluvial and eolian deposits, and petrocalcic soils of the southern High Plains;
- Groundwater occurs in the Ogallala formation at approximately 57 feet bgs (1986);
- The nearest freshwater well is located in Unit G (SW/4, NE/4), Section 8, Township 18 South, Range 36 East about 0.40 miles southwest of the Site.

1.2.3 Dunkel 7 State 1H (Site 3)

- The surface elevation is approximately 3,855 feet above msl;
- The surface topography slopes gently towards the southeast;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as "Kimbrough-Lea complex, dry, 0 to 3 percent slopes", consisting of 0 to 3 inches of gravelly loam underlain by 3 to 10 inches of loam;
- The surface geology is the Ogallala Formation (lower Pliocene to middle Miocene) consisting of alluvial and eolian deposits, and petrocalcic soils of the southern High Plains;
- Groundwater occurs in the Ogallala formation at approximately 51 feet bgs (1986);
- The nearest freshwater well is located in Unit J (NW/4, SE/4), Section 17, Township 18 South, Range 36 East about 0.45 miles east of the Site.

1.2.4 Guadalcanal State Com 1H (Site 4)

- The surface elevation is approximately 3,850 feet above msl;
- The surface topography gently slopes towards the southeast;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as "Portales and Gomez fine sandy loams", consisting of 0 to 8 inches
 of fine sandy loam underlain by 8 to 60 inches of clay loam;
- The surface geology is the Ogallala Formation (lower Pliocene to middle Miocene) consisting of alluvial and eolian deposits, and petrocalcic soils of the southern High Plains;
- Groundwater occurs in the Ogallala formation at approximately 56 feet bgs (1986);
- The nearest freshwater well is located in Unit M (SW/4, SW/4), Section 34, Township 17 South, Range 36 East about 0.75 miles southeast of the Site;

1.3 Recommended Remediation Action Levels

Recommended remediation action levels were calculated for benzene, BTEX and TPH based on the following criteria established by the OCD in "Guidelines for Remediation of Leaks, Spills and Releases, pp. 6-7, August 13, 1993":

Criteria	Result	Score	
Depth-to-Groundwater	50 – 99 Feet	10	
Wellhead Protection Area	No	0	
Distance to Surface Water Body	>1,000 Horizontal Feet	0	

The following RRAL apply to the release for ranking score:

Benzene 10 mg/Kg

BTEX 50 mg/Kg
 TPH 1,000 mg/Kg

Depth to groundwater between 50 and 99 feet bgs requires vertical delineation for chloride to 600 milligrams per kilogram (mg/Kg) and maintained a minimum 5 feet further in depth.

2.0 SPILL DELINEATION

Between January 2 and 10, 2018, LAI personnel used direct push technology (DPT) to collect soil samples at Site 1 through Site 4. Soil samples were collected in 1 foot intervals (i.e. 0 to 1, 1 to 2 feet, etc.) to approximately 4 feet bgs and 2 foot intervals to approximately 8 feet bgs depending on subsurface conditions. The samples were delivered under preservation and chain of custody to Permian Basin Environmental Lab (PBEL) in Midland, Texas. The laboratory analyzed the upper sample (0 to 1 foot bgs) for benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH), including gasoline range organics (C6-C12), diesel range organics (>C12-C28) and oil range organics (>C28-C35) by EPA SW-846 Methods 8021B and 8015M, respectively. Additional samples were analyzed for vertical delineation. All samples were analyzed for chloride by EPA Method 300. Table 1 presents the laboratory analytical data summary. Appendix C presents the laboratory report. Appendix D presents photographs.

2.1 Altbeir 10 State 1H (Site 1)

On January 10, 2018, LAI personnel collected soil samples from six (6) locations (DP-1 through DP-6) between 2 (DP-4 and DP-6) and 6 (DP-2) feet bgs. BTEX and TPH were not reported above the analytical method reporting limit (RL) in the upper samples (0 to 1 foot bgs), therefore, no additional samples were analyzed for BTEX and TPH. The highest chloride concentration was 11.7 milligrams per kilogram (mg/Kg) in sample DP-1, 0 to 1 foot bgs and was below the OCD delineation limit (600 mg/Kg). Figure 2a presents the soil sample locations for Site 1 (Altbeir 10 State 1H).

2.2 Dopplebock 8 State Com 1H (Site 2)

On January 2, 2018, LAI personnel collected soil samples from seven (7) locations (DP-1 through DP-7) between 0.5 (DP-4) and 8 (DP-5) feet bgs. BTEX was not reported above the RL in the upper samples (0 to 1 foot bgs). The highest TPH concentration (220.9 mg/Kg) was reported from sample DP-2, 0 to 1 foot, and was below the RRAL (1,000 mg/Kg). No additional samples were analyzed for BTEX and TPH. The highest chloride concentration (353 mg/Kg) was reported from sample DP-10, 0 to 1 foot bgs and was below the OCD delineation limit (600 mg/Kg). Figure 2b presents the soil sample locations for Site 2 (Dopplebock 8 State Com 1H).

2.3 Dunkel 7 State 1H (Site 3)

On January 8, 2018, LAI personnel collected soil samples from eleven (11) locations (DP-1 through DP-11) between 1 (DP-2, DP-3, DP-4, DP-9, DP-10 and DP-11) and 8 (DP-5) feet bgs. BTEX and TPH were not reported above the RL in the upper samples (0 to 1 foot bgs), therefore, no additional samples were analyzed for BTEX and TPH. The highest chloride concentration (756 mg/Kg) was reported from sample DP-10, 0 to 1 foot bgs and exceeded the OCD delineation limit (600 mg/Kg).

On March 29, 2018, Scarborough Drilling, Inc. (SDI), under supervision from LAI, used an air rotary rig and jam tube sampler to collect soil samples from DP-10 at approximately 5, 10 and 15 feet bgs. PBEL

analyzed the samples for chloride by EPA Method 300 and reported 89.8 mg/Kg (DP-10, 5 feet), 120 mg/Kg (DP-10, 10 feet) and 60.6 mg/Kg (DP-10, 15 feet). Sample location DP-10 is situated in the caliche lease road. Chloride was delineated at DP-10 to the 600 mg/Kg and maintained for at least 5 feet farther in depth. Figure 2c presents the soil sample locations for Site 3 (Dunkel 7 State 1H).

2.4 Guadalcanal State Com 1H (Site 4)

On January 9, 2018, LAI personnel collected soil samples from four (4) locations (DP-1 through DP-4) between approximately 1 (DP-4) and 4 (DP-1 and DP-2) feet bgs. BTEX was not reported above the RL in the upper samples (0 to 1 foot bgs). The highest TPH concentration (194.9 mg/Kg) was reported from sample DP-1, 0 to 1 foot, and was below the RRAL (1,000 mg/Kg). No additional samples were analyzed for BTEX and TPH. The highest chloride concentration (2.29 mg/Kg) was reported from sample DP-1, 0 to 1 foot bgs, and was below the OCD delineation limit (600 mg/Kg). Figure 2d presents the soil sample locations for Site 4 (Guadalcanal State Com 1H).

3.0 REMEDIAITON PLAN

Penroc requests no further action for 1RP-3979. Appendix E presents the final C-141.

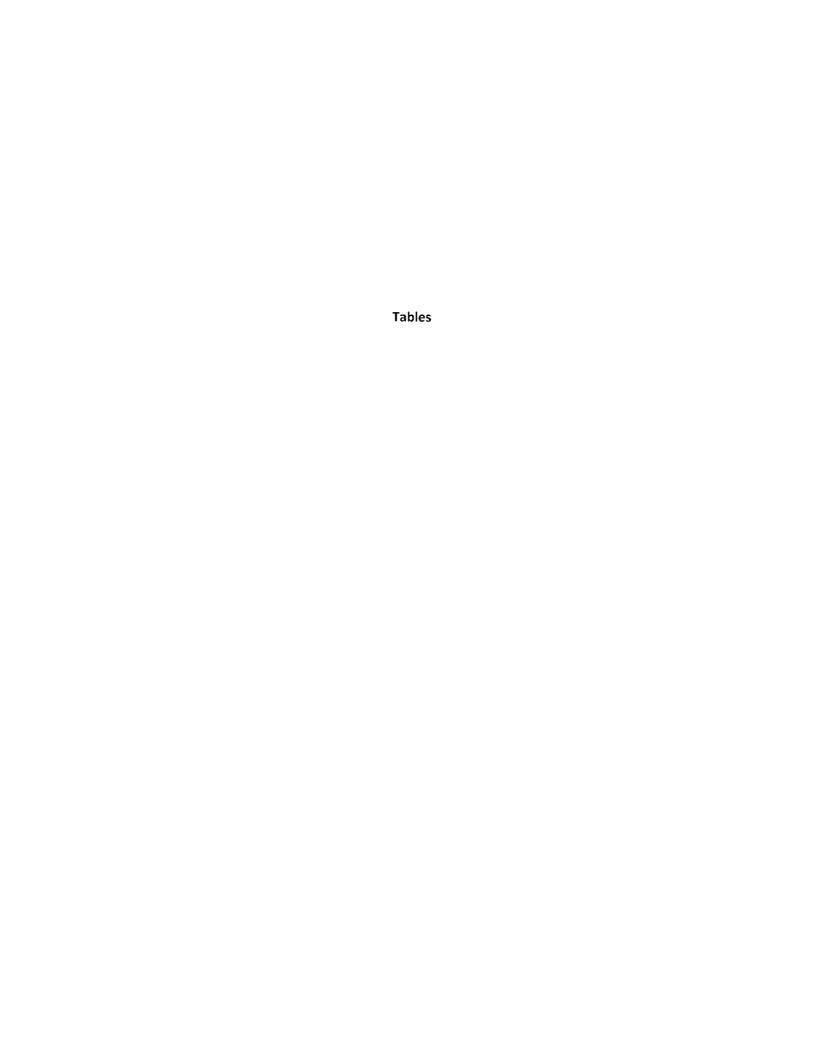


Table 1

1RP-3979

Delineation Soil Sample Analytical Data Summary

					-	Lea County, New Mexico	lew Mexico		א אורבא <i>ן</i>			
Site	Site	Location	Denth	Collection	Ctatio							Page 1 of 3
Number	r Name		(Feet)	Date	Shibic	mg/Kg)	BIEX (mg/Kg)	C6 - C12	C12 - C28	C28 - C35	TPH ,	Chloride
RRAL:						10	50	19,,,19,,,,1	(3y /S)	(mg/kg)	(mg/kg)	(mg/Kg)
#1	Altbeir 10 1H	DP-1	0-1	1/10/2018	In-Situ	<0.00108	N 00 0 /	0 75,	0		1,000	*600
		-	1-2	1/10/2018	In-Situ		70.00/ 34 +C /00.00/	6.42>	<26.9	<26.9	<26.9	11.7
			2-3	1/10/2018	In-Situ	į		l	1	!		<1.11
			3-4	1/10/2018	In-Situ		***		ŀ	1	1	<1.09
	-		4 - 5	1/10/2018	In-Situ		i	1	1	1	1	<1.08
		DP-2	- 1	1/10/2018	In-Situ	<0.00109		۱ (: {	1	1	<1.04
			- 1	1/10/2018	In-Situ	60100	Ta/nn:n>	7:/7>	<27.7	<27.2	<27.2	<1.09
			2-3	1/10/2018	ייין אַנאַר ווי	}	1	1	1	;	į	<1.10
				1/10/2018	מולים מ	1	!	!	;	ı	1	<1.10
				1/10/2018	nac-in	1	!	ŧ	1	ı	ļ	<1.11
		200		1/10/2018	n-Situ	1	l	ı	1	1	ł.	7.68
			T (1/10/2018	In-Situ	<0.00115	<0.00805	<28.7	<28.7	<28.7	<28.7	<1.15
			7 - I	1/10/2018	In-Situ	ŀ	}	1	1	!	1	<1.09
				1/10/2018	In-Situ	1	1	1	1	;	1	×1.03
		DP-4		1/10/2018	In-Situ	<0.00115	<0.00805	<28.7	<28.7	<28.7	<28.7	×1.15
			1-2	1/10/2018	In-Situ	1	!	1		į į	1	2017
		DP-5		1/10/2018	In-Situ	<0.00106	<0.00744	<26.6	<26.6	<26.6	<26.6	\ 1.03
			1-2	1/10/2018	In-Situ	1	1	;	1		2.03	7, 00
			2-3	1/10/2018	In-Situ	1	1		1	;		\1.00 \1.00
****			3-4	1/10/2018	In-Situ	ŀ	1	1	1	ļ	····	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
		DP-6	0 - 1	1/10/2018	In-Situ	<0.00108	<0.00754	<26.9	<26.9	696>	<76.9	71.17
****			1.2	1/10/2018	In-Situ	1	1	1	ŀ	}	} :	8.87
ţ	O Townson							2004				
7#	Ctots Con 1	1-40 1-40	0-1	1/2/2018	In-Situ	<0.00106	<0.00744	<26.6	<26.6	<26.6	<26.6	353
	State COINI I	0P-2	 .	1/2/2018	In-Situ	<0.00104	<0.00728	49.4	96.3	75.2	220.9	<1.04
	~	DP-3	Η '	1/3/2018	In-Situ	<0.00105	<0.00737	48.6	65.2	50.5	134.3	<1.05
~		4 1	ئ.	1/3/2018	ln-Situ	<0.00108	<0.00754	<26.9	<26.9	<26.9	<26.9	8.34
		ر د- ار	Η.	1/2/2018	In-Situ	<0.00109	<0.007 6 1	<27.2	<27.2	<27.2	<27.2	<1.09
			- 2	1/2/2018	In-Situ	ŀ	1	1	ţ	ļ	1	<1.08
				1/2/2018	In-Situ	ł	ŀ	1	;	1	1	<1.06
			- 4	1/2/2018	In-Situ	ì	ŀ	1		 !	1	7.05

Table 1 1RP-3979

Delineation Soil Sample Analytical Data Summary Penroc Oil Corporation (Former Devon Energy Illegal Dumping Sites) Lea County, New Mexico

Site	Site	Location	Depth	Collection	Status	Benzene	ВТЕХ	C6 - C12	C12 - C28	C28 - C35	ТРН	Chloride
DDAI.	Name		(Feet)	Date		(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
AL.						10	20				1,000	*600
			4-6	1/2/2018	In-Situ	1	1	k	£	j	1	<1.03
			8-9	1/2/2018	In-Situ	1	1	ı	1	1	1	<1.06
		DP-6	0-1	1/3/2018	In-Situ	<0.00105	<0.00737	59.1	66.5	58.4	184.0	<1.05
		DP-7	0-1	1/3/2018	In-Situ	<0.00106	<0.00744	<26.6	<26.6	<26.6	<26.6	<1.06
#3	Dunkel 7	DP-1	0-1	1/8/2018	In-Situ	<0.00114	<0.05232	<28.4	<28.4	<28.4	<28.4	<1 14
	State 1H		1-2	1/8/2018	In-Situ	1	1	1	1	1	1	12.5
		DP-2	0-1	1/8/2018	In-Situ	<0.00106	<0.04888	<26.6	<26.6	<26.6	<26.6	<1.06
		DP-3	0-1	1/8/2018	In-Situ	<0.00105	<0.04841	<26.3	<26.3	<26.3	<26.3	<1.05
		DP-4	0-1	1/8/2018	In-Situ	<0.00108	<0.04956	<26.9	<26.9	<26.9	<26.9	<1.08
		DP-5	0-1	1/8/2018	In-Situ	<0.00116	<0.05347	<29.1	<29.1	<29.1	<29.1	6.01
			1-2	1/8/2018	In-Situ	i	1	1	1	ī	1	36.6
			2-3	1/8/2018	In-Situ	1	1	1	1.	1	T	45.0
			3-4	1/8/2018	In-Situ	1	1	1	1	1	1	0.09
			9 - 4	1/8/2018	In-Situ	1	1	H	1	d	·I	71.8
			8-9	1/8/2018	In-Situ	1	1	4.	1	1	1	6.46
		DP-6	0-1	1/8/2018	In-Situ	<0.00118	<0.05416	<29.4	<29.4	<29.4	<29.4	<1.18
			1-2	1/8/2018	In-Situ	ī	1	î	1	1	1	3.10
			2-3	1/8/2018	In-Situ	1)	1	1	I	1	1	3.69
		DP-7	0-1	1/8/2018	In-Situ	<0.001	<0.05059	<27.5	<27.5	<27.5	<27.5	485
			1-2	1/8/2018	In-Situ	<0.00118	<0.05416	<29.4	<29.4	<29.4	<29.4	479
			2-3	1/8/2018	In-Situ	1	1	<28.1	<28.1	<28.1	<28.1	320
	ů.		3-4	1/8/2018	In-Situ	ſ	1	<27.8	<27.8	<27.8	<27.8	301
			9-4	1/8/2018	In-Situ	1	1	<32.9	<32.9	<32.9	<32.9	29.9
			8-9	1/8/2018	In-Situ	1	1	1	1	1	I	249
		DP-8	0-1	1/8/2018	In-Situ	<0.00100	<0.046	<25.0	<25.0	<25.0	<25.0	<1.00
			1-2	1/8/2018	In-Situ	1	1	1	1	ļ	1.	<1.37
			2-3	1/8/2018	In-Situ	1	T	1	Î	i	1	26.8
		DP-9	0-1	1/8/2018	In-Situ	<0.00108	<0.04956	<26.9	<26.9	<26.9	<26.9	559
		DP-10	0-1	1/9/2018	In-Situ	<0.00109	<0.05002	<27.2	<27.2	<27.2	<27.2	756

Delineation Soil Sample Analytical Data Summary 1RP-3979 Table 1

Penroc Oil Corporation (Former Devon Energy Illegal Dumping Sites)

Lea County, New Mexico

	anc	Location	Depth	Collection	Status	Benzene	BTEX	C6 - C12	C12 - C28	C28 - C35	TPH	Chloride
Number	Name		(Feet)	Date		(mg/Kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/Kg)	(mg/Kg)
RRAL:						10	50				1,000	*600
			2	3/29/2018	In-Situ	ı	Ť	1	Ι	-1	1	89.8
			10	3/29/2018	In-Situ	i	1	F)	1	1	1	120
			15	3/29/2018	In-Situ	ŀ	1	ı	ľ	1	1	9.09
		DP-11	0-1	1/9/2018	In-Situ	<0.00109	<0.05002	<26.9	<26.9	<26.9	<26.9	529
#4	Guadalcanal	DP-1	0-1	1/9/2018	In-Situ	<0.00106	<0.04888	<26.6	136	58.9	194.9	2.29
	State COM 1H		1-2	1/9/2018	In-Situ	1	1	1	1	1	1	<1.11
			2-3	1/9/2018	In-Situ	ļ	E	j	1	Î	1	<1.10
			3-4	1/9/2018	In-Situ	1	f	1	ì	1	1	<1.10
		DP-2	0-1	1/9/2018	In-Situ	<0.00104	<0.04785	<26.0	<26.0	<26.0	<26.0	<1.04
			1-2	1/9/2018	In-Situ	1	1	1	1	1	J	<1.06
			2-3	1/9/2018	In-Situ	ŀ	1	1	1	ĵ	1	2.13
			3 - 4	1/9/2018	In-Situ	1	1	1	i	1	1	<1.04
		DP-3	0-1	1/9/2018	In-Situ	<0.00110	<0.05059	<27.5	<27.5	<27.5	<27.5	<1.10
			1-2	1/9/2018	In-Situ	1	1	1	1	1	1	<1.11
		SB-4	0-1	5/3/2017	In-Situ	<0.00110	<0.05059	<27.5	51.7	65.0	116.7	<1.10

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

--: sample not analyzed

Bold and highlighted denotes concentration exceeds RRAL

Figures

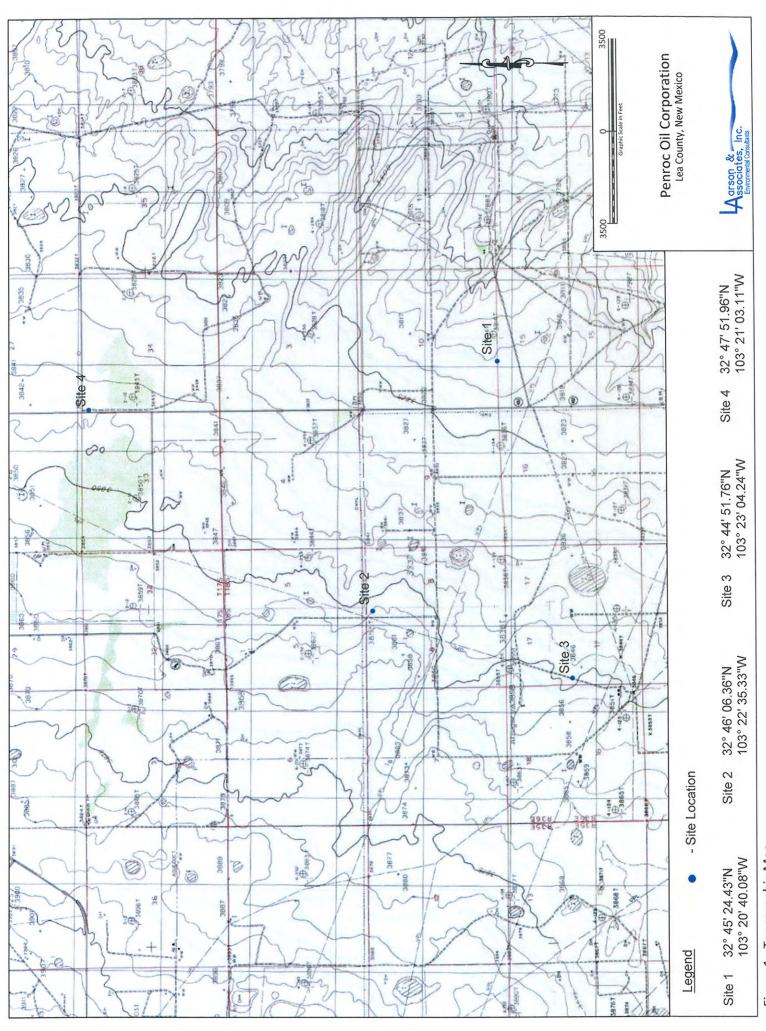


Figure 1 - Topographic Map



Figure 2a - Aerial Map



Figure 2b - Aerial Map



Figure 2 - Aerial Map



Figure 2d - Aerial Map

Appendix A

Initial C-141 and Documentation

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 Mexic Energy Minerals and Natural

RECEIVED

By JKeyes at 2:07 pm, Nov 12, 2015

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

						OPERA'	TOR	\bowtie	Initia	al Report	☐ Final R
		evon Energy				Contact R	ludy Zuniga				
		Rivers Hwy		NM 88220			No. 575-390-54	35			
Facility Na	me Altbeir	10 State 1F	1			Facility Ty	pe Oil				
Surface Ov	vner State			Mineral	Owner	State		AF	I No	30-025-	-42290
				LOCA	ATION	OF REI	LEASE				
Unit Letter N	Section 10	Township 18S	Range 36E	Feet from the 230	LA VERNICE	South Line	Feet from the 1980	East/West I West	ine	County Lea	5 -
		I	atitude:	N 32'76'85.22			ngitude: W 103	3'34'45.64"			
Type of Rele	ease Spill			NAI	URE	OF REL		Volu	ıme l	Recovered	
Produced W	ater					Unknown		Non	e		
Source of Ro Illegal dump		e roads					Hour of Occurre			Hour of D	
Was Immed						August 21 If YES, To	or 22, 2015 o Whom?	Aug	ust 2	6, 7:00 AN	1
			Yes	No 🗌 Not Ro	equired		mas Oberding				
By Whom?						Date and l		NaSOn Total			
Ruben Garc	ia						r 1, 2015 @ 2:00 r 1, 2015 @ 1:50				
Was a Wate	na aumaa Da	1 10				September	1 1, 2013 @ 1:30	I IVI			
as a mate	rcourse Ke		Yes 🛛	No		If YES, Vo	olume Impacting	the Waterco	urse		
				70.Cart.1		If YES, Vo	olume Impacting	the Waterco	urse		
If a Waterco Describe Ca	ourse was Ii	mpacted, Des	cribe Full	y.* ion Taken.*							
If a Waterco Describe Ca On Septemb nearest locat had been du Describe Ar- Devon Secu	ourse was In use of Prob er 1, 2015 I cion and no mped on th ea Affected rity was cal	mpacted, Des lem and Ren Land owner v tified Devon e pasture. and Cleanup led out to loc	nedial Actional Action Teation and	y.* ion Taken.* ecking his land ator and advised aken.* is investigating	d him of	e noticed the the illegal d	re was discolora lumping. There v	tion and tire vas an unkno	ttrack	cs on his la	produced water
Describe Ca On Septemb nearest local had been du Describe Ar Devon Secu I hereby certi regulations a public health should their cor the environ	er 1, 2015 Ition and no mped on the ea Affected rity was call operators or the environment. In adment. In adment. In adment. In adment. In adment.	mpacted, Des lem and Ren Land owner v tified Devon e pasture. and Cleanup led out to loc are required to comment. The ave failed to a	ven above o report an acceptance dequately	y.* ion Taken.* ecking his land ator and advised aken.* is investigating d/or file certain record of a C-141 repoinvestigate and record and record and record are recorded.	the situ:	ation. The best of my obtifications at NMOCD me contamination.	re was discolora lumping. There was knowledge and was not perform correct larked as "Final Ricon that pose a three the operator of	nderstand tha	t pur	suant to NN eases which ieve the oper, surface we	MOCD rules and h may endanger erator of liability vater, human heal with any other
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Describe Ca On Septemb nearest local had been du Describe Ar Devon Secu I hereby certi regulations a public health should their cor the environ federal, state,	er 1, 2015 Ition and no mped on the ea Affected rity was call operators or the enviroperations hament. In ac or local law	mpacted, Des lem and Ren Land owner v tified Devon e pasture. and Cleanup led out to loc nformation gi are required to onment. The ave failed to a ddition, NMO vs and/or regulatorya	ven above o report an acceptance dequately	y.* ion Taken.* ecking his land ator and advised aken.* is investigating d/or file certain record of a C-141 repoinvestigate and record and record and record are recorded.	the situs	ation. the best of my offications are NMOCD me contaminations not reliev	re was discolora lumping. There was knowledge and was not perform correct larked as "Final Ricon that pose a three the operator of	inderstand that tive actions for eat to ground responsibility	t pur	suant to NN eases which ieve the oper, surface wompliance	MOCD rules and h may endanger erator of liability vater, human heal with any other
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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

Form C-141 Revised August 8, 2011

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

			Rele	ease Notific	eatior	and Co	orrective A	ction			
						OPERA	TOR		al Report		Final Report
Name of C	ompany D	evon Energ	y Product	ion			ludy Zuniga				
Address 64	88 Seven	Rivers Hwy	Artesia, ì	NM 88220			No. 575-390-54	35			
Facility Na	ше Борра	edock 8 Stat	e Com 1F	<u> </u>		Facility Ty	pe Oil				
Surface Ov	vner State	9		Mineral (Owner	State		API No	. 30-025-4	1694	
				LOCA	TIOI	OF RE	LEASE				
Unit Letter B	Section 8	Township 18S	Range 36E	Feet from the 200	ŧ	South Line	Feet from the 1980	East/West Line East	County Lea		
		I	atitude:	N 32'76'87.75'	,	Loi	ngitude: W 103	3'37'45.81"			
				NAT	URE	OF REL	EASE				
Type of Rele Produced W						Volume of	Release	,	Recovered		
Source of Re	lease						Hour of Occurre	none nce Date and	Hour of Di	SCOVO!	1187
Illegal dump	ing on leas	e roads				August 21	or 22, 2015		5, 7:00 AM	SCUTE	· y
Was Immedi	ate Notice		Yes 🗌	No 🗌 Not Re	quired	OCD Thom BLM	Whom? nas Oberding				
By Whom?						Date and I	Tour				
Ruben Garci	ıa .						1, 2015 @ 2:00 1, 2015 @ 1:50				
Was a Water	course Rea		Yes 🔲	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				the Watercourse			
If a Waterco	urea was In		. –								
		- "	,	,							
Describe Cau					vhon ha	noticed the	ro was disasland	ion and tire track	1		
nearest locati had been dur	ON AND HOS	med Devon i	ease oper	ator and advised	him of	the illegal d	umping. There w	as an unknown a	mount of pr	oduce	went to the ed water that
Describe Are	a Affected .	and Cleanup	Action T.	aken.* s investigating tl	1 *4						
I hereby certif	y that the in	formation giv	en above	s true and comple	ete to th	e best of my	knowledge and ur	iderstand that purs	uant to NMC)CD r	ules and
public health	operators a	onnient. The	report and acceptance	vor me certain re	lease no	difications an	id perform correct	tive actions for rele eport" does not relie	ases which i	may e	ndanger
should men of	jerauons na	ve lamed to a	ieduatejy i	nvesheale and re	mediate	contamination	on that noce a thre	eat to around water	surface west	on 1	man haalib
or the chynon	ment. In ad	uition, NiviOt	LD accepta	ance of a C-141 r	eport do	es not relieve	the operator of r	esponsibility for co	mpliance w	ith an	y other
federal, state,	or iocal law	s and/or regul	ations.		1						
Signature: Co	rina M	oya					OIL CONS	SERVATION	<u>DIVISIO</u>	<u>N</u>	
Printed Name:	Corina Me	oya			A	pproved by	Environmental Sp	ecialist:			
Title: Field Ac	lmin Suppo	ort			A	pproval Date):	Expiration I	Date:		
E-mail Addres	s: corina.m	oya@dvn.co	m		C	onditions of	Approval:		Attached		
Date: 9	9.2.2015	Ph	one: 57 5. 7	46.5559						-	

^{*} Attach Additional Sheets If Necessary

District I 1625 N. French Dr., Hobbs, NM 88240 District II 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

Form C-141 Revised August 8, 2011

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

			Rei	ease Notific	cation	n and Co	orrective A	ction				
						OPERA'	TOR	\boxtimes	Initia	al Report		Final Repor
Name of C	ompany D	evon Energy	Product	ion		Contact R				······································		-
Eacility No	88 Seven	Rivers Hwy I 7 State 1H	Artesia,	NM 88220			No. 575 - 390-54	35				
		1 / State IH				Facility Ty	pe oil					
Surface Ov	vner State			Mineral	Owner	State		A	PI No	. 30-025-	41693	3
				LOCA	ATIO	OF REI	LEASE					
Unit Letter 4	Section 7	Township 18S	Range 36E	Feet from the 200	1	/South Line South	Feet from the 865	East/West West	Line	County Lea		
		L	atitude:	N 32'76'84.12'	,	Lor	ngitude: W 103	3'40'01.27"				
T OD I	- A 141			NAT	'URE	OF RELI	EASE					
Type of Rele Produced W						Volume of	Release	4		Recovered		
Source of Re	lease					Unknown Date and I	Iour of Occurre	non nec Dat		Hour of D	icony	DAY .
llegal Dump						August 21	or 22, 2015	I		6, 2015	136076	,1 y
Was Immedi	ate Notice		Yes 🗌	No 🗌 Not Re	quired	OCD Thom BLM	Whom? nas Oberding					
By Whom? Ruben Garci	a					Date and I September	1, 2015 @ 2:00					
Was a Water	course Rea	iched?	Yes 🛚	No			1, 2015 @ 1:50 lume Impacting		urse			
lf a Waterco	urse was Ir	npacted, Desc	cribe Full	y.*								
Describe Cat	ica of Prob	lam and Daw	- 12 - 3 4 - 11	The second second						***************************************		
On Septembo nearest locati had been dur Describe Are	nped on the	e pasture.	case oper	ecking his land v ator and advised	vhen he him of	noticed ther the illegal di	re was discolorat umping. There w	ion and tire ras an unkno	track own a	s on his lan mount of p	d. He roduc	went to the ed water that
				s investigating t	he situa	tion.						
public health of should their of	or the environment or the environment of the environment. In ad	onment. The average representation of the failed to act dition, NMO(report and seceptance lequately in D accepta	is true and comple d/or file certain re of a C-141 report investigate and re ance of a C-141 re	tease no t by the mediate	NMOCD ma	d periorm correct irked as "Final Re on that pose a thre	ive actions for port" does no	or rele ot relie	ases which eve the oper	may e rator o	endanger of liability
Signature: Co	rina M	oya					OIL CONS	ERVATI	ON	DIVISIO	<u>)N</u>	
rinted Name:						pproved by I	Environmental Sp	ecialist:				
itle: Field Ac	lmin Suppo	ort			Α	pproval Date	:	Expira	tion T	Date:		
-mail Addres	s: corina.m	oya@dvn.co	m			onditions of .				Attached		
	2.2015 onal Sheet	Pho s If Necessar	one: 575. 7	46.5559					· · · · · · · · · · · · · · · · · · ·			

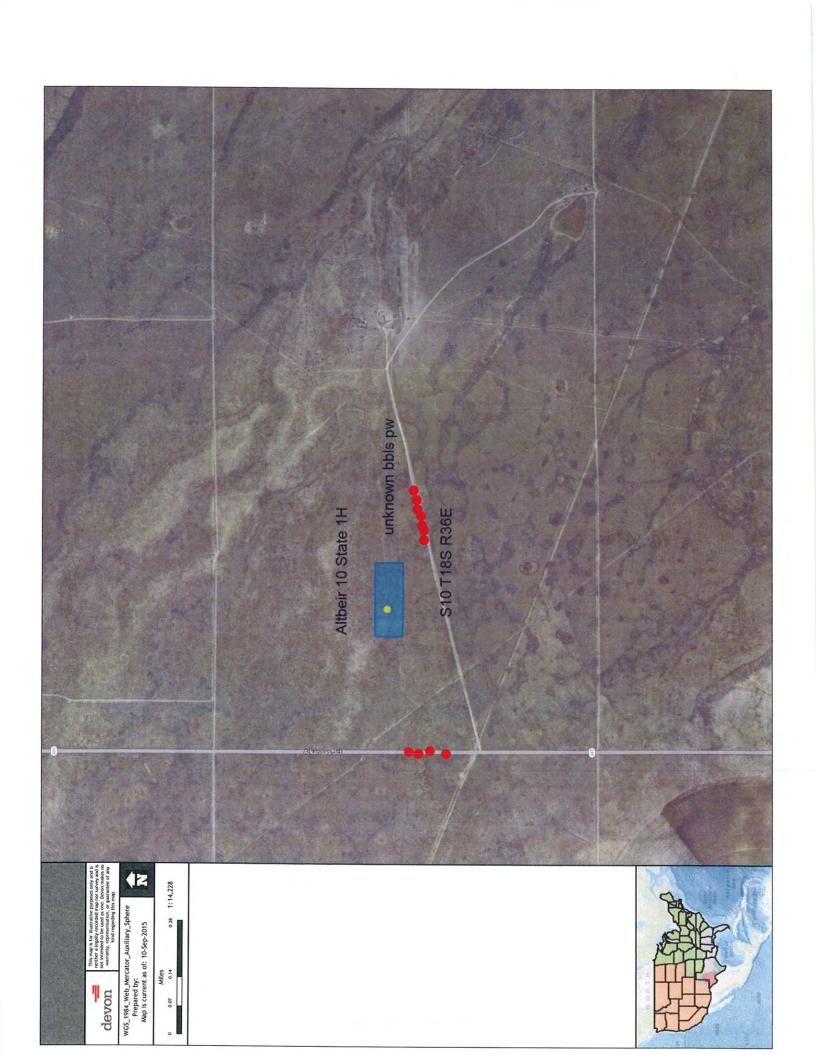
<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 B11 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

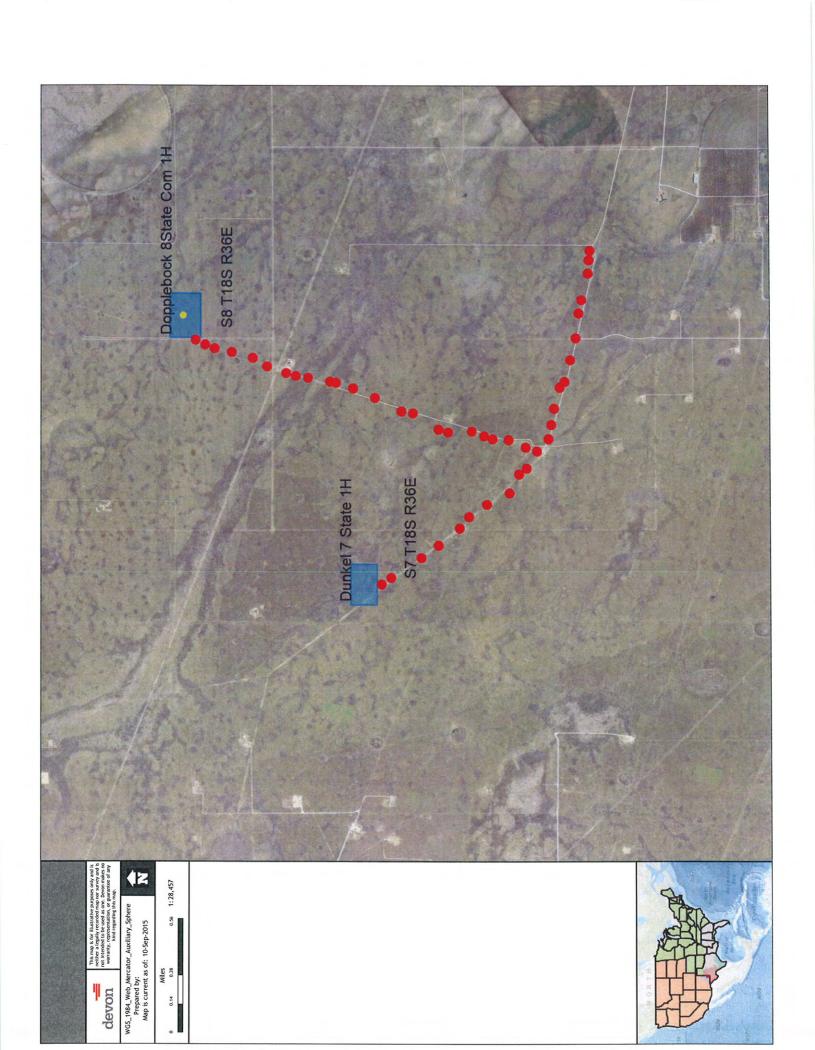
State of New Mexico Energy Minerals and Natural Resources

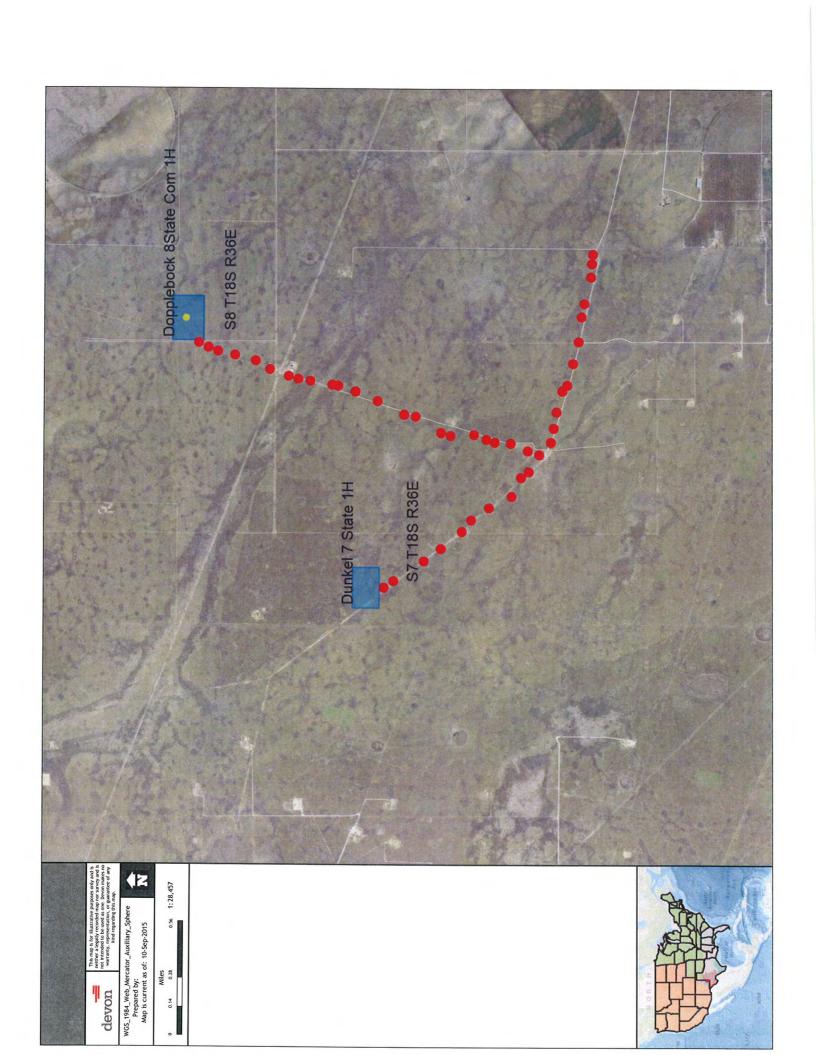
Form C-141 Revised August 8, 2011

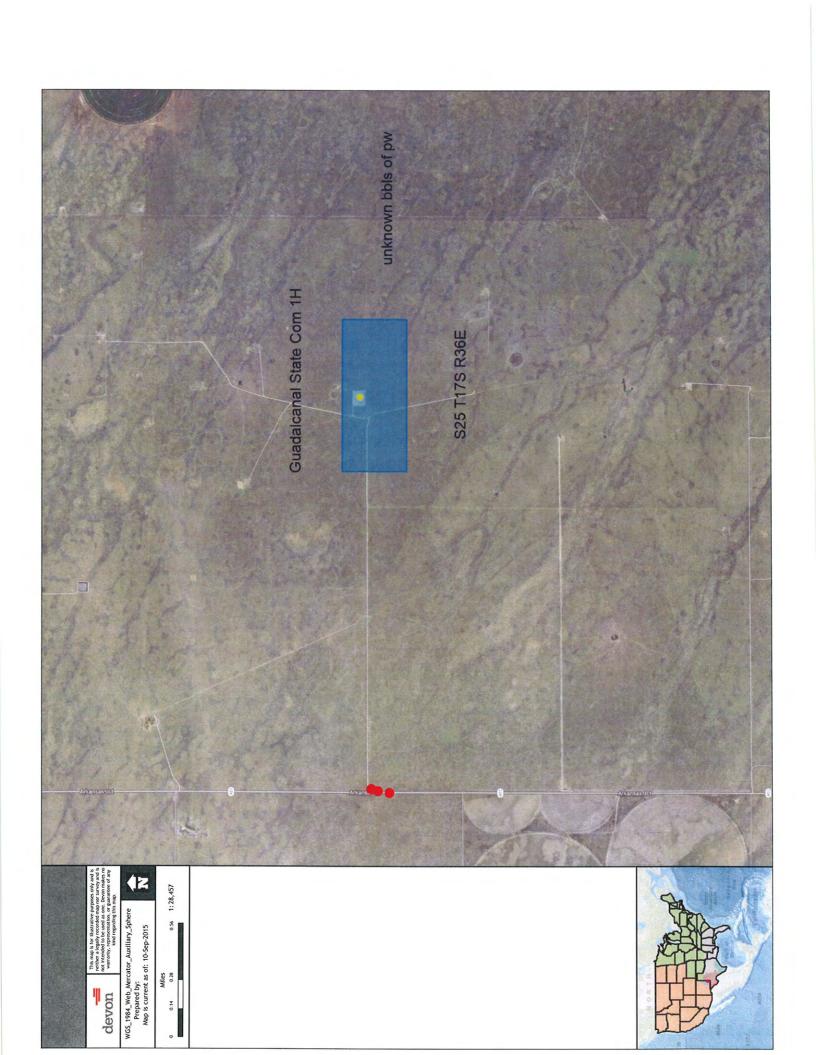
Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

			Kei	ease Notific	catio	and Co	orrective A	ction				
						OPERA'	ГOR	\boxtimes	Initial R	Report		Final Repor
		evon Energ				Contact R	udy Zuniga					
Address 64	88 Seven	Rivers Hwy	Artesia, l	NM 88220			No. 575-390-54	35				
racinty Na	me Guada	lcanal State	Com 1H			Facility Ty	pe Oil					
Surface Ov	vner State	2		Mineral	Owner	State		AP	I No.	30-025-4	1373	
				LOCA	ATIO	N OF RE	LEASE				-	
Unit Letter	Section	Township	Range	Feet from the		South Line	Feet from the	East/West L	ine C	ounty		
М	25	178	36E	100	F	South	360	West	1	ea		
		I	∡atitude:	N 32'81'31.52'	·,	Loi	ıgitude: W 103	31'65.44"				
				NAT	URE	OF REL	EASE					
Type of Rele						Volume of	Release	Volu	me Ree	overed		
Produced W Source of Re						Unknown		None				
Illegal dump		e roads					lour of Occurre or 22, 2015		and Ho	our of Disc	overy	y
Was Immedi		Given?	, , , , , , , , , , , , , , , , , , ,			If YES, To		Augi	ist 40, 7	:00 AM		·
		\boxtimes	Yes	No 🗌 Not Re	equired	OCD Thon	nas Oberding					
By Whom?						BLM						
Ruben Garci	ia					Date and I	lour · 1, 2015 @ 2:00	DA#				
							1, 2015 @ 2:00					
Was a Water	rcourse Rea		Yes ⊠	No		If YES, Vo	lume Impacting	the Waterco	urse			
If a Waterco	urea was Ir					<u> </u>						
				•								
Describe Cau	ise of Prob	lem and Rem	edial Act	ion Taken.*				***************************************				
had been dur	nped on th	e pasture.	ease oper	ecking his land vator and advised	when he I him of	noticed the the illegal d	re was discolorat umping. There w	ion and tire t as an unknov	racks or vn amo	n his land. unt of pro	He w	vent to the d water that
	ity was cal	led out to loc	ation and	is investigating								
public health of should their of	or the environs the perations had ment. In ad	onment. The relation of the latest to a la	report and acceptance dequately CD accept	is true and compl d/or file certain re e of a C-141 repor investigate and re ance of a C-141 r	lease no it by the mediate	tifications an NMOCD ma contamination	d perform correct trked as "Final Re on that pose a thre	ive actions for port" does no	r release t relieve	s which m the operat	ay end for of	danger liability
Signature: C o	wina.M	ma.					OIL CONS	SERVATIO	DN DI	VISION	1	
orginature. OC	7 07 000 [1]	Oyu										
Printed Name:	Corina M	oya				approved by l	Environmental Sp	ecialist:				
litle: Field Ac	imin Supp	ort			A	approval Date	:	Expirat	ion Date	2:		
E-mail Addres	s: corina.m	10ya@dvn.co	m		c	Conditions of	Approval:		Δ	Attached [· · · · · · · · · · · · · · · · · · ·
Date: 9.2	2.2015	Phone	e: 575 . 746	.5559					23	regoued (_	
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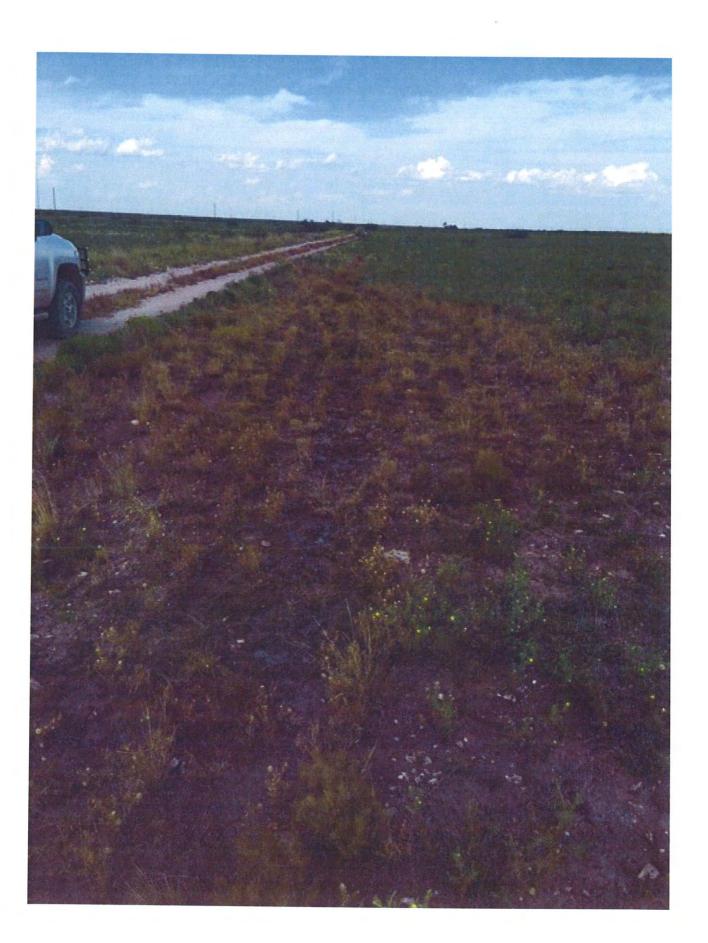






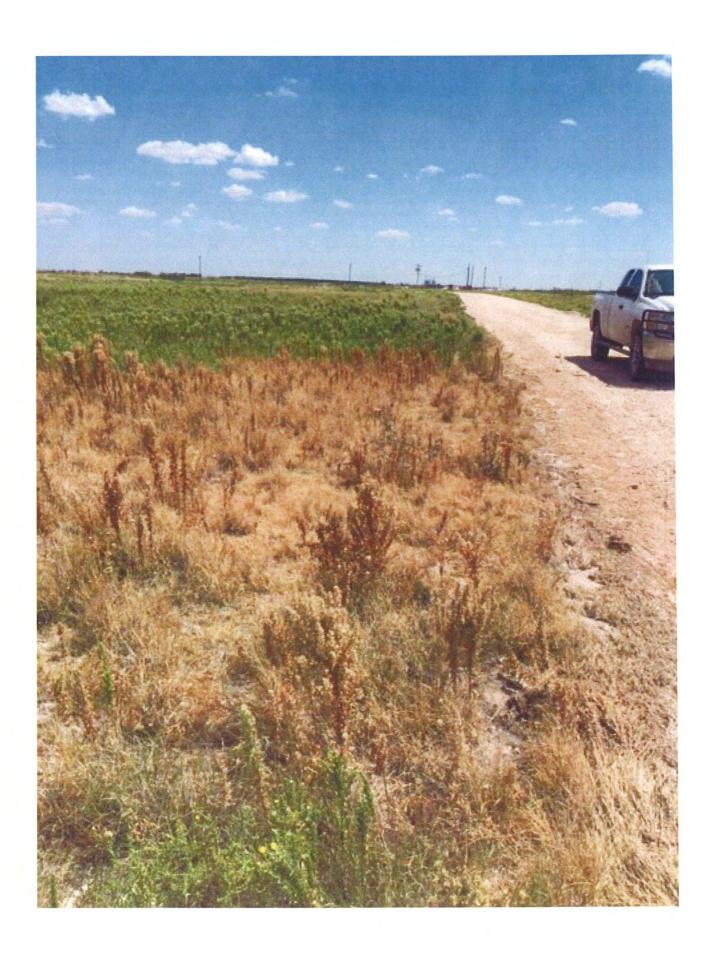


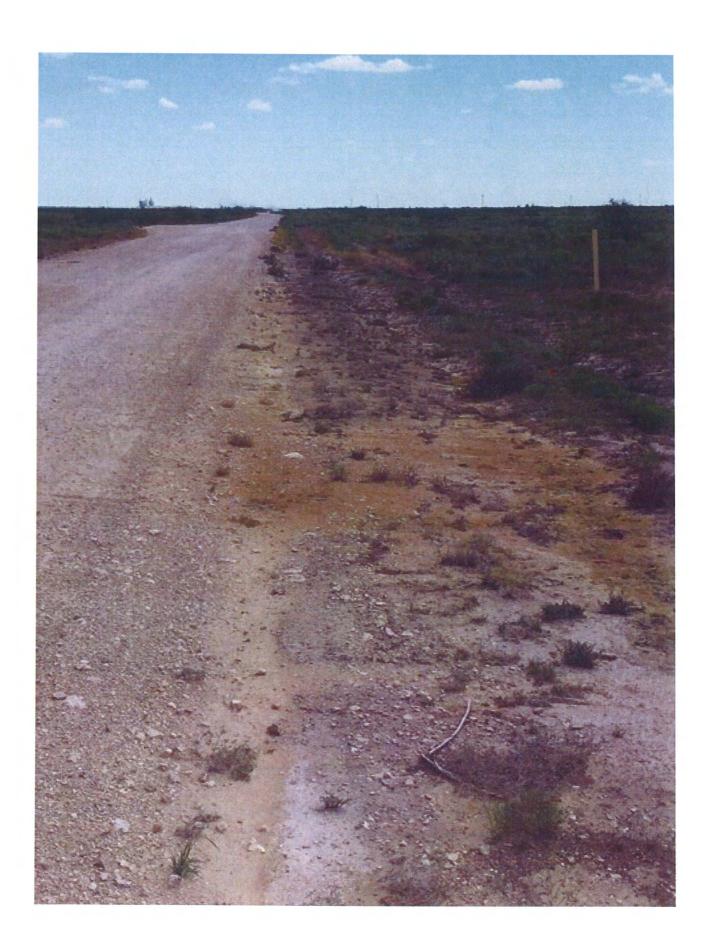


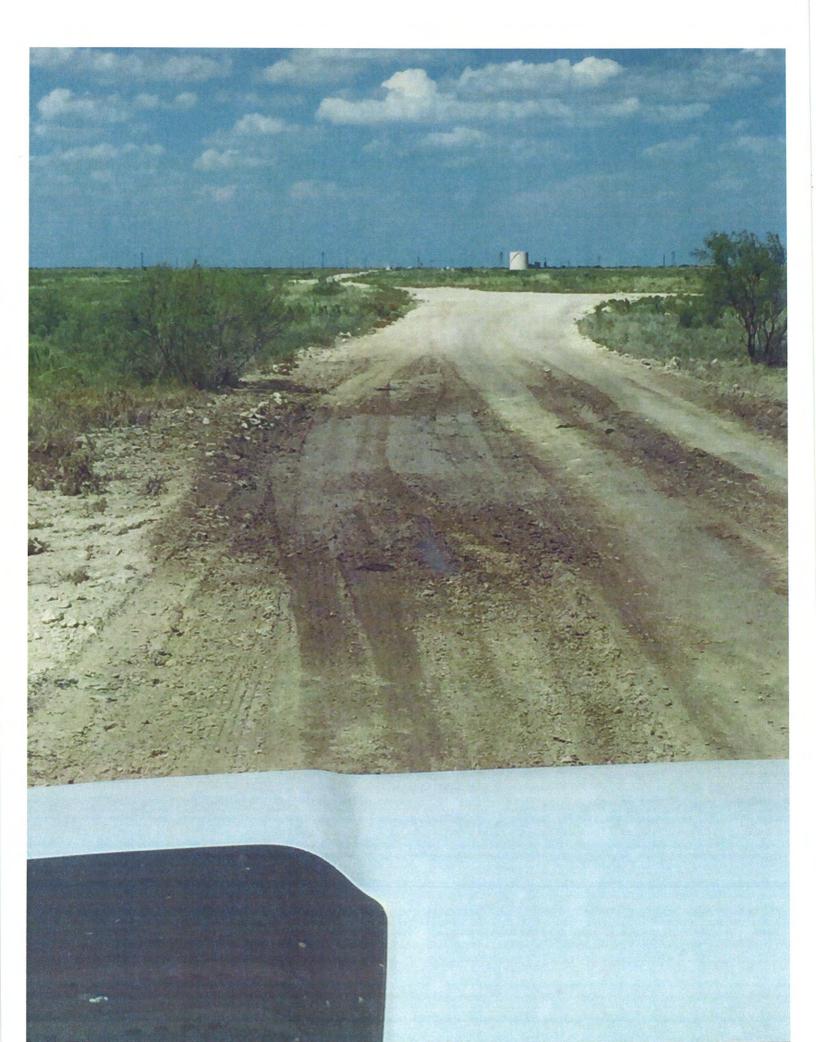




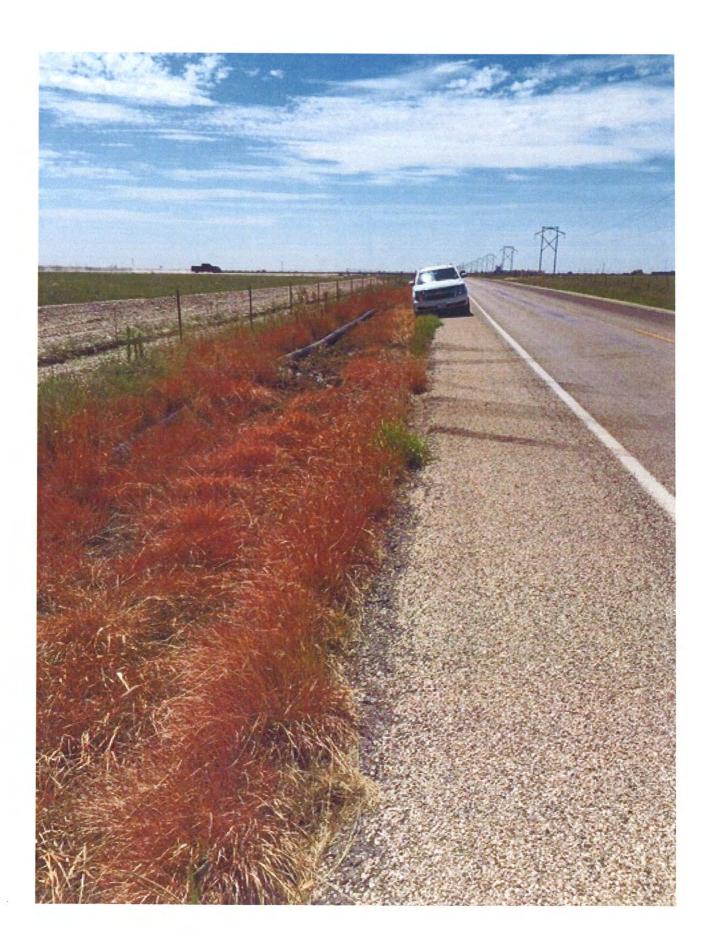












Appendix B OCD/BLM Communications

Mark Larson

From: Groves, Amber [agroves@slo.state.nm.us]
Sent: Tuesday, December 12, 2017 3:17 PM
To: Sarah Johnson; Yu, Olivia, EMNRD
Cc: Mark Larson; mymerch@penrocoil.com
Subject: RE: 1RP-3979 Devon Lease Delineation Plan

Sarah,

NMSLO agrees with delineation plan approval. Please be advised that a revegetation plan will need to be included in the work plan that is submitted to NMOCD on the Altbeir, Dopplebock and Guadalcananl.

Thank you,

Amber Groves

Remediation Specialist Field Operations Division (575)392-3697 (575)263-3209 cell New Mexico State Land Office 2827 N. Dal Paso Suite 117 Hobbs, NM 88240



*The New Mexico State Land Office will be closed from 12/22/2017 at 1pm - 01/01/2018. The office will reopen on 01/02/2018, Happy Holidays!

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From: Yu, Olivia, EMNRD

Sent: Friday, December 8, 2017 1:23 PM

To: 'Sarah Johnson' <SJohnson@laenvironmental.com>

Cc: Mark Larson <Mark@laenvironmental.com>; mymerch@penrocoil.com

Subject: RE: 1RP-3979 Devon Lease Delineation Plan

Dear Ms. Johnson:

Please note that there is a water well within 1000 ft. of the location indicated as Site 2. Please verify.

NMOCD approves of the proposed delineation for 1RP-3979. Like approval from NMSLO is required as all releases occurred on State surface and minerals.

Thanks,

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

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

From: Sarah Johnson [mailto:SJohnson@laenvironmental.com]

Sent: Monday, November 27, 2017 11:43 AM To: Yu, Olivia, EMNRD < Olivia.Yu@state.nm.us>

Cc: Mark Larson <Mark@laenvironmental.com>; mymerch@penrocoil.com; Groves, Amber <agroves@slo.state.nm.us>

Subject: FW: 1RP-3979 Devon Lease Delineation Plan

Dear Ms. Yu,

I am following up on the email and delineation plan submitted on behalf of Penroc Oil Corporation to see if you have had a chance to review the delineation plan for remediation permit number 1RP-3979? Your approval of the delineation plan is appreciated. Please contact M.Y. Merch with Penroc at (575) 492-1236 or mymerch@penrocoil.com or me if you have questions.

Link: https://files.acrobat.com/a/preview/45aecd3f-b8f1-4e5b-b0ef-cdca621e59e5

Respectfully,

Sarah Johnson Staff Geologist 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office – 432-687-0901 Cell - 432-664-5357 Fax - 432-687-0456 sjohnson@laenvironmental.com



From: Mark Larson

Sent: Wednesday, November 08, 2017 3:51 PM

To: 'Groves, Amber'

Cc: Sarah Johnson; 'mymerch@penrocoil.com'
Subject: FW: 1RP-3979 Devon Lease Delineation Plan

This message is forwarded to you on behalf of Penroc Oil to transmit the delineation plan for 1RP-3979. Please contact M.Y. Merch with Penroc (575) 492-1236 or mymerch@penrocoil.com at or me if you have questions.

Link: https://files.acrobat.com/a/preview/45aecd3f-b8f1-4e5b-b0ef-cdca621e59e5

Respectfully,

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office - 432-687-0901 Cell - 432-556-8656 Fax - 432-687-0456 mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Sarah Johnson

Sent: Wednesday, November 08, 2017 10:48 AM To: Yu, Olivia, EMNRD

Cc: Mark Larson; mymerch@penrocoil.com Subject: 1RP-3979 Devon Lease Delineation Plan

Ms. Yu.

Larson & Associates, Inc. (LAI), on behalf of Penroc Oil Corporation (Penroc), submits the attached delineation plan (see link below) for the Illegal Dumping Spill at four Devon Lease Locations (1RP-3979) in Lea County, New Mexico. Your approval of the delineation plan is requested. Please contact M.Y. Merch with Penroc (575) 492-1236 or mymerch@penrocoil.com at or me if you have questions.

Link: https://files.acrobat.com/a/preview/45aecd3f-b8f1-4e5b-b0ef-cdca621e59e5

Respectfully,

Sarah Johnson Staff Geologist 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office - 432-687-0901 Cell - 432-664-5357 Fax - 432-687-0456 sjohnson@laenvironmental.com



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Appendix C

Laboratory Reports

Site 1

Altbeir 10 State 1H

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



Analytical Report

Prepared for:

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

Project: Altbeir
Project Number: 17-0201-02

Location: None Given

Lab Order Number: 8A11002



NELAP/TCEQ # T104704516-16-7

Report Date: 01/18/18

P.O. Box 50685 Midland TX, 79710 Project: Altbeir

Project Number: 17-0201-02 Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP-1 (0-1)	8A11002-01	Soil	01/10/18 10:59	01-11-2018 15:22
DP-1 (1-2)	8A11002-02	Soil	01/10/18 11:01	01-11-2018 15:22
DP-1 (2-3)	8A11002-03	Soil	01/10/18 11:03	01-11-2018 15:22
DP-1 (3-4)	8A11002-04	Soil	01/10/18 11:05	01-11-2018 15:22
DP-1 (4-5)	8A11002-05	Soil	01/10/18 11:06	01-11-2018 15:22
DP-2 (0-1)	8A11002-06	Soil	01/10/18 11:07	01-11-2018 15:22
DP-2 (1-2)	8A11002-07	Soil	01/10/18 11:08	01-11-2018 15:22
DP-2 (2-3)	8A11002-08	Soil	01/10/18 11:10	01-11-2018 15:22
DP-2 (3-4)	8A11002-09	Soil	01/10/18 11:12	01-11-2018 15:22
DP-2 (4-6)	8A11002-10	Soil	01/10/18 11:14	01-11-2018 15:22
DP-3 (0-1)	8A11002-11	Soil	01/10/18 11:18	01-11-2018 15;22
DP-3 (1-2)	8A11002-12	Soil	01/10/18 11:20	01-11-2018 15:22
DP-3 (2-3)	8A11002-13	Soil	01/10/18 11:23	01-11-2018 15:22
DP-4 (0-1)	8A11002-14	Soil	01/10/18 11:47	01-11-2018 15:22
DP-4 (1-2)	8A11002-15	Soil	01/10/18 11:48	01-11-2018 15:22
DP-5 (0-1)	8A11002-16	Soil	01/10/18 11:51	01-11-2018 15:22
DP-5 (1-2)	8A11002-17	Soil	01/10/18 11:52	01-11-2018 15:22
DP-5 (2-3)	8A11002-18	Soil	01/10/18 11:54	01-11-2018 15:22
DP-5 (3-4)	8A11002-19	Soil	01/10/18 11:55	01-11-2018 15:22
DP-6 (0-1)	8A11002-20	Soil	01/10/18 11:56	01-11-2018 15:22
DP-6 (1-2)	8A11002-21	Soil	01/10/18 11:57	01-11-2018 15:22

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Project Number: 17-0201-02 Project Manager: Mark Larson

> DP-1 (0-1) 8A11002-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	mian Basin E	Environment	al Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Toluene	ND	0.00215	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Ethylbenzene	ND	0.00108	mg∕kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		119%	75-12.	5	P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-12:	5	P8A1203	01/12/18	01/12/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Metho	ds							
Chloride	11.7	1.08	mg/kg dry	1	P8A1512	01/15/18	01/16/18	EPA 300.0	
% Moisture	7.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 8	015M							
C6-C12	ND	26.9	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	i	P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: 1-Chlorooctane		90.3 %	70-130)	P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		103 %	70-130)	P8A1502	01/12/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	01/12/18	01/12/18	calc	

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Project: Altbeir

P.O. Box 50685

Chloride

% Moisture

Project Number: 17-0201-02

Midland TX, 79710

Project Manager: Mark Larson

DP-1 (1-2)

8A11002-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
Permian Basin Environmental Lab, L.P.											
General Chemistry Parameter	s by EPA / Standard Methods										

1.11 mg/kg dry

%

0.1

1

ì

P8A1609

P8A1506

01/16/18

01/15/18

ND

10.0

Permian Basin Environmental Lab, L.P.

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EPA 300.0

ASTM D2216

01/17/18

01/15/18

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Project Number: 17-0201-02 Project Manager: Mark Larson Fax: (432) 687-0456

DP-1 (2-3) 8A11002-03 (Soil)

				<u></u>					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironmer	ntal Lab, L	P,				
General Chemistry Parameter	s by EPA / Standard Method:	S							
Chloride	ND	1.09	mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0	
% Moisture	8.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	

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Project Number: 17-0201-02 Project Manager: Mark Larson Fax: (432) 687-0456

DP-1 (3-4) 8A11002-04 (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							
	ND	1.08 mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0
% Moisture					01/10/10	04/17/10	2171 300.0
76 Mioisture	7.0	0.1 %	1	P8A1506	01/15/18	01/15/19	ASTM D2216

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Project Number: 17-0201-02 Project Manager: Mark Larson Fax: (432) 687-0456

DP-1 (4-5) 8A11002-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by		iian Basin E	nvironmeı	ntal Lab, I	P.				
Chloride % Moisture	ND 4.0		mg/kg dry %	1	P8A1609 P8A1506	01/16/18 01/15/18	01/17/18	EPA 300.0 ASTM D2216	

P.O. Box 50685 Midland TX, 79710 Project: Altbeir

Project Number: 17-0201-02 Project Manager: Mark Larson

> DP-2 (0-1) 8A11002-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin I	Environment	al Lab, I	L.P.				
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	 	P8A1203	01/12/18	01/12/18	EPA 8021B	
Toluene	ND	0.00217	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Ethylbenzene	ND	0.00109	mg∕kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	l	P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		114%	75-12	5	P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		92.7 %	75-12	5	P8A1203	01/12/18	01/12/18	EPA 8021B	
General Chemistry Parameters by EPA	/ Standard Metho	ds							
Chloride	ND	1.09	mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0	
% Moisture	8.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 8	015M							
C6-C12	ND	27.2	mg/kg dry	l l	P8A1502	01/12/18	01/12/18	TPH 8015M	***************************************
>C12-C28	ND	27.2	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: 1-Chlorooctane		94.7 %	70-13	o	P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		107 %	70-13		P8A1502	01/12/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	,	[CALC]	01/12/18	01/12/18	cale	

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Project Number: 17-0201-02 Project Manager: Mark Larson Fax: (432) 687-0456

DP-2 (1-2) 8A11002-07 (Soil)

		***************************************		·				***************************************	
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.10 mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0
% Moisture	9.0	0.1 %	1	P8A1506	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Altbeir

Project Number: 17-0201-02 Project Manager: Mark Larson Fax: (432) 687-0456

DP-2 (2-3)

8A11002-08 (Soil)

Reporting
Analyte Result Limit Units Dilution Batch Prepared Analyzed Method Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride ND 1.10 mg/kg dry P8A1609 EPA 300.0 01/16/18 01/17/18 % Moisture 9.0 0.1 % 1 P8A1506 01/15/18 01/15/18 **ASTM D2216** Larson & Associates, Inc. Project: Altbeir Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0201-02
Midland TX, 79710 Project Manager: Mark Larson

DP-2 (3-4) 8A11002-09 (Soil)

			Reporting							
1	Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<u> </u>										

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.11 mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0
% Moisture	10.0	0.1 %	1	P8A1506	01/15/18	01/15/18	ASTM D2216

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P.O. Box 50685 Project Number: 17-0201-02 Midland TX, 79710 Project Manager: Mark Larson

> DP-2 (4-6) 8A11002-10 (Soil)

								······		1
Anabas		Reporting								l
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods Chloride 7.68 1.15 mg/kg dry P8A1609 01/16/18 EPA 300.0 01/17/18 % Moisture 13.0 0.1 % P8A1506 01/15/18

01/15/18

ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Altbeir

Project Number: 17-0201-02 Project Manager: Mark Larson Fax: (432) 687-0456

DP-3 (0-1) 8A11002-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin E	Invironment	al Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.00115	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Toluene	ND	0.00230	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Ethylbenzene	ND	0.00115	mg∕kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Xylene (p/m)	ND	0.00230	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Xylene (o)	ND	0.00115	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		113 %	75-12.	5	P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 1,4-Diffuorobenzene		91.0%	75-12.	5	P8A1203	01/12/18	01/12/18	EPA 8021B	
General Chemistry Parameters by EPA / Stan	dard Metho	ds							
Chloride	ND	1.15	mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0	
% Moisture	13.0	0.1	%	i	P8A1506	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EP	A Method 8	015M							
C6-C12	ND	28.7	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
>C12-C28	ND	28.7	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: I-Chlorooctane		107 %	70-130)	P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		117%	70-130)	P8A1502	01/12/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.7	mg/kg dry	1	[CALC]	01/12/18	01/12/18	cale	

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Project Number: 17-0201-02 Project Manager: Mark Larson Fax: (432) 687-0456

ASTM D2216

01/15/18

DP-3 (1-2)

8A11002-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironmer	ıtal Lab, I	₋.Р.			<u>,,</u>	
General Chemistry Paramet	ters by EPA / Standard Method	s							
Chloride	ND	1.09	mg⁄kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0	
% Moisture	8.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	

P8A1506

01/15/18

0.1

8.0

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Project Number: 17-0201-02 Project Manager: Mark Larson Fax: (432) 687-0456

DP-3 (2-3)

8A11002-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzęd	Method	Notes
Canazal Chamiatau Bara mataus bush		ian Basin Ei	nvironmei	ıtal Lab, I	P.				
General Chemistry Parameters by 1	EPA / Standard Method	<u>s</u>				***************************************			
Chloride	ND	1.08	mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0	
% Moisture	7.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	

Project: Altheir

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Project Number: 17-0201-02 Project Manager: Mark Larson Fax: (432) 687-0456

DP-4 (0-1) 8A11002-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin I	Environment	al Lab, J	L.P.				
Organics by GC									
Benzene	ND	0.00115	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Toluene	ND	0.00230	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Ethylbenzene	ND	0.00115	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Xylene (p/m)	ND	0.00230	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Xylene (o)	ND	0.00115	mg/kg dry	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.4 %	75-12	5	P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		102 %	75-12	5	P8A1203	01/12/18	01/12/18	EPA 8021B	
General Chemistry Parameters by EPA /	Standard Method	is							
Chloride	ND	1.15	mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0	
% Moisture	13.0	0.1	%	ı	P8A1506	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 80)15M							
C6-C12	ND	28.7	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
>C12-C28	ND	28.7	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	I	P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: 1-Chlorooctane		121 %	70-130)	P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		133 %	70-130		P8A1502	01/12/18	01/12/18	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	28.7	mg/kg dry	1	[CALC]	01/12/18	01/12/18	cale	J-0C

P.O. Box 50685 Midland TX, 79710 Project: Altbeir

Project Number: 17-0201-02 Project Manager: Mark Larson

> DP-4 (1-2) 8A11002-15 (Soil)

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

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

 Chloride
 ND
 1.05 mg/kg dry
 1 P8A1609
 01/16/18
 01/17/18
 EPA 300.0

 % Moisture
 5.0
 0.1 %
 1 P8A1506
 01/15/18
 01/15/18
 ASTM D2216

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P.O. Box 50685 Project Number: 17-0201-02
Midland TX, 79710 Project Manager: Mark Larson

DP-5 (0-1) 8A11002-16 (Soil)

Analyte	Result	Reporting Limit		Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin I	Environment	tal Lab, I	L.P.				
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Toluene	ND	0.00213	mg/kg dry	i	P8A1203	01/12/18	01/13/18	EPA 8021B	
Ethylbenzene	ND	0.00106		1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	i	P8A1203	01/12/18	01/13/18	EPA 8021B	
Xylene (o)	ND	0.00106	,	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-12	 S	P8A1203	01/12/18		0.500000 - 100000 - 100000	
Surrogate: 4-Bromofluorobenzene		122 %	75-12.	=	P8A1203	01/12/18	01/13/18 01/13/18	EPA 8021B EPA 8021B	
General Chemistry Parameters by EPA	/ Standard Method	le							
Chloride	ND	1.06	mg/kg dry	1	P8A1609	01/16/18	01/17/10	EPA 300.0	
% Moisture	6.0	0.1	%	1	P8A1506	01/15/18	01/17/18 01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 80	15M							
C6-C12	ND	26.6	mg/kg dry	1	P8A1502	05/12/10	01/10/10	TDD OOLSE	
·C12-C28	ND	26.6	mg/kg dry		P8A1502	01/12/18	01/12/18	TPH 8015M	
C28-C35	ND	26,6	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
iurrogate: 1-Chlorooctane		109 %	70-130	······		01/12/18	01/12/18	TPH 8015M	
urrogate: o-Terphenyl		121 %	70-130		P8A1502	01/12/18	01/12/18	TPH 8015M	
otal Petroleum Hydrocarbon C6-C35	ND	26.6	70-130 mg/kg dry	, 1	<i>P8A1502</i> [CALC]	01/12/18 01/12/18	01/12/18 01/12/18	TPH 8015M cale	

Project: Altbeir

P.O. Box 50685

Project Number: 17-0201-02

Midland TX, 79710

Project Manager: Mark Larson

DP-5 (1-2) 8A11002-17 (Soil)

		Reporting							
Analyte	Result	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	P8A1609	01/16/18	01/17/18	EPA 300.0
% Moisture	6.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216

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Project Number: 17-0201-02 Project Manager: Mark Larson

> DP-5 (2-3) 8A11002-18 (Soil)

1									
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
1	resuit		Omes	Directori	rsaten		Anatyzed		

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.06 mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0
% Moisture	6.0	0.1 %	ı	P8A1506	01/15/18	01/15/18	ASTM D2216

Larson & Associates, Inc.

Project: Altbeir

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P.O. Box 50685 Project Number: 17-0201-02
Midland TX, 79710 Project Manager: Mark Larson

DP-5 (3-4) 8A11002-19 (Soil)

			•						1
		Reporting							
A colorer	Distrib	-	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Analyte	Result	Limit	Onus	Dilution	Daten	riepaicu	Milaryzed		110103

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.11 mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0
% Moisture	10.0	0.1 %	1	P8A1506	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Altbeir

Project Number: 17-0201-02 Project Manager: Mark Larson

> DP-6 (0-1) 8A11002-20 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perr	nian Basin E	Invironment	ial Lab, I	∠.P.				
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Γoluene .	ND	0.00215	mg/kg dry	ı	P8A1203	01/12/18	01/13/18	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	ı	P8A1203	01/12/18	01/13/18	EPA 8021B	
(ylene (p/m)	ND	0.00215	mg∕kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Kylene (o)	ND	0.00108	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		99.1 %	75-12	5	P8A1203	01/12/18	01/13/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		119%	75-12	5	P8A1203	01/12/18	01/13/18	EPA 8021B	
General Chemistry Parameters by EPA /	Standard Method	is							
Chloride	ND	1.08	mg/kg dry	1	P8A1705	01/17/18	01/18/18	EPA 300.0	
% Moisture	7.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	
<u> Fotal Petroleum Hydrocarbons C6-C35 t</u>	oy EPA Method 8	015M							
C6-C12	ND	26.9	mg/kg dry	l l	P8A1502	01/12/18	01/12/18	TPH 8015M	
·C12-C28	ND	26.9	mg/kg dry	l	P8A1502	01/12/18	01/12/18	TPH 8015M	
-C28-C35	ND	26.9	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
iurrogate: 1-Chlorooctane		116%	70-13	0	P8A1502	01/12/18	01/12/18	TPH 8015M	
urrogate: o-Terphenyl		128 %	70-13	0	P8A1502	01/12/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	01/12/18	01/12/18	calc	

Fax: (432) 687-0456

P.O. Box 50685 Midland TX, 79710 Project: Altheir

Fax: (432) 687-0456

Project Number: 17-0201-02 Project Manager: Mark Larson

> DP-6 (1-2) 8A11002-21 (Soil)

	i									
	Analyte		Reporting							
ļ	Anatyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	8.87	1.08 mg/kg dry	1	P8A1705	01/17/18	01/18/18	EPA 300.0
% Moisture	7.0	0.1 %	1	P8A1506	01/15/18	01/15/18	ASTM D2216

Project: Altbeir

P.O. Box 50685 Midland TX, 79710

Project Number: 17-0201-02 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 P8A1203 - *** DEFAULT PREP	***									
Blank (P8A1203-BLK1)				Prepared &	Analyzed:	01/12/18				*******************
Benzene	ND	0.00100	mg/kg wet		······································		*** ***********************************	······································		***************************************
Toluene	ND	0.00200	н							
Ethylbenzene	ND	0.00100	D.							
Xylene (p/m)	ND	0.00200	19							
Cylene (o)	ND	0.00100	n							
Surrogate: 1,4-Difluorobenzene	0.0561		и	0.0600		93.5	75-125			
urrogate: 4-Bromofluorobenzene	0.0694		"	0.0600		116	75-125			
.CS (P8A1203-BS1)				Prepared &	Analyzed:	01/12/18				
Benzene	0.106	0.00100	mg/kg wet	0.100		106	70-130			
'oluene	0.111	0.00200	e e	0.100		111	70-130			
thylbenzene	0.111	0.00100	н	0.100		111	70-130			
(ylene (p/m)	0.210	0.00200	н				70-130			
(ylene (o)	0.114	0.00100	n				70-130			
urrogate: 1,4-Difluorobenzene	0.0588		<i>tt</i>	0.0600		98.0	75-125			
urrogate: 4-Bromofluorobenzene	0.0644		"	0.0600		107	75-125			
.CS Dup (P8A1203-BSD1)				Prepared &	Analyzed:	01/12/18				
enzene	0.0986	0.00100	mg/kg wet	0.100		98.6	70-130	7.12	20	
oluene	0.105	0.00200	n	0.100		105	70-130	5.45	20	
thylbenzene	0.109	0.00100	n	0.100		109	70-130	1.96	20	
(ylene (p/m)	0.196	0.00200	O				70-130		20	
(ylene (o)	0.110	0.00100	e e				70-130		20	
urrogate: 1,4-Difluorobenzene	0.0638		<i>a</i>	0.0600		106	75-125	·····		
urrogate: 4-Bromofluorobenzene	0.0635		"	0.0600		106	75-125			
alibration Blank (P8A1203-CCB1)	444			Prepared &	Analyzed:	01/12/18				
enzene	0.580		mg/kg wet			***************				
oluene	0.00		0							
thylbenzene	0.00		n							
ylene (p/m)	0.00		n n							
ylene (o)	0.00		и							
urrogate: 1,4-Difluorobenzene	0.0556			0.0600	****	92.6	75-125			
urrogate: 4-Bromofluorobenzene	0.0586		"	0.0600		97.6	75-125			

Larson & Associates, Inc. Project: Altbeir Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0201-02
Midland TX, 79710 Project Manager: Mark Larson

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
		Smilli	Onno	20101	TC5ut	701000		***************************************		
Batch P8A1203 - *** DEFAULT PREP	***									
Calibration Blank (P8A1203-CCB2)				Prepared &	Analyzed:	01/12/18		.,,.		
Benzene	0.00		mg/kg wet							
Toluene	0.00		М							
Ethylbenzenc	0.00		н							
Xylene (p/m)	0.00		11							
Xylene (o)	0.00		n							
Surrogate: 1,4-Difluorobenzene	0.0561		"	0.0600		93.6	75-125			
Surrogate: 4-Bromofluorobenzene	0.0659		"	0.0600		110	75-125			
Calibration Check (P8A1203-CCVI)				Prepared &	k Analyzed:	01/12/18				
Benzene	0.107	0.00100	mg/kg wet	0.100		107	80-120			
Toluene	0.118	0.00200	η	0.100		118	80-120			
Ethylbenzene	0.105	0.00100	H	0.100		105	80-120			
Xylene (p/m)	0.232	0.00200	IP	0.200		116	80-120			
Xylene (o)	0.119	0.00100	0	0.100		119	80-120			
Surrogate: 4-Bromofluorobenzene	0.0687		н	0.0600		114	75-125			
Surrogate: 1,4-Difluorobenzene	0.0532		"	0.0600		88.6	75-125			
Calibration Check (P8A1203-CCV2)				Prepared &	& Analyzed:	: 01/12/18				
Benzene	0.103	0.00100	mg/kg wet	0.100		103	80-120			
Toluene	0.107	0.00200	н	0.100		107	80-120			
Ethylbenzene	0.108	0.00100	Ð	0.100		108	80-120			
Xylene (p/m)	0.222	0.00200	11	0.200		111	80-120			
Xylene (o)	0.120	0.00100	н	0.100		120	80-120			
Surrogate: 1,4-Difluorobenzene	0.0648		а	0.0600		108	75-125			***************************************
Surrogate: 4-Bromofluorobenzene	0.0744		"	0.0600		124	75-125			
Calibration Check (P8A1203-CCV3)				Prepared:	01/12/18 A	nalyzed: 0	1/13/18			
Benzene	0.110	0.00100	mg/kg wet	0.100		110	80-120			
Toluene Toluene	0.113	0.00200	O .	0.100		113	80-120			
Ethylbenzene	0.117	0.00100	н	0.100		117	80-120			
Xylene (p/m)	0.239	0.00200	н	0.200		120	80-120			
Xylene (o)	0.119	0.00100	rt	0.100		119	80-120			
Surrogate: 1,4-Difluorobenzene	0.0624		н	0.0600		104	75-125			
Surrogate: 4-Bromofluorobenzene	0.0736		n	0.0600		123	75-125			

Surrogate: 1,4-Difluorobenzene

P.O. Box 50685 Midland TX, 79710 Project: Altbeir

Project Number: 17-0201-02 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 P8A1203 - *** DEFAULT PREP ***										· ····
Matrix Spike (P8A1203-MS1)	Sou	rce: 8A11002	!-11	Prepared: 0	01/12/18 A	nalyzed: 01	/13/18			
Benzene	0.0969	0.00115	mg/kg dry	0.115	ND	84.3	80-120			
Toluene	0.0882	0.00230	н	0.115	ND	76.7	80-120			QM-07
Ethylbenzene	0.0860	0.00115	11	0.115	ND	74.9	80-120			QM-07
Xylene (p/m)	0.144	0.00230	u		ND		80-120			
Xylene (o)	0.0703	0.00115	n		ND		80-120			
Surrogate: 1,4-Difluorobenzene	0.0814		н	0.0690		118	75-125			
Surrogate: 4-Bromofluorobenzene	0.0867		"	0.0690		126	75-125			S-GC
Matrix Spike Dup (P8A1203-MSD1)	Sou	rce: 8A11002	2-11	Prepared: (01/12/18 A	nalyzed: 0	1/13/18			
Benzene	0.0960	0.00115	mg/kg dry	0.115	ND	83.5	80-120	0.930	20	
Toluene	0.0877	0.00230	н	0.115	ND	76.3	80-120	0.484	20	QM-07
Ethylbenzene	0.0902	0.00115	н	0.115	ND	78.5	80-120	4.73	20	QM-07
Xylene (p/m)	0.152	0.00230	u		ND		80-120		20	
Xylene (o)	0.0686	0.00115	u		ND		80-120		20	
Surrogate: 4-Bromofluorobenzene	0.0869		н	0.0690		126	75-125			S-GC

0.0690

120

75-125

0.0831

Project: Altheir

Fax: (432) 687-0456

P.O. Box 50685

Project Number: 17-0201-02

Midland TX, 79710

Project Manager: Mark Larson

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 P8A1506 - *** DEFAULT PREP ***	***									
Blank (P8A1506-BLK1)				Prepared &	: Analyzed:	01/15/18				
% Moisture	ND	0.1	%							
Duplicate (P8A1506-DUP1)	Sour	ce: 8A11002-	08	Prepared &	: Analyzed:	01/15/18				
% Moisture	7.0	0.1	%		9.0			25.0	20	
Duplicate (P8A1506-DUP2)	Sour	ce: 8A12005-	14	Prepared &	: Analyzed:	01/15/18				
% Moisture	11.0	0.1	%		11.0			0.00	20	
Duplicate (P8A1506-DUP3)	Sour	ee: 8A12007-	01	Prepared &	: Analyzed:	01/15/18				
% Moisture	8.0	0.1	%	4.0			66.7	20		
Duplicate (P8A1506-DUP4)	Sour	ce: 8A15004-	01	Prepared &	: Analyzed:	01/15/18				
% Moisture	14.0	0.1	%		14.0			0.00	20	
Batch P8A1512 - *** DEFAULT PREP ***										
Blank (P8A1512-BLK1)				Prepared &	: Analyzed:	01/15/18				
Chloride	ND	1.00	mg/kg wet						.41,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	***************************************
LCS (P8A1512-BS1)				Prepared &	: Analyzed:	01/15/18				
Chloride	414	1.00	mg/kg wet	400		103	80-120			
LCS Dup (P8A1512-BSD1)				Prepared &	: Analyzed:	01/15/18				
Chloride	411	1.00	mg/kg wet	400		103	80-120	0.616	20	
Duplicate (P8A1512-DUP1)	Sour	ce: 8A15009-	01	Prepared &	: Analyzed:	01/15/18				
Chloride	9.98	1.08	mg/kg dry		17.1			52.3	20	

Project: Altbeir

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P.O. Box 50685

Project Number: 17-0201-02 Project Manager: Mark Larson

Midland TX, 79710

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result		%REC Limits	RPD	RPD Limit	Notes
Batch P8A1512 - *** DEFAULT PREP ***										
Duplicate (P8A1512-DUP2)	Sou	rce: 8A11001	-04	Prepared &	Ł Analyze	ed: 01/15/18				
Chloride	504	1.10	mg/kg dry		498			1,16	20	
Matrix Spike (P8A1512-MS1)	Sou	rce: 8A15009	-01	Prepared &	. Analyze	ed: 01/15/18				
Chloride	1160	1.08	mg/kg dry	1080	17.1	106	80-120			
Batch P8A1609 - *** DEFAULT PREP ***			·····						······································	
Blank (P8A1609-BLK1)				Prepared: (01/16/18	Analyzed: 0	1/17/18			
Chloride	ND	1.00	mg/kg wet				.,			
LCS (P8A1609-BS1)				Prepared: (01/16/18	Analyzed: 0	1/17/18			
Chloride	391	1.00	mg∕kg wet	400		97.8	80-120			
LCS Dup (P8A1609-BSD1)				Prepared: (01/16/18	Analyzed: 0	1/17/18			
Chloride	395	1.00	mg/kg wet	400		98.7	80-120	0.865	20	
Duplicate (P8A1609-DUP1)	Sou	rce: 8A11001	-17	Prepared: (01/16/18	Analyzed: 0	1/17/18			
Chloride	103	5.26	mg/kg dry		117		***************************************	12.5	20	
Duplicate (P8A1609-DUP2)	Sou	rce: 8A11002	-10	Prepared: (01/16/18	Analyzed: 0	1/17/18			
Chloride	8.64	1.15	mg/kg dry		7.68		241 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11.8	20	
Matrix Spike (P8A1609-MS1)	Sou	ree: 8A11001	-17	Prepared: (01/16/18	Analyzed: 0	1/17/18			
Chloride	1230	5.26	mg/kg dry	1050	117	106	80-120			
Batch P8A1705 - *** DEFAULT PREP ***										
Blank (P8A1705-BLK1)				Prepared: (01/17/18	Analyzed: 0	1/18/18			
Chloride	ND	1.00	mg/kg wet							

Project: Altbeir

P.O. Box 50685 Midland TX, 79710

Project Number: 17-0201-02 Project Manager: Mark Larson

General Chemistry Parameters by EPA / Standard Methods - Quality Control Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result		%REC Limits	RPD	RPD Limit	Notes
Batch P8A1705 - *** DEFAULT PREP ***										
LCS (P8A1705-BS1)				Prepared: (01/17/18	Analyzed: 01	1/18/18			
Chloride	424	1.00	mg∕kg wet	400		106	80-120			
LCS Dup (P8A1705-BSD1)				Prepared; (01/17/18	Analyzed: 01	1/18/18			
Chloride	421	1.00	mg/kg wet	400		105	80-120	0.786	20	
Duplicate (P8A1705-DUP1)	Sour	·ce: 8A17002	-11	Prepared: (01/17/18	Analyzed: 01	1/18/18			
Chloride	9.16	1.04	mg/kg dry		11.7			24.6	20	
Duplicate (P8A1705-DUP2)	Sour	ce: 8A12002	-06	Prepared: (01/17/18	Analyzed: 01	1/18/18			
Chloride	4800	59.5	mg/kg dry		4720			1.63	20	
Matrix Spike (P8A1705-MS1)	Sour	ce: 8A17002	-11	Prepared; (01/17/18	Analyzed: 01	1/18/18			
Chloride	1100	1.04	mg/kg dry	1040	11.7	105	80-120	,-,-,,-,,-,-,-		

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Project: Altheir

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P.O. Box 50685 Midland TX, 79710

Project Number: 17-0201-02 Project Manager: Mark Larson

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

Analyte	Rosult	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8A1502 - TX 1005										
Blank (P8A1502-BLK1)				Prepared &	Analyzed:	01/12/18				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	41							
>C28-C35	ND	25.0	31							
Surrogate: 1-Chlorooctane	150		"	150		100	70-130			
Surrogate: o-Terphenyl	82.3		"	75.0		110	70-130			
LCS (P8A1502-BS1)				Prepared &	: Analyzed:	01/12/18				
C6-C12	896	25.0	mg/kg wet	1000		89.6	75-125			
>C12-C28	1120	25.0	11	1000		112	75-125			
Surrogate: 1-Chlorooctane	173		<i>n</i>	150		115	70-130			
Surrogate: o-Terphenyl	78.0		n	75.0		104	70-130			
LCS Dup (P8A1502-BSD1)				Prepared &	: Analyzed:	01/12/18				
C6-C12	880	25.0	mg/kg wet	1000		88.0	75-125	1.84	20	
>C12-C28	1090	25.0	н	1000		109	75-125	2.36	20	
Surrogate: 1-Chlorooctane	172			150		114	70-130			
Surrogate: o-Terphenyl	78.3		u	75.0		104	70-130			

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

CUSTODY SEALS - C BROKEN C INTACT C NOT USED Page 32 of 33 FIELD NOTES 88 Я 4 PAGE_ LABORATORY USE ONLY AND CE L THERM #: COLLECTOR: AT LAB WORK ORDER #: RECEIVING TEMP: 0.2 CHAND DELIVERED 🗇 CARRIER BILL # PROJECT LOCATION OR NAME: ALL bei LAI PROJECT #: [7-0201-02 TURN AROUND TIME NORMAL 🔾 OTHER 🗓 2 DAY 1 DAY DATE: 1 PO #: \times \times \times 507 N. Marienfeld, Ste. 200 RECEIVED BY; (Signature) Midland, TX 79701 PRESERVATION UNPRESERVED 432-687-0901 ICE Haso, 🗆 Laoh 🖨 [€]ONH HCI 7.35 RECEIVE # of Containers Matrix DATE/TIME DATE/TIME 11:48 7. 8) ;]] 11:23 デムブ 10:59 11.03 11:08 11:20 WOS SL=SLUDGE OT=OTHER 21:19 2 Time 16:01 30.1 107 XX 1007 P:-PAINT 1/10/18 Date SSOCIOTES, Inc. Environmental Consultants S=SOIL W=WATER RELINQUISHED BY:(Signature) 8Y:(Signature) a a rap# A=AIR 38 Data Reported to: TIME ZONE: Time zone/State: ☐ Yes MNo RELINGUISHED CHISHED THE 2-3 TRRP report? ()-0) Field Sample I.D. $\frac{7}{2}$ 0-1 (1-5) シーエ (3-4) 2-3 4-15 7 DP-7 / 0-1 1-071-00 2-3 MSE (2-1)D2-3(TOTAL H-40

CHAIN-OF-CUSTO

CHAIN-OF-CUSTO Page CUSTODY SEALS - C BROKEN C INTACT C NOT USED FIELD NOTES ¢Д α COLLECTOR: AT ♣ LABORATORY USE ONLY: OC NOCE RECEIVING TEMP: 0.2 THERM#: LAB WORK ORDER #: CHAND DELIVERED CI CARRIER BILL# PROJECT LOCATION OR NAME: Albair
LAI PROJECT # 17-0201-02 TURN AROUND TIME NORMALT OTHER [] 1 DAY G 2 DAY 🗓 DATE: 1/11 PO #: 507 N. Marienfeld, Ste. 200 Midland, TX 79701 **PRESERVATION ПИР**РЕВЕВИЕD RECEIVED BY: (Signature) RECEIVED BY: (Signature 432-687-0901 ICE □ HOBN □ POS"H [€]ONH HCI # of Containers Ų Matrix DATE/TIME DATE/TIME DATE/TIME SL=SLUDGE OT=OTHER 11,54 11:56 11:57 Time 1.55 11:52 16:31 P=PAINT 8/101/1 Date W=WATER S=SOIL A=AIR Lab# ۲:(Signature) Y:(Signature) RELINQUISHED BY:(Signature) <u>'</u> 2 Data Reported to: □ Yes M No TIME ZONE: Time zone/State: TRRP report? DP-5(0-1 0 3-4 [-2] Field Sample I.D. (2-1)(2-3)MsE DP-6 TOTAL

Site 2

Dopplebock 8 State Com 1H

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



Analytical Report

Prepared for:

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

Project: Doppelbock 8
Project Number: 17-0201-01
Location:

Lab Order Number: 8A04013



NELAP/TCEQ # T104704516-16-7

Report Date: 01/11/18

P.O. Box 50685 Midland TX, 79710 Project: Doppelbock 8

Project Number: 17-0201-01 Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP-1 0-1	8A04013-01	Soil	01/02/18 11:41	01-04-2018 09:00
DP-2 0-1	8A04013-02	Soil	01/02/18 11:56	01-04-2018 09:00
DP-5 0-1	8A04013-03	Soil	01/02/18 12:30	01-04-2018 09:00
DP-5 1-2	8A04013-04	Soil	01/02/18 12:36	01-04-2018 09:00
DP-5 2-3	8A04013-05	Soil	01/02/18 12:39	01-04-2018 09:00
DP-5 3-4	8A04013-06	Soil	01/02/18 12:42	01-04-2018 09:00
DP-5 4-6	8A04013-07	Soil	01/03/18 11:15	01-04-2018 09:00
DP-5 6-8	8A04013-08	Soil	01/03/18 11:20	01-04-2018 09:00
DP-3 0-1	8A04013-09	Soil	01/03/18 11:35	01-04-2018 09:00
DP-4 0-6"	8A04013-10	Soil	01/03/18 10:50	01-04-2018 09:00
DP-6 0-1	8A04013-11	Soil	01/03/18 10:15	01-04-2018 09:00
DP-7 0-1	8A04013-12	Soil	01/03/18 10:25	01-04-2018 09:00

P.O. Box 50685

Midland TX, 79710

Project: Doppelbock 8

Project Number: 17-0201-01 Project Manager: Mark Larson

> DP-1 0-1 8A04013-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Invironmen	tal Lab, I	P.				
Organics by GC							W		·····
Benzene	ND	0.00106	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Foluene	ND	0.00213	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		79.6 %	75-12	'5	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		69.7 %	75-12	5	P8A0904	01/05/18	01/08/18	EPA 8021B	S-GC
General Chemistry Parameters by EPA	/ Standard Metho	ds						·	
Chloride	353	1.06	mg/kg dry	1	P8A0911	01/09/18	01/10/18	EPA 300.0	
% Moisture	6.0	0.1	%	1	P8A0501	01/05/18	01/05/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 8	015M							
C6-C12	ND	26.6	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane		101 %	70-1.	30	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		108 %	70-1.	30	P8A0506	01/05/18	01/06/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg đry	1	[CALC]	01/05/18	01/06/18	calc	

P.O. Box 50685 Midland TX, 79710 Project: Doppelbock 8

Project Number: 17-0201-01 Project Manager: Mark Larson Fax: (432) 687-0456

DP-2 0-1 8A04013-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin E	nvironment	al Lab, l	P.				
Organics by GC									
Benzene	ND	0.00104	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Toluene	ND	0.00208	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg∕kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		79.8 %	75-12	5	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		69.3 %	75-12	5	P8A0904	01/05/18	01/08/18	EPA 8021B	S-GC
General Chemistry Parameters by EP	A / Standard Metho	ds							
Chloride	ND	1.04	mg/kg dry	1	P8A1006	01/10/18	01/11/18	EPA 300.0	
% Moisture	4.0	0.1	%	i	P8A0501	01/05/18	01/05/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 8	015M							
C6-C12	49.4	26.0	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C12-C28	96.3	26.0	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C28-C35	75.2	26.0	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: 1-Chloroactane		105 %	70-13	0	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		109 %	70-13	0	P8A0506	01/05/18	01/06/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	221	26.0	mg/kg dry	1	[CALC]	01/05/18	01/06/18	calc	

P.O. Box 50685 Midland TX, 79710 Project: Doppelbock 8

Project Number: 17-0201-01 Project Manager: Mark Larson Fax: (432) 687-0456

DP-5 0-1 8A04013-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	nvironmen	tal Lab, l	P.				
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Toluene	ND	0.00217	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		81.0 %	75-12	2.5	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		76.5 %	75-12	25	P8A0904	01/05/18	01/08/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	ds							
Chlorid e	ND	1.09	mg/kg dry	1	P8A1006	01/10/18	01/11/18	EPA 300.0	
% Moisture	8.0	0.1	%	1	P8A0501	01/05/18	01/05/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 8	015M				***************************************			
C6-C12	ND	27.2	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C28-C35	ND	27,2	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane		98.8 %	70-1.	30	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		104 %	70-1.	30	P8A0506	01/05/18	01/06/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry)	[CALC]	01/05/18	01/06/18	caic	

Larson & Associates, Inc. Project: Doppelbock 8 Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0201-01
Midland TX, 79710 Project Manager: Mark Larson

DP-5 1-2 8A04013-04 (Soil)

									1
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					
Chloride	ND	1.08 mg/kg	dry l	P8A1006	01/10/18	01/11/18	EPA 300.0
% Moisture	7.0	01 %	1	P8A0501	01/05/18	01/05/18	ASTM D2216

Project: Doppelbock 8

P.O. Box 50685

Midland TX, 79710

Project Number: 17-0201-01 Project Manager: Mark Larson Fax: (432) 687-0456

DP-5 2-3

8A04013-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permi	ian Basin E	nvironmei	ıtal Lab, I	P.				
General Chemistry Parameters 1	oy EPA / Standard Methods	3							
Chloride	ND	1.06	mg/kg dry	1	P8A1006	01/10/18	01/11/18	EPA 300.0	
% Moisture	6.0	0.1	%	1	P8A0501	01/05/18	01/05/18	ASTM D2216	

Fax: (432) 687-0456 Larson & Associates, Inc. Project: Doppelbock 8

P.O. Box 50685 Project Number: 17-0201-01 Midland TX, 79710 Project Manager: Mark Larson

DP-5 3-4 8A04013-06 (Soil)

1									i	
		Reporting							1	
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	

Permian Basin Environmental Lab, L.P.

Chloride	7.05	1.09 mg/kg dry	1	P8A1006	01/10/18	01/11/18	EPA 300.0
% Moisture	8.0	0.1 %	1	P8A0501	01/05/18	01/05/18	ASTM D2216

Larson & Associates, Inc. Project: Doppelbock 8 Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0201-01
Midland TX, 79710 Project Manager: Mark Larson

DP-5 4-6 8A04013-07 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	ND	1.03	mg/kg dry	1	P8A1006	01/10/18	01/11/18	EPA 300.0
% Moisture	3.0	0.1	%	1	P8A0501	01/05/18	01/05/18	ASTM D2216

Larson & Associates, Inc. Project: Doppelbock 8 Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0201-01 Midland TX, 79710 Project Manager: Mark Larson

> DP-5 6-8 8A04013-08 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	ND	1.06 mg/kg dry	1	P8A1006	01/10/18	01/11/18	EPA 300.0
% Moisture	6.0	0.1 %	1	P8A0501	01/05/18	01/05/18	ASTM D2216

P.O. Box 50685

Midland TX, 79710

C6-C35

Project: Doppelbock 8

Project Number: 17-0201-01 Project Manager: Mark Larson

> DP-3 0-1 8A04013-09 (Soil)

	5. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note	
	Pern	nian Basin E	Invironment	al Lab, I	L.P.					
Organics by GC										
Benzene	ND	0.00105	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B		
Toluene	ND	0.00211	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B		
Ethylbenzene	ND	0.00105	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B		
Xylene (p/m)	ND	0.00211	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B		
Xylene (o)	ND	0.00105	mg∕kg dry	ì	P8A0904	01/05/18	01/08/18	EPA 8021B		
Surrogate: 1,4-Difluorobenzene		69.9 %	75-12.	5	P8A0904	01/05/18	01/08/18	EPA 8021B	S-GC	
Surrogate: 4-Bromofluorobenzene		79.5 %	75-12:	5	P8A0904	01/05/18	01/08/18	EPA 8021B		
General Chemistry Parameters by EP.	A / Standard Metho	ds								
Chloride	ND	1.05	mg/kg dry	1	P8A1006	01/10/18	01/11/18	EPA 300.0		
% Moisture	5.0	0.1	%	1	P8A0501	01/05/18	01/05/18	ASTM D2216		
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 8	015M								
C6-C12	48.6	26.3	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M		
>C12-C28	65.2	26.3	mg⁄kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M		
>C28-C35	50,5	26.3	mg/kg dry	. 1	P8A0506	01/05/18	01/06/18	TPH 8015M		
Surrogate: 1-Chlorooctane		101 %	70-13	9	P8A0506	01/05/18	01/06/18	TPH 8015M		
Surrogate: o-Terphenyl		105 %	70-13	9	P8A0506	01/05/18	01/06/18	TPH 8015M		
Total Petroleum Hydrocarbon	164	26.3	mg/kg dry	1	[CALC]	01/05/18	01/06/18	calc		

P.O. Box 50685

Midland TX, 79710

Project: Doppelbock 8

Project Number: 17-0201-01 Project Manager: Mark Larson

> DP-4 0-6" 8A04013-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin E	invironment	al Lab, I	∠.P.				
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Toluene	ND	0.00215	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (p/m)	ИD	0.00215	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		91.8 %	75-12	5	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		122 %	75-12	5	P8A0904	01/05/18	01/08/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Metho	ds							
Chloride	8.34	1.08	mg/kg dry	i	P8A1006	01/10/18	01/11/18	EPA 300.0	
% Moisture	7.0	0.1	%	1	P8A0501	01/05/18	01/05/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 8	015M							
C6-C12	ND	26.9	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane	* * *************	97.1 %	70-13	0	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		103 %	70-13	0	P8A0506	01/05/18	01/06/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	01/05/18	01/06/18	calc	

Total Petroleum Hydrocarbon

C6-C35

P.O. Box 50685 Midland TX, 79710 Project: Doppelbock 8

Project Number: 17-0201-01 Project Manager: Mark Larson

> DP-6 0-1 8A04013-11 (Soil)

	····	0/10/1	013-11 (30)	.1)					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmen	ıtal Lab, l	L. P.				
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Toluene	ND	0.00211	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Ethylbenzene	ND	0.00105	mg∕kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (p/m)	ND	0.00211	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (o)	ND	0.00105	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		75.0 %	75-1	25	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		89.9 %	75-1	25	P8A0904	01/05/18	01/08/18	EPA 8021B	
General Chemistry Parameters by El	PA / Standard Method	ds							
Chloride	ND	1.05	mg/kg dry	1	P8A1006	01/10/18	01/11/18	EPA 300.0	
% Moisture	5.0	0.1	%	1	P8A0501	01/05/18	01/05/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 8	015M							
C6-C12	59.1	26.3	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C12-C28	66.5	26.3	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C28-C35	58.4	26.3	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane		89.5 %	70-1	30	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		93.4 %	70-1	30	P8A0506	01/05/18	01/06/18	TPH 8015M	

26.3 mg/kg dry

1

[CALC]

01/05/18

01/06/18

cale

184

Project: Doppelbock 8

P.O. Box 50685

Midland TX, 79710

Project Number: 17-0201-01 Project Manager: Mark Larson

> DP-7 0-1 8A04013-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peru	nian Basin E	Invironment	al Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	i	P8A0904	01/05/18	01/08/18	EPA 8021B	
Toluene	ND	0.00213	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene	* * * * * * * * * * * * * * * * * * * *	86.1 %	75-12	5	P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		75.4 %	75-12	5	P8A0904	01/05/18	01/08/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	ds							
Chloride	ND	1.06	mg/kg dry	l	P8A1006	01/10/18	01/11/18	EPA 300.0	
% Moisture	6.0	0.1	%	l	P8A0501	01/05/18	01/05/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 8	015M							
C6-C12	ND	26.6	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: 1-Chlorooctane		93.3 %	70-13	0	P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		97.8 %	70-13	0	P8A0506	01/05/18	01/06/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	01/05/18	01/06/18	calc	

Project: Doppelbock 8

P.O. Box 50685

Analyte

Ethylbenzene

Xylene (p/m)

Surrogate: 4-Bromofluorobenzene

Surrogate: 1,4-Diffuorobenzene

Xylene (o)

Project Number: 17-0201-01

Reporting

Limit

Result

0.108

0.190

0.0980

0.0495

0.0483

0.00100

0.00200

0.00100

Fax: (432) 687-0456

Notes

RPD

Limit

%REC

Limits

RPD

Midland TX, 79710

Project Manager: Mark Larson

Organics by GC - Quality Control Permian Basin Environmental Lab, L.P.

Units

Spike

Level

0.100

0.0600

0.0600

Source

Result

%REC

108

82.6

80.5

70-130

70-130

70-130

75-125

75-125

1.57

20

20

20

Blank (P8A0904-BLK1)				Prepared & Analy	zed: 01/05/18				
Benzene	ND	0.00100	mg/kg wet						
Toluene	ND	0.00200	17						
Ethylbenzene	ND	0.00100	v						
Xylene (p/m)	ND	0.00200	n						
Xylene (0)	ND	0.00100	и						
Surrogate: 4-Bromofluorobenzene	0.0631		н	0.0600	105	75-125			
Surrogate: 1,4-Difluorobenzene	0.0585		n	0.0600	97.4	75-125			
LCS (P8A0904-BS1)				Prepared & Analy	yzed: 01/05/18				
Benzene	0.0857	0.00100	mg/kg wet	0.100	85.7	70-130			
Toluene	0.0902	0.00200	н	0.100	90.2	70-130			
Ethylbenzene	0.110	0.00100	H	0.100	110	70-130			
Xylene (p/m)	0.194	0.00200	н			70-130			
Xylene (o)	0.0998	0.00100	**			70-130			
Surrogate: 1,4-Difluorobenzene	0.0449		н	0.0600	74.8	75-125			S-GC
Surrogate: 4-Bromofluorobenzene	0.0499		п	0.0600	83.2	75-125			
LCS Dup (P8A0904-BSD1)				Prepared & Analy	yzed; 01/05/18				
Benzene	0.0871	0.00100	mg/kg wet	0.100	87.1	70-130	1.67	20	
Foluenc	0.0910	0.00200	н	0.100	91.0	70-130	0.916	20	

Matrix Spike (P8A0904-MS1)	Sour	ce: 8A05005			01/05/18 An			
Benzene	0.0152	0.00103	mg/kg dry	0.0515	ND	29.5	80-120	QM-05
Toluene	0.0269	0.00206	•	0.0515	ND	52.1	80-120	QM-05
Ethylbenzene	0.0713	0.00103	· ·	0.0515	0.000742	137	80-120	QM-05
Xylene (p/m)	0.130	0.00206	9		ND		80-120	
Xylene (o)	0.0627	0.00103	· ·		ND		80-120	
Surrogate: 4-Bromofluorobenzene	0.0936		н	0.0619		151	75-125	S-GC
Surrogate: 1,4-Difluorobenzene	0.0692		"	0.0619		112	75-125	

Larson & Associates, Inc. Project: Doppelbock 8 Fax: (432) 687-0456

P.O. Box 50685 Midland TX, 79710 Project Number: 17-0201-01 Project Manager: Mark Larson

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 P8A0501 - *** DEFAULT PREP ***										
Blank (P8A0501-BLK1)		•		Prepared &	: Analyzed:	01/05/18				
% Moisture	ND	0.1	%							
Blank (P8A0501-BLK2)				Prepared &	Analyzed:	01/05/18				
% Moisture	ND	0.1	%							
Duplicate (P8A0501-DUP1)	Sour	ce: 8A04002-	03	Prepared &	Analyzed:	01/05/18				
% Moisture	14.0	0.1	%		15.0			6.90	20	
Duplicate (P8A0501-DUP2)	Sour	ce: 8A04003-	14	Prepared &	Analyzed;	01/05/18				
% Moisture	9.0	0.1	%		8.0			11.8	20	
Duplicate (P8A0501-DUP3)	Sour	ce: 8A04008-	05	Prepared &	Analyzed:	01/05/18				
% Moisture	13.0	0.1	%		14.0		•	7.41	20	
Duplicate (P8A0501-DUP4)	Sour	ce: 8A04009-	03	Prepared &	Analyzed:	01/05/18				
% Moisture	15.0	0.1	%	F	15.0			0.00	20	
Duplicate (P8A0501-DUP5)	Sour	ce: 8A04015-	04	Prepared &	Analyzed:	01/05/18				
% Moisture	7.0	0.1	%	······························	7.0			0.00	20	
Ouplicate (P8A0501-DUP6)	Sour	ce: 8A04016-	04	Prepared &	Analyzed:	01/05/18				
% Moisture	5.0	0.1	%	-	5.0			0.00	20	
Batch P8A0911 - *** DEFAULT PREP ***										
Blank (P8A0911-BLK1)	***************************************	***************************************		Prepared: (01/09/18 A	nalyzed: 01	/10/18			
Chloride	ND	1.00	mg/kg wet			,1500. 01				

Project: Doppelbock 8

P.O. Box 50685

Midland TX, 79710 Project Mana;

Fax: (432) 687-0456

Project Number: 17-0201-01 Project Manager: Mark Larson

General Chemistry Parameters by EPA / Standard Methods - Quality Control Permian Basin Environmental Lab, L.P.

Autor		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P8A0911 - *** DEFAULT PREP ***										
LCS (P8A0911-BS1)				Prepared: 0	1/09/18	Analyzed: 0	1/10/18			
Chloride	396	1.00	mg/kg wet	400		99.1	80-120			
LCS Dup (P8A0911-BSD1)				Prepared: 0	1/09/18	Analyzed: 0	1/10/18			
Chloride	404	1.00	mg/kg wet	400		101	80-120	1.89	20	
Duplicate (P8A0911-DUP1)	Sou	rce: 8A09001	-01	Prepared: 0	1/09/18	Analyzed: 0	1/10/18			
Chloride	1160		mg/kg dry		1150			1.22	20	
Duplicate (P8A0911-DUP2)	Sou	ree: 8A04008	1-23	Prepared: 0	1/09/18	Analyzed: 0	1/10/18			
Chloride	5210	28.7	mg/kg dry	··· · · · · · · · · · · · · · · · · ·	5200			0.166	20	
Matrix Spike (P8A0911-MS1)	Sou	rce: 8A09001	-01	Prepared: 0	01/09/18	Analyzed: 0	1/10/18			
Chloride	2250	10.1	mg/kg dry	1010	1150	109	80-120			
Batch P8A1006 - *** DEFAULT PREP ***										
Blank (P8A1006-BLK1)				Prepared: 0	1/10/18	Analyzed: 0	1/11/18			
Chloride	ND	1.00	mg/kg wet	na veze a zaliane e e e e						
LCS (P8A1006-BS1)				Prepared: 0	01/10/18	Analyzed: 0	1/11/18			
Chloride	407	1.00	mg⁄kg wei	400		102	80-120		·	
LCS Dup (P8A1006-BSD1)				Prepared: 0	01/10/18	Analyzed: 0	1/11/18			
Chloride	397	1.00	mg⁄kg wet	400		99.2	80-120	2.66	20	
Duplicate (P8A1006-DUP1)	Sou	rce: 8A04013	-02	Prepared: 0	01/10/18	Analyzed: 0	1/11/18			
Chloride	ND		mg/kg dry		ND				20	

Project: Doppelbock 8

P.O. Box 50685

Project Number: 17-0201-01

Fax: (432) 687-0456

Midland TX, 79710

Project Manager: Mark Larson

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	RPĐ	RPD Límit	Notes
Batch P8A1006 - *** DEFAULT PREP ***										
Duplicate (P8A1006-DUP2)	Sour	ce: 8A04013	-12	Prepared: (01/10/18 A	nalyzed: 01	/11/18			
Chloride	ND	1.06	mg/kg dry		ND				20	
Matrix Spike (P8A1006-MS1)	Sour	ce: 8A04013	-02	Prepared: (01/10/18 A	nalyzed: 01	/11/18			
Chloride	1120	1.04	mg/kg dry	1040	ND	107	80-120			

Larson & Associates, Inc. Project: Doppelbock 8 Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0201-01 Midland TX, 79710 Project Manager: Mark Larson

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 P8A0506 - General Preparation (GC)									
Blank (P8A0506-BLK1)				Prepared: (01/05/18 A	nalvzed: 01	/06/18			
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	n							
>C28-C35	ND	25.0	p3							
Surrogate: 1-Chlorooctane	116			100		116	70-130			
Surrogate: o-Terphenyl	61.6		n	50.0		123	70-130			
LCS (P8A0506-BS1)				Prepared: (01/05/18 A	nalyzed: 01	/06/18			
C6-C12	1180	25.0	mg/kg wet	1000		118	75-125			
>C12-C28	1170	25.0	n	1000		117	75-125			
Surrogate: 1-Chlorooctane	129		и	100		129	70-130			
Surrogate: o-Terphenyl	61.5		u	50.0		123	70-130			
LCS Dup (P8A0506-BSD1)				Prepared: (01/05/18 A	nalyzed: 01	/06/18			
C6-C12	1130	25.0	mg/kg wet	1000		113	75-125	3.71	20	
>C12-C28	1250	25.0	н	1000		125	75-125	6.04	20	
Surrogate: 1-Chlorooctane	125		и	100	.,	125	70-130			
Surrogate: o-Terphenyl	67.7		"	50.0		135	70-130			S-G
Calibration Blank (P8A0506-CCB1)				Prepared: (01/05/18 A	nalyzed: 01	/06/18			
C6-C12	20.7		mg/kg wet					····		
>C12-C28	20.5		и							
Surrogate: 1-Chlorooctane	114		μ	100		114	70-130			
Surrogate: o-Terphenyl	60.9		,,	50.0		122	70-130			
Calibration Blank (P8A0506-CCB2)				Prepared: 0	01/05/18 A	nalyzed: 01	/06/18			
C6-C12	24.3		mg/kg wet			.,	.,			
>C12-C28	16.4		н							
Surrogate: 1-Chlorooctane	116		"	100		116	70-130			
Surrogate: o-Terphenyl	62.5		"	50.0		125	70-130			

Larson & Associates, Inc. Project: Doppelbock 8 Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0201-01
Midland TX, 79710 Project Manager: Mark Larson

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 P8A0506 - General Preparation (GC)					<u> </u>				
Calibration Check (P8A0506-CCV1)				Prepared: ()1/05/18 A	nalyzed; 01	/06/18			
C6-C12	534	25.0	mg/kg wet	500		107	85-115		,.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
>C12-C28	519	25.0	tı	500		104	85-115			
Surrogate: 1-Chlorooctane	119		"	100		119	70-130			
Surrogate: o-Terphenyl	55.3		,,	50.0		111	70-130			
Calibration Check (P8A0506-CCV2)				Prepared: (01/05/18 A	nalyzed: 01	/06/18			
C6-C12	543	25.0	mg/kg wet	500		109	85-115			
>C12-C28	524	25.0	e	500		105	85-115			
Surrogate: 1-Chlorooctane	120		"	100		120	70-130			***************************************
Surrogate: o-Terphenyl	56.3		n	50.0		113	70-130			
Calibration Check (P8A0506-CCV3)				Prepared: (01/05/18 A	nalyzed: 01	/06/18			
C6-C12	553	25.0	mg/kg wet	500		111	85-115			
>C12-C28	549	25.0	ø	500		110	85-115			
Surrogate: 1-Chlorooctane	121		и	100		121	70-130		••••••	
Surrogate: o-Terphenyl	56.4		"	50.0		113	70-130			
Matrix Spike (P8A0506-MS1)	Sour	ee: 8A0401(0-01	Prepared: (01/05/18 A	nalyzed: 01	/06/18			
C6-C12	1760	130	mg/kg dry	1040	1170	56.3	75-125			QM-0:
>C12-C28	5120	130	н	1040	5570	NR	75-125			QM-0:
Surrogate: 1-Chlorooctane	107		u	104		103	70-130			*
Surrogate: o-Terphenyl	53.0		n	52.1		102	70-130			
Matrix Spike Dup (P8A0506-MSD1)	Sour	ce: 8A04010	0-01	Prepared:	01/05/18 A	nalyzed: 0	/06/18			
C6-C12	1760	130	mg/kg dry	1040	1170	56.6	75-125	0.629	20	QM-0
>C12-C28	5320	130	11	1040	5570	NR	75-125	NR	20	QM-0.
Surrogate: 1-Chlorooctane	114		<i>n</i>	104		109	70-130			*,***
Surrogate: o-Terphenyl	59.8		"	52.1		115	70-130			

Larson & Associates, Inc.

Project: Doppelbock 8

P.O. Box 50685

Project Number: 17-0201-01

Midland TX, 79710

Project Manager: Mark Larson

Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate. 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 Sample results reported on a dry weight basis dгу Relative Percent Difference RPD LCS Laboratory Control Spike MS Matrix Spike Dup Duplicate

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Report Approved By:		Date:	1/11/2018

Brent Barron, Laboratory Director/Technical Director

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

Permian Basin Environmental Lab, L.P.

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

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Site 3

Dunkel 7 State 1H

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



Analytical Report

Prepared for:

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

Project: Dunkel 7
Project Number: 17-0201-04
Location:

Lab Order Number: 8A10001



NELAP/TCEQ # T104704516-16-7

Report Date: 01/19/18

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

Project Number: 17-0201-04
Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DPI (0-1)	8A10001-01	Soil	01/08/18 10:51	01-10-2018 08:45
DP1 (1-2)	8A10001-02	Soil	01/08/18 11:00	01-10-2018 08:45
DP2 (0-1)	8A10001-03	Soil	01/08/18 11:19	01-10-2018 08:45
DP3 (0-1)	8A10001-04	Soil	01/08/18 11:26	01-10-2018 08:45
DP4 (0-1)	8A10001-05	Soil	01/08/18 11:33	01-10-2018 08:45
DP5 (0-1)	8A10001-06	Soil	01/08/18 11:54	01-10-2018 08:45
DP5 (1-2)	8A10001-07	Soil	01/08/18 11:58	01-10-2018 08:45
DP5 (2-3)	8A10001-08	Soil	01/08/18 12:02	01-10-2018 08:45
DP5 (3-4)	8A10001-09	Soil	01/08/18 12:06	01-10-2018 08:45
DP5 (4-6)	8A10001-10	Soil	01/08/18 12:12	01-10-2018 08:45
DP5 (6-8)	8A10001-11	Soil	01/08/18 12:15	01-10-2018 08:45
DP6 (0-1)	8A10001-12	Soil	01/08/18 12:16	01-10-2018 08:45
DP6 (1-2)	8A10001-13	Soil	01/08/18 13:19	01-10-2018 08:45
DP6 (2-3)	8A10001-14	Soil	01/08/18 13:24	01-10-2018 08:45
DP7 (0-1)	8A10001-15	Soil	01/08/18 13:31	01-10-2018 08:45
DP7 (1-2)	8A10001-16	Soil	01/08/18 13:34	01-10-2018 08:45
DP7 (2-3)	8A10001-17	Soil	01/08/18 13:37	01-10-2018 08:45
DP7 (3-4)	8A10001-18	Soil	01/08/18 13:40	01-10-2018 08:45
DP7 (4-6)	8A10001-19	Soil	01/08/18 13:42	01-10-2018 08:45
DP7 (6-8)	8A10001-20	Soil	01/08/18 13:46	01-10-2018 08:45
DP8 (0-1)	8A10001-21	Soil	01/08/18 13:50	01-10-2018 08:45
DP8 (1-2)	8A10001-22	Soil	01/08/18 13:59	01-10-2018 08:45
DP8 (2-3)	8A10001-23	Soil	01/08/18 14:00	01-10-2018 08:45
DP9 (0-1)	8A10001-24	Soil	01/08/18 14:05	01-10-2018 08:45
DP10 (0-1)	8A10001-25	Soil	01/09/18 11:30	01-10-2018 08:45
DP11 (0-1)	8A10001-26	Soil	01/09/18 11:33	01-10-2018 08:45
DP6 (3-4)	8A10001-27	Soil	01/08/18 13:27	01-10-2018 08:45
				v v 2010 00,40

P.O. Box 50685

Midland TX, 79710

Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson

> DP1 (0-1) 8A10001-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Baich	Prepared	Analyzed	Method	Notes
	Perr	mian Basin E	Environment	al Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.00114	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	······································
Toluene	ND	0.0114	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00568	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0227	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0114	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene	*	85.3 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		84.8 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA /	Standard Method	ls							
Chloride	ND	1.14	mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0	
% Moisture	12.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 L	v EPA Method 80	15M							
C6-C12	ND	28.4	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	•••••••••••••••••••••••••••••••••••••••
>C12-C28	ND	28.4	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		118%	70-13	9	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		123 %	70-13	-	P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	(CALC)	01/11/18	01/11/18	calc	

Project: Dunkel 7

P.O. Box 50685 Midland TX, 79710

Project Number: 17-0201-04 Project Manager: Mark Larson

DP1 (1-2)

8A10001-02 (Soil)

			Reporting							
1	Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
							<u> </u>			

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	12.5	1.00 mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0
% Moisture	ND	0.1 %	1	P8A1501	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

DP2 (0-1) 8A10001-03 (Soil)

Analyte	D secole	Reporting	FI. Sec	7 .2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	Б				
- Analysis	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pert	nian Basin F	Invironment	tal Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	ł	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorohenzene		90.2 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		103 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	is							
Chloride	ND	1.06	mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0	
% Moisture	6.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 I	y EPA Method 80	15M							
C6-C12	ND	26.6	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		116%	70-13	0	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		120 %	70-13	0	P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	J	[CALC]	01/11/18	01/11/18	calc	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson

> DP3 (0-1) 8A10001-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin E	Environment	al Lab, l	Ĺ .P.				
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0105	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00526	mg∕kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0211	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0105	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		94.2 %	75-12.	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		92.3 %	75-12.	5	P8A1108	01/11/18	01/18/18	EPA 8021 B	
General Chemistry Parameters by EPA /	Standard Method	is							
Chloride	ND	1.05	mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0	
% Moisture	5.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
<u> Fotal Petroleum Hydrocarbons C6-C35 t</u>	ov EPA Method 80	15M							
C6-C12	ND	26.3	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		114 %	70-13	0	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		118 %	70-13	0	P8A1105	01/11/18	01/11/18	TPH 8015M	
Fotal Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	ı	[CALC]	01/11/18	01/11/18	calc	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson

> DP4 (0-1) 8A10001-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Per	mian Basin I	Environment	tai Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0108	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00538	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0215	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0108	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		97.8 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	***************************************
Surrogate: 1,4-Difluorobenzene		86.3 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	is							
Chloride	ND	1.08	mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0	
% Moisture	7.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 I	by EPA Method 80)15M							
C6-C12	ND	26.9	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C28-C35	ND	26,9	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		116%	70-13		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		120%	70-13	-	P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	01/11/18	01/11/18	cale	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson

DP5 (0-1) 8A10001-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dílution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin I	Environment	al Lab, l	L. P.				
Organics by GC									
Benzene	ND	0.00116	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0116	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00581	mg/kg dry	ı	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0233	mg/kg dry	ı	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0116	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		94.5 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		97.0 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA/	Standard Method	ls							
Chloride	6.01	1.16	mg∕kg dry	l	P8A1201	01/12/18	01/12/18	EPA 300.0	·
% Moisture	14.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 80	15M							
C6-C12	ND	29.1	ing/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C28-C35	ND	29.1	mg∕kg d⊓y	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		118%	70-13	9	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		122 %	70-13	9	P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	01/11/18	01/11/18	calc	

Project: Dunkel 7

P.O. Box 50685

Midland TX, 79710

Project Number: 17-0201-04 Project Manager: Mark Larson

> DP5 (1-2) 8A10001-07 (Soil)

1										
1			Reporting							
L	Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	36.6	1.20 mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0
% Moisture	17.0	0.1 %	1	P8A1501	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685

Midland TX, 79710

Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

DP5 (2-3)

8A10001-08 (Soil)

									- 1
		Reporting							1
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	45.0	1.04 mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0
% Moisture	14.0	0.1 %	1	P8A1501	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

01/15/18 ASTM D2216

DP5 (3-4)

8A10001-09 (Soil)

			· · · · · · · · · · · · · · · · · · ·						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		ian Basin E	invironme	ntal Lab, l	L.P.				
General Chemistry Parameter	s by EPA / Standard Methods								
Chloride	60.0	1,12	mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0	
% Moisture	11.0	0.1	%	1	P8A 1501	01/15/19	01/16/19	4 STM 102216	

P8A1501

01/15/18

0.1

11.0

Project: Dunkel 7

Fax: (432) 687-0456

P.O. Box 50685

Project Number: 17-0201-04

Midland TX, 79710

Project Manager: Mark Larson

DP5 (4-6) 8A10001-10 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	71.8	1.14 mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0
% Moisture	12.0	0.1 %	1	P8A1501	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

DP5 (6-8) 8A10001-11 (Soil)

		Reporting							}
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permia	n Basin Ei	nvironme	ntal Lab. I	P.				

General Chemistry Parameters by EPA / Standard Methods

Chloride	6.46	1.15 mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0
% Moisture	13.0	0.1 %	ı	P8A1501	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson

> DP6 (0-1) 8A10001-12 (Soil)

Analyte	Result	Reporting Limit	Units Environment	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC	i en	man basin i	anvironment	ai Lab, i	L.P.				
Benzene	ND	0.00118	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0118	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00588	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0235	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0118	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.5 %	75-12	 5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		102 %	75-12.	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	ls							
Chloride	ND	1.18	mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0	
% Moisture	15.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 l	ov EPA Method 80	15M							
C6-C12	ND	29.4	mg/kg dry	Į.	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C28-C35	ND	29,4	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		117 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		123 %	70-130	9	P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	1	[CALC]	01/11/18	01/11/18	cale	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson

> DP6 (1-2) 8A10001-13 (Soil)

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

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	3.10	1.15 mg/kg dry	1	P8A1201	01/12/18	01/12/18	EPA 300.0
% Moisture	13.0	0.1 %	ì	P8A1501	01/15/19	01/15/19	ASTM D2216

Larson & Associates, Inc. Project: Dunkel 7 Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0201-04
Midland TX, 79710 Project Manager: Mark Larson

DP6 (2-3) 8A10001-14 (Soil)

	Reporting							
Analyte Resu		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA/Standard Methods

Chloride	3.69	1,12 mg/kg dry	1	P8A1204	01/12/18	01/12/18	EPA 300.0
% Moisture	11.0	0.1 %	1	P8A1501	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson

> DP7 (0-1) 8A10001-15 (Soil)

1									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
	Peri	nian Basin F	Environmen	tal Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0110	т g ∕kg d гу	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00549	mg/kg dry	i	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0220	mg/kg dry	t	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0110	mg∕kg dry	ı	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		90.0 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		106 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	ls							
Chloride	485	1.10	mg/kg dry	ı	P8A1204	01/12/18	01/12/18	EPA 300.0	
% Moisture	9.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
<u> Fotal Petroleum Hydrocarbons C6-C35 I</u>	oy EPA Method 80	15M							
C6-C12	ND	27.5	mg∕kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		115 %	70-13	0	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		116%	70-13	0	P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydroearbon C6-C35	ND	27.5	mg/kg dry	1	(CALC)	01/11/18	01/11/18	calc	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

DP7 (1-2) 8A10001-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	nvironmen	tal Lab, l	L. P.				
Organics by GC	.,								
Benzene	ND	0.00118	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0118	mg∕kg dry	i	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00588	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0235	mg∕kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0118	mg∕kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		101 %	75-1	25	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		95.0 %	75-1	25	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	/ Standard Method	ls							
Chloride	479	1.18	mg/kg dry	i	P8A1204	01/12/18	01/12/18	EPA 300.0	
% Moisture	15.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 80	15M							
C6-C12	ND	29.4	mg∕kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	l	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		123 %	70-1	30	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		126 %	70-1	30	P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	i	[CALC]	01/11/18	01/11/18	cale	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

DP7 (2-3) 8A10001-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmei	ıtal Lab,	L.P.				
General Chemistry Parameters by EPA/	Standard Method	s							
Chloride	320	1.12	mg∕kg dry	1	P8A1204	01/12/18	01/12/18	EPA 300.0	
% Moisture	11.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 80	15M							
C6-C12	ND	28.1	mg/kg dry	ı	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		120 %	70-1	30	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		124 %	70-1	30	P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydroearbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	01/11/18	01/11/18	calc	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson

> DP7 (3-4) 8A10001-18 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environme	ntal Lab, l	L.P.				
General Chemistry Parameters by EPA/	Standard Method	S							
Chloride	301	11.1	mg/kg dry	10	P8A1204	01/12/18	01/12/18	EPA 300.0	
% Moisture	10.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 80	15M							
C6-C12	ND	27.8	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C12-C28	ND	27.8	ıng/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		122 %	70-1	30	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		125 %	70-1	30	P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	i	[CALC]	01/11/18	01/11/18	calc	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson

> DP7 (4-6) 8A10001-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin I	Environmen	ital Lab, l	L.P.				
General Chemistry Parameters by EPA /	Standard Method	is							
Chloride	29.9	1.32	mg/kg dry	1	P8A1204	01/12/18	01/13/18	EPA 300.0	
% Moisture	24.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 l	y EPA Method 80	15M							
C6-C12	ND	32.9	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
>C12-C28	ND	32.9	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
>C28-C35	ND	32.9	mg/kg dry	ł	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: 1-Chlorooctane		125 %	70-1.	30	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		128 %	70-1.	30	P8A1105	01/11/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	32.9	mg/kg dry	1	ICALCI	01/11/18	01/12/18	calc	

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Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

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DP7 (6-8) 8A10001-20 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Permi	an Basin E	nvironmeı	ntal Lab, I	_,P,				
General Chemistry Parameter	s by EPA / Standard Methods								
Chloride	249	1.10	mg/kg dry	1	P8A1204	01/12/18	01/13/18	EPA 300.0	
% Moisture	9.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	

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Project Number: 17-0201-04 Project Manager: Mark Larson

> DP8 (0-1) 8A10001-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Per	nian Basin F	Environment	al Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.00100	mg/kg d ry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0100	mg/kg dry	i	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00500	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0200	mg/kg dry	1	P8A 1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0100	mg∕kg dry	1	P\$A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		94.8 %	75-12.	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		79.7 %	75-12.	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	is							
Chloride	ND	1.00	mg∕kg dгу	1	P8A1204	01/12/18	01/13/18	EPA 300.0	
% Moisture	ND	0.1	%	ı	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 80	15M							
C6-C12	ND	25.0	mg/kg dry	ı	P8A1105	01/11/18	01/12/18	TPH 8015M	
>C12-C28	ND	25.0	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
>C28-C35	ND	25.0	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: 1-Chlorooctane		130 %	70-13	9	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		134 %	70-130	9	P8A1105	01/11/18	01/12/18	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	25.0	mg/kg dry	1	[CALC]	01/11/18	01/12/18	calc	

Project: Dunkel 7

P.O. Box 50685

Midland TX, 79710

Project Number: 17-0201-04

Project Manager: Mark Larson

DP8 (1-2)

8A10001-22 (Soil)

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

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1,37 mg/kg dry	1	P8A1204	01/12/18	01/13/18	EPA 300.0
% Moisture	27.0	0.1 %	1	P8A1501	01/15/18	01/15/18	ASTM D2216

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Project: Dunkel 7

Project Number: 17-0201-04

Project Manager: Mark Larson

DP8 (2-3) 8A10001-23 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride 1.16 mg/kg dry P8A1204 EPA 300.0 26.8 01/13/18 01/12/18 % Moisture 14.0 ASTM D2216 0.1 % P8A1501 01/15/18 01/15/18

Project: Dunkel 7

Fax: (432) 687-0456

P.O. Box 50685 Midland TX, 79710 Project Number: 17-0201-04 Project Manager: Mark Larson

DP9 (0-1) 8A10001-24 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin E	Invironment	al Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0108	mg/kg dry	ı	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00538	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0215	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0108	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		98.0 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		106 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Methor	ls							
Chloride	559	1.08	mg/kg dry	1	P8A1204	01/12/18	01/13/18	EPA 300.0	
% Moisture	7.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 I	oy EPA Method 80	015M					· · · · · · · · · · · · · · · · · · ·		
C6-C12	ND	26.9	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: 1-Chlorooctane		125 %	70-13	0	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		129 %	70-13	0	P8A1105	01/11/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	01/11/18	01/12/18	çalc	

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Project Number: 17-0201-04 Project Manager: Mark Larson

> DP10 (0-1) 8A10001-25 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin E	Invironmen	tal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0109	mg∕kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00543	mg⁄kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0217	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0109	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		90.0 %	75-1.	25	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		78.8 %	75-1.	25	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	/ Standard Method	ls							
Chloride	756	1.09	mg/kg dry	1	P8A1204	01/12/18	01/13/18	EPA 300.0	
% Moisture	8.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 80	15M							
C6-C12	ND	27.2	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: 1-Chlorooctane		124 %	70-1	30	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		126 %	70-1	30	P8A1105	01/11/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg∕kg dry	1	[CALC]	01/11/18	01/12/18	calc	

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Project Number: 17-0201-04 Project Manager: Mark Larson

> DP11 (0-1) 8A10001-26 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin F	Environment	al Lab, l	L. P.				
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0109	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00543	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0217	mg∕kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0109	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		77.7 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		86.8 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	is							
Chloride	1050	5.43	mg/kg dry	5	P8A1204	01/12/18	01/13/18	EPA 300.0	
% Moisture	8.0	0.1	%	1	P8A 1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 l	ov EPA Method 80)15M							
C6-C12	ND	27.2	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
>C12-C28	ND	27.2	mg⁄kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: 1-Chlorooctane		126 %	70-13	0	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		128 %	70-13	0	P8A1105	01/11/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	01/11/18	01/12/18	calc	

Larson & Associates, Inc. Project: Dunkel 7 Fax: (432) 687-0456

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Midland TX, 79710 Project Manager: Mark Larson

DP6 (3-4) 8A10001-27 (Soil)

									1
		Reporting							
Analyte	Result	Limit	Units	Dilution	Ratch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	77.1	1,09 mg/kg dry	I	P8A1204	01/12/18	01/13/18	EPA 300.0
% Moisture	8.0	0.1 %	1	P8A1501	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 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 P8A1108 - General Preparation	(GC)									
Blank (P8A1108-BLK1)				Prepared: 0	1/11/18 Ai	nalyzed: 01	/18/18			
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	11							
Ethylbenzene	ND	0.00500	H							
Xylenc (p/m)	ND	0.0200	н							
Xylene (o)	DИ	0.0100)1							
Surrogate: 1,4-Difluorobenzene	0.0548		"	0.0600		91.3	75-125			
Surrogate: 4-Bromofluorobenzene	0.0571		и	0.0600		95.2	75-125			
LCS (P8A1108-BS1)				Prepared: 0	11/11/18 A	nalyzed: 01	/18/18			
Benzene	0.105	0.00100	mg/kg wet	0.100		105	70-130			
Toluene	0.110	0.0100	łı	0.100		110	70-130			
Ethylbenzene	0.110	0.00500	11	0.100		110	70-130			
Xylene (p/m)	0.220	0.0200					70-130			
Xylene (o)	0.116	0.0100	н				70-130			
Surrogate: 1,4-Difluorobenzene	0.0562		n	0.0600		93.7	75-125			
Surrogate: 4-Bromofluorobenzene	0.0667		"	0.0600		111	75-125			
LCS Dup (P8A1108-BSD1)				Prepared: 0)1/11/18 A	nalyzed: 01	/18/18			
Benzene	0.100	0.00100	mg/kg wet	0.100		100	70-130	4.88	20	
Toluene	0.101	0.0100	н	0.100		101	70-130	8.53	20	
Ethylbenzenc	0.103	0.00500	н	0.100		103	70-130	6.57	20	
Xylene (p/m)	0.215	0.0200	н				70-130		20	
Xylene (o)	0.108	0.0100	н				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.0548		"	0.0600		91.3	75-125			
Surrogate: 4-Bromofluorobenzene	0.0582		"	0.0600		97.0	75-125			
Matrix Spike (P8A1108-MS1)	Sou	rce: 8A10002	2-11	Prepared: ()]/11/18 A	nalyzed: 0	/18/18			
Benzene	0.133	0.00110	mg/kg dry	0.110	ND	121	80-120			QM-0
Toluene	0.127	0.0110	h	0.110	ND	116	80-120			
Ethylbenzene	0.127	0.00549	н	0.110	ND	116	80-120			
Xylene (p/m)	0.238	0.0220	u		ND		80-120			
Xylene (o)	0.123	0.0110	v		ND		80-120			
Surrogate: 4-Bromofluorobenzene	0.0600		н	0.0659		91.0	75-125			
Surrogate: 1,4-Difluorobenzene	0.0488		u	0.0659		74.0	75-125			S-Ge

Larson & Associates, Inc. Project: Dunkel 7

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Midland TX, 79710 Project Manager: Mark Larson

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oject Number: 17-0201-04

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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 P8A1108 - General Preparation (GC	<u> </u>									
Matrix Spike Dup (P8A1108-MSD1)	Sour	ce: 8A10002	-11	Prepared: 0	01/11/18 A	nalyzed: 01	/18/18			
Benzene	0.130	0.00110	mg/kg dry	0.110	ND	118	80-120	2.51	20	
Toluene	0.142	0.0110	11	0.110	ND	129	80-120	10.6	20	QM-05
Ethylbenzene	0.158	0.00549	н	0.110	ND	144	80-120	21.5	20	QM-05
Xylene (p/m)	0.263	0.0220	н		ND		80-120		20	
Xylene (o)	0.133	0.0110	н		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	0.0622			0.0659		94.3	75-125			

0.0659

Surrogate: 4-Bromofluorobenzene

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Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8A1201 - *** DEFAULT PREP ***			- Janes	20101	resun	MILL	ranns	KI D	3,411111	710105
Blank (P8A1201-BLK1)				Prepared &	Analyzed:	01/12/18				
Chloride	ND	1.00	mg/kg wet							
LCS (P8A1201-BS1)				Prepared &	Analyzed:	01/12/18				
Chloride	404	1.00	mg∕kg wet	400		101	80-120	************************		***************************************
LCS Dup (P8A1201-BSD1)				Prepared &	: Analyzed:	01/12/18				
Chloride	408	1.00	mg/kg wet	400		102	80-120	0.801	20	
Duplicate (P8A1201-DUP1)	Sou	rce: 8A09006	5-02	Prepared &	: Analyzed:	01/12/18				
Chloride	2360		mg/kg dry		2190			7.52	20	
Duplicate (P8A1201-DUP2)	Sou	rce: 8A10001	-04	Prepared &	: Analyzed:	01/12/18				
Chloride	2.18	1.05	mg/kg dry		ND				20	
Matrix Spike (P8A1201-MS1)	Sou	rce: 8A09006	-02	Prepared &	: Analyzed:	01/12/18				
Chloride	4960	27.2	mg/kg dry	2170	2190	128	80-120			QM-0
Batch P8A1204 - *** DEFAULT PREP ***										
Blank (P8A1204-BLK1)				Prepared &	Analyzed:	01/12/18				
Chloride	ND	1.00	mg/kg wet							
LCS (P8A1204-BS1)				Prepared &	: Analyzed;	01/12/18				
Chloride	347	1.00	mg/kg wet	400		86.9	80-120			
LCS Dup (P8A1204-BSD1)				Prenared &	: Analyzed:	01/12/18				
Chloride	412	1.00	mg/kg wet	400	rinary bed.	103	80-120	17.0	20	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8A1204 - *** DEFAULT PRE	P ***									`
Duplicate (P8A1204-DUP1)	Sour	ce: 8A08009	-01	Prepared &	k Analyzed:	01/12/18				
Chloride	9040	26.9	mg/kg dry		8180			9.95	20	* * * * * * * * * * * * * * * * * * * *
Duplicate (P8A1204-DUP2)	Sour	ce: 8A10001	-21	Prepared: (01/12/18 A	nalyzed: 01	/13/18			
Chloride	0.400	1.00	mg/kg dry		ND				20	
Matrix Spike (P8A1204-MS1)	Sour	ce: 8A08009	-01	Prepared &	Analyzed:	01/12/18				
Chloride	12000	26.9	mg/kg dry	2150	8180	176	80-120	•		QM-05
Batch P8A1501 - *** DEFAULT PRE	P ***									
Blank (P8A1501-BLK1)				Prepared &	Analyzed:	01/15/18				
% Moisture	ND	0.1	%	······································						
Duplicate (P8A1501-DUP1)	Sour	e: 8A10001	-27	Prepared &	¿ Analyzed;	01/15/18				
% Moisture	11.0	0.1	%	3	8.0			31.6	20	
Duplicate (P8A1501-DUP2)	Source	ec: 8A10008	-02	Prepared &	Analyzed:	01/15/18				
% Moisture	14.0	0.1	%		15.0			6.90	20	
Duplicate (P8A1501-DUP3)	Source	e: 8A10009	-06	Prepared &	Analyzed:	01/15/18				
% Moisture	11.0	0.1	%		8.0			31.6	20	

Project: Dunkel 7

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Midland TX, 79710

Project Number: 17-0201-04

Project Manager: Mark Larson

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P8A1105 - General Preparation (GC)				u,		~~~			
Blank (P8A1105-BLK1)				Prepared &	Analyzed:	01/11/18				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	n							
>C28-C35	ND	25.0	h							
Surrogate: 1-Chlorooctane	133			130		102	70-130			
Surrogate: o-Terphenyl	69.5		tr	65.0		107	70-130			
LCS (P8A1105-BS1)				Prepared &	: Analyzed:	01/11/18				
C6-C12	1050	25.0	mg∕kg wet	1000		105	75-125			
>C12-C28	1100	25.0	1>	1000		110	75-125			
Surrogate: 1-Chlorooctane	127		<i>H</i>	130		97.4	70-130			
Surrogate: o-Terphenyl	59.7		"	65.0		91.8	70-130			
LCS Dup (P8A1105-B\$D1)				Prepared &	: Analyzed:	01/11/18				
C6-C12	1020	25.0	mg/kg wet	1000		102	75-125	3.31	20	
>C12-C28	1090	25.0	11	1000		109	75-125	1.13	20	
Surrogate: 1-Chlorooctane	124	• • • • • • • • • • • • • • • • • • • •	n	130		95.7	70-130			
Surrogate: o-Terphenyl	59.4		"	65.0		91.3	70-130			
Calibration Blank (P8A1105-CCB1)				Prepared &	Analyzed:	01/11/18				
C6-C12	14.1		mg/kg wet							
>C12-C28	13.3		н							
Surrogate: 1-Chlorooctane	129		·	130		98.9	70-130			
Surrogate: o-Terphenyl	66.5		"	65.0		102	70-130			
Calibration Blank (P8A1105-CCB2)				Prepared: 0)1/11/18 A r	nalyzed: 01	/12/18			
C6-C12	15.3		mg/kg wet				f	***************************************		
>C12-C28	12.2		a							
Surrogate: 1-Chlorooctane	129		"	130		99.4	70-130	•		
Surrogate: o-Terphenyl	67.5		n	65.0		104	70-130			

Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson

P.O. Box 50685 Midland TX, 79710

Total Petroleum Hydroearbons 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 P8A1105 - General Preparation (G	C)									
Calibration Check (P8A1105-CCV1)				Prepared &	k Analyzed:	01/11/18				
C6-C12	514	25.0	mg/kg wet	500		103	85-115			
>C12-C28	556	25.0	н	500		111	85-115			
Surrogate: 1-Chlorooctane	147		<i>u</i>	130		113	70-130			
Surrogate: o-Terphenyl	70.2		"	65.0		108	70-130			
Calibration Check (P8A1105-CCV2)				Prepared: (01/11/18 At	nalyzed: 01	/12/18			
C6-C12	519	25.0	mg/kg wet	500		104	85-115			
C12-C28	554	25.0	41	500		111	85-115			
Surrogate: 1-Chlorooctane	144		n	130		111	70-130			
Surrogate: o-Terphenyl	69.2		и	65.0		106	70-130			
Calibration Check (P8A1105-CCV3)				Prepared: (01/11/18 Ai	nalyzed: 01	/12/18			
C6-C12	527	25.0	mg/kg wet	500		105	85-115			
·C12-C28	562	25.0	0	500		112	85-115			
Surrogate: 1-Chlorooctane	151		и	130		116	70-130		.,	
Surrogate: o-Terphenyl	70.9		n	65.0		109	70-130			
Matrix Spike (P8A1105-MS1)	Sou	rce: 8A10003	i-01	Prepared: ()1/11/18 A	nalyzed: 01	/12/18			
C6-C12	981	26.9	mg/kg dry	1080	18.2	89.5	75-125			
-C12-C28	1060	26.9	"	1080	ND	98.6	75-125			
Surrogate: 1-Chlorooctane	161		п	140		115	70-130			
iarrogate: o-Terphenyl	69.8		"	69.9		99.9	70-130			
Aatrix Spike Dup (P8A1105-MSD1)	Sou	rce: 8A10003	i-01	Prepared: (01/11/18 A	nalyzed: 01	/12/18			
C6-C12	974	26.9	mg/kg dry	1080	18.2	88.9	75-125	0.720	20	
·C12-C28	1090	26.9	n	1080	ND	101	75-125	2.69	20	
iurrogate: 1-Chlorooctane	157		п	140		112	70-130			
Surrogate: o-Terphenyl	64.9		"	69.9		92.8	70-130			

Larson & Associates, Inc.

Project: Dunkel 7

Project Number: 17-0201-04

Midland TX, 79710

Project Manager: Mark Larson

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
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
Dun	Duplicate

	Frank James James 222 V		
Report Approved By:		Date:	1/19/2018

Brent Barron, Laboratory Director/Technical Director

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

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

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

CHAIN-OF-CUSTO CUSTODY SEALS - 🗀 BROKEN KONTACT 🗀 NOT USED FIELD NOTES COLLECTOR: AT & RB LAB WORK ORDER # 8 A 1000 しかます THERM 新 LABORATORY USE ONLY:

RECEIVING TEMP: フシャク KHAND DELIVERED CARRIER SILL# LAI PROJECT #: 17-0201-04 PROJECT LOCATION OR NAME: TURN AROUND TIME NORMAL 🔾 OTHER [] 1 DAY 🗆 2 DAY □ DATE: PO 禁: SISTIANA 507 N. Marienfeld, Ste. 200 Midland, TX 79701 NNPRESERVED PRESERVATION RECEIVED BY: (Signature) RECEIVED BY: (Signature) RECEIVED BY: (Signature) 432-687-0901 ICE □ HOSN □ OSN ^EONH HCI and Containers V Matrix 1/18/18 8:45 DATE/TIME DATE/TIME 20:21 12:06 11:58 1:26 13:24 11:33 13:16 1:07 SL=SLUDGE 21:21 13:19 0:51): 00 12:15 OT=OTHER 13:31 P=PAIN7 14/18 Date A arson & Second S=SOIL W=WATER A=AIR Lab# RELINQUISHED BY: (Signature) RELINQUISHED BY: (Signature) RELINQUISHED BY: (Signature) 4 $\hat{\eta}$ 5 5 2 Granden Data Reported to: TRRP report? TIME ZONE: Time zone/State: () -0 70 Sample I.D. DP-3(0-1) DP-1(1-2) DP-1(0-1) DP4(0-1 P0)5-90 DP-4(0-1 MSE (2-I) 5.6 (H - (C) (2-3 17 7.7 7-7)-d0

CHAIN-OF-CUSTO Раде CUSTODY SEALS - 🗋 BROKEN 🖾 ANTOSED FIELD NOTES COLLECTOR: AT THERM# LABORATORY USE ONLY: 1.4 C LAB WORK ORDER #; RECEIVING TEMP 1 A HAND DELIVERED PROJECT LOCATION OR NAME: Dow KO CL CARRIER BILL# LAI PROJECT #: 17 - (5 201 - (5 4 TURN AROUND TIME DATE: 1/10/18 NORMAL OTHER 🗋 1 DAY [] 2 DAY [] PO #: 507 N. Marienfeld, Ste. 200 Midland, TX 79701 PRESERVATION UNPRESERVED RECEIVED BY: (Signature) RECEIVED BY: (Signature) RECOUNTED BY: (Signature) 432-687-0901 ICE DHOSN D'OS'H ^EONH HON # of Containers Matrix 8:45 1/10/18 G-DATE/TIME DATE/TIME 13.76 14:00 子のの 13:40 13.34 13:37 13:42 3.8 13:59 11:33 11:30 SL=SLUDGE OT=OTHER 1-8-18 132n P=PAINT 1/9/18 19/18 81/8/18 Date A arson & Service Serv S=SO!L W=WATER A=AIR RELINQUISHED BY:(Signature) ¦ qe⊓ RELINOUISHED BY: (Signature) RELINQUISHED BY:(Signature) 3 5 Data Reported to: TIME ZONE: □ Yes ⊠No 70 TRRP report? () 770) Sample I.D. DP-9/0-1 7-3 8-0 (2-3) 2-4 77 01-70 7-90 TOTAL

Orazia O

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



Analytical Report

Prepared for:

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

Project: Dunkel 7

Project Number: 17-0201-04

Location: Dunkel 7

Lab Order Number: 8C29008



NELAP/TCEQ # T104704516-17-8

Report Date: 04/04/18

Project: Dunkel 7

Project. Di

Fax: (432) 687-0456

P.O. Box 50685 Midland TX, 79710

Project Number: 17-0201-04 Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP-10 (5FT)	8C29008-01	Soil	03/29/18 12:10	03-29-2018 16:35
DP-10 (10FT)	8C29008-02	Soil	03/29/18 12:14	03-29-2018 16:35
DP-10 (15FT)	8C29008-03	Soil	03/29/18 12:18	03-29-2018 16:35

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

DP-10 (5FT) 8C29008-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, L	Р,				
General Chemistry Parameters	by EPA / Standard Method	s							
Chloride	89.8	1.08	mg/kg dry	I	P8D0202	04/02/18	04/02/18	EPA 300.0	
% Moisture	7.0	0.1	%	1	P8C2906	03/29/18	04/02/18	ASTM D2216	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

DP-10 (10FT)

8C29008-02 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride							
Chiorne	120	1,08 mg/kg dry	1	P8D0202	04/02/18	04/02/18	EPA 300.0
0/ 3//-1-4					07/02/10	04102110	131 /1 300.0
% Moisture	7.0	0.1 %	1	P8C2906	03/29/18	04/02/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

DP-10 (15FT)

8C29008-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	D			
		1-11111		Diagon	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	60,6	1.04 mg/kg dry	1	P8D0202	04/02/18	04/02/18	EPA 300.0	
% Moisture	4.0	0.1 %	i	P8C2906	03/29/18	04/02/18	ASTM D2216	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8C2906 - *** DEFAULT PREP ***										
Blank (P8C2906-BLK1)				Prepared &	: Analyzed:	03/29/18				
% Moisture	ND	0.1	%							
Duplicate (P8C2906-DUP1)	Sou	rce: 8C28007-	12	Prepared &	: Analyzed:	03/29/18				
% Moisture	5.0	0.1	%		5.0			0.00	20	
Duplicate (P8C2906-DUP2)	Soui	rce: 8C28010-	01	Prepared &	: Analyzed:	03/29/18				
% Moisture	5.0	0.1	%		5.0			0.00	20	
Duplicate (P8C2906-DUP3)	Sour	rce: 8C29004-	16	Prepared &	. Analyzed:	03/29/18				
% Moisture	11.0	0.1	%		11.0			0.00	20	*******
Batch P8D0202 - *** DEFAULT PREP ***										
Blank (P8D0202-BLK1)				Prepared &	Analyzed:	04/02/18				
Chłoride	ND	1.00	mg/kg wet							
LCS (P8D0202-BS1)				Prepared &	Analyzed:	04/02/18				
Chloride	388	1.00	mg/kg wet	400		97.1	80-120			
LCS Dup (P8D0202-BSD1)				Prepared &	Analyzed:	04/02/18				
Chloride	389	1.00	mg/kg wet	400		97.2	80-120	0.129	20	
Duplicate (P8D0202-DUP1)	Sour	ce: 8C26001-	27	Prepared: 0	4/02/18 Ai	natuzed: 04	L/03/18			
Chloride	803		mg/kg dry		966			18.4	20	
Ouplicate (P8D0202-DUP2)	Sour	ce: 8C27003-	08	Prepared: 0	4/02/18 A	nalvzed- 04	L/03/18			
Chloride	8470		mg/kg dry	riopared. o	8470		703/10	0.0208	20	

P.O. Box 50685 Midland TX, 79710 Project: Dunkel 7

Project Number: 17-0201-04 Project Manager: Mark Larson Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control Permian Basin Environmental Lab, L.P.

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

Batch P8D0202 - *** DEFAULT PREP ***

 Matrix Spike (P8D0202-MS1)
 Source: 8C26001-27
 Prepared: 04/02/18 Analyzed: 04/03/18

 Chloride
 1900
 1.12 mg/kg dry
 1120 966 83.5 80-120

 Larson & Associates, Inc.
 Project: Dunkel 7
 Fax: (432) 687-0456

 P.O. Box 50685
 Project Number: 17,0201.04
 17,0201.04

P.O. Box 50685 Project Number: 17-0201-04 Midland TX, 79710 Project Manager: Mark Larson

Notes and Definitions

DET Analyte DETECTED Analyte NOT DETECTED at or above the reporting limit ND NR Not Reported dry Sample results reported on a dry weight basis Relative Percent Difference RPD LCS Laboratory Control Spike MS Matrix Spike Dup Duplicate

	A STANCE		
Report Approved By:		Date:	4/4/2018

Brent Barron, Laboratory Director/Technical Director

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

		The second secon		CHAIN-OF-CINTO
A arson	8	507 N. Marienfeld, Ste. 200	DATE: 3-29-18	PAGE OF OF
Environment Data Reported to:	SSOCIOTES, Inc. Environmental Consultants a Reported to:	Midland, TX 79701 432-687-0901	PO#:LAB PROJECT LOCATION OR NAME: L LAI PROJECT#: 17-0201-04	NAME: DOWNER 7
TRRP report? Tres X No Time Zone:	S=SOIL P=PAINT W=WATER SL=SLUDGE A=AIR OT=OTHER	PRESERVATION ON CITY O	C 300 1 to 1 C 37	
Field Sample I.D. DP-10(SR)	Lab # Date Time Matrix 3-24-15 17:00 9	HOI HOI HOI HOI HOI HOI		50 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
(356)	12.18			Hold Chlosia
PAELINOUISHED BY: (Signature)	DATECTIME	1/2 > RECEIVED BY: (Signature)	TURN AROUND TIME	LABORATORY LISE ONLY, J. A. H. C.F.
RELINOUISHED BY:(Signature)	DATE/TIME	HESETHES BY: (Signature)	NORMAL 1 DAY	RECEIVING TEMP 5,7 5,6 THERM # L
RELINQUISHED BY:(Signature)		RECEIVED BY: (Signature)	2 DAY D OTHER D	CUSTODY SEALS - D BROKEN D INTACT D NOT USED CARRIER BILL#
				LI HAND DELIVERED

Site 4

Guadalcanal State Com 1H

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



Analytical Report

Prepared for:

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

Project: Guadalcanal
Project Number: 17-0201-05
Location:

Lab Order Number: 8A10002



NELAP/TCEQ # T104704516-16-7

Report Date: 01/19/18

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal Project Number: 17-0201-05

Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP1 (0-1)	8A10002-01	Soil	01/09/18 12:57	01-10-2018 09:00
DP1 (1-2)	8A10002-02	Soil	01/09/18 12:59	01-10-2018 09:00
DP1 (2-3)	8A10002-03	Soil	01/09/18 13:01	01-10-2018 09:00
DP1 (3-4)	8A10002-04	Soil	01/09/18 13:03	01-10-2018 09:00
DP2 (0-1)	8A10002-05	Soil	01/09/18 13:06	01-10-2018 09:00
DP2 (1-2)	8A10002-06	Soil	01/09/18 13:07	01-10-2018 09:00
DP2 (2-3)	8A10002-07	Soil	01/09/18 13:10	01-10-2018 09:00
DP2 (3-4)	8A10002-08	Soil	01/09/18 13:11	01-10-2018 09:00
DP3 (0-1)	8A10002-09	Soil	01/09/18 13:32	01-10-2018 09:00
DP3 (1-2)	8A10002-10	Soil	01/09/18 13:34	01-10-2018 09:00
DP4 (0-1)	8A10002-11	Soil	01/09/18 13:37	01-10-2018 09:00

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal Project Number: 17-0201-05

Project Manager: Mark Larson

Fax: (432) 687-0456

DP1 (0-1) 8A10002-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dílution	Batch	Prepared	Analyzed	Method	Notes
	Perr	nian Basin I	Invironmen	tal Lab,	L.P.				
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	ı	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		94.8 %	75-1.	25	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		78.7 %	75-17	?5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EP	A / Standard Method	ls							
Chloride	2.24	1.06	mg/kg dry	1	P8A1204	01/12/18	01/13/18	EPA 300.0	
% Moisture	6.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 80	15M							
C6-C12	ND	26.6	mg/kg dry	ı	P8A1105	01/11/18	01/13/18	TPH 8015M	
>C12-C28	136	26.6	mg/kg dry	1	P8A1105	01/11/18	01/13/18	TPH 8015M	
>C28-C35	58.9	26.6	mg/kg dry	1	P8A1105	01/11/18	01/13/18	TPH 8015M	
Swrogate: 1-Chlorooctane		102 %	70-1.	30	P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: o-Terphenyl		113 %	70-1.	30	P8A1105	01/11/18	01/13/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	194	26.6	mg/kg dry	1	[CALC]	01/11/18	01/13/18	calc	

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal

Project Number: 17-0201-05 Project Manager: Mark Larson Fax: (432) 687-0456

DP1 (1-2) 8A10002-02 (Soil)

				-/					
Analyte	Result	Reporting Limit	Units	Dilution	Baich	Prepared	Analyzed	Method	Notes
Conoral Chamistay Parameter		ian Basin E	nvironmei	ıtal Lab, I	L.P.				
General Chemistry Paramete	rs by EPA / Standard Methods			*******					
Chloride	ND	1.11	mg/kg dry	l	P8A1204	01/12/18	01/13/18	EPA 300.0	
% Moisture	10.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal

Project Number: 17-0201-05 Project Manager: Mark Larson Fax: (432) 687-0456

DP1 (2-3)

8A10002-03 (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	ND	1.10 mg/kg dry	1	P8A1204	01/12/18	01/13/18	EPA 300.0
% Moisture	0.0				01/12/16	01/13/18	EFA 300.0
70 77202544 6	9.0	0.1 %	1	P8A1501	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal

Project Number: 17-0201-05 Project Manager: Mark Larson Fax: (432) 687-0456

DP1 (3-4) 8A10002-04 (Soil)

		Reporting							1
- 1	Analyte Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.10 mg/kg dry	I	P8A1505	01/15/18	01/16/18	EPA 300.0
% Moisture	9.0	0.1 %	1	P8A1501	01/15/18	01/15/18	ASTM D2216

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal Project Number: 17-0201-05

Project Manager: Mark Larson

DP2 (0-1) 8A10002-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Per	nian Basin I	Environment	al Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.00104	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0104	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00521	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0208	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0104	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		111 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		83.8 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	is							
Chloride	ND	1.04	mg/kg dry	1	P8A1505	01/15/18	01/16/18	EPA 300.0	
% Moisture	4.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 t	oy EPA Method 80	15M							
C6-C12	ND	26.0	mg/kg dry	1	P8A1105	01/11/18	01/13/18	TPH 8015M	
>C12-C28	ND	26.0	mg∕kg dry	1	P8A1105	01/11/18	01/13/18	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		128%	70-13	9	P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: o-Terphenyl		142 %	70-13	0	P8A1105	01/11/18	01/13/18	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	01/11/18	01/13/18	calc	

Larson & Associates, Inc. Project: Guadalcanal Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0201-05
Midland TX, 79710 Project Manager: Mark Larson

DP2 (1-2)

8A10002-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	nvironme	ntal Lab, I	L.P.				
General Chemistry Parameter	s by EPA / Standard Methods	5							
Chloride	ND	1.06	mg/kg dry	1	P8A1505	01/15/18	01/16/18	EPA 300.0	
% Moisture	6.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	

Larson & Associates, Inc. Fax: (432) 687-0456 Project: Guadalcanal

P.O. Box 50685 Project Number: 17-0201-05 Midland TX, 79710 Project Manager: Mark Larson

> DP2 (2-3) 8A10002-07 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters b		ian Basin E	nvironmer	ıtal Lab, I	L.P.				
Chloride	2.13	1.05	mg/kg dry	1	P8A1505	01/15/18	01/16/18	EPA 300.0	
% Moisture	5.0	0.1	%		P8A1501			ASTM D2216	

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal

Project Number: 17-0201-05 Project Manager: Mark Larson

DP2 (3-4)

8A10002-08 (Soil)

Austra		Reporting							
Analyte	Result	Límit	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	P8A1505	01/15/18	01/16/18	EPA 300.0
% Moisture	4.0	0.1 %	ı	P8A1501	01/15/18	01/15/18	ASTM D2216

Project: Guadalcanal Project Number: 17-0201-05

P.O. Box 50685 Midland TX, 79710

Project Manager: Mark Larson

DP3 (0-1) 8A10002-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmen	tal Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	ı	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0110	mg/kg dry	ı	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00549	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0220	mg∕kg dry	I	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0110	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		91.5 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		80.3 %	75-12	5	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA	/ Standard Method	ls							
Chloride	ND	1.10	mg/kg dry	1	P8A1505	01/15/18	01/16/18	EPA 300.0	
% Moisture	9.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 80	15M							
C6-C12	ND	27.5	mg/kg dry	1	P8A1105	01/11/18	01/13/18	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P8A1105	01/11/18	01/13/18	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	ì	P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		118%	70-13	0	P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: o-Terphenyl		130 %	70-13	0	P8A1105	01/11/18	01/13/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	01/11/18	01/13/18	cale	

Larson & Associates, Inc. Project: Guadalcanal Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0201-05
Midland TX, 79710 Project Manager: Mark Larson

DP3 (1-2) 8A10002-10 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride EPA 300.0 ND 1.11 mg/kg dry 1 P8A1505 01/15/18 01/16/18 % Moisture 10.0 ASTM D2216 0.1 % 1 P8A1501 01/15/18 01/15/18

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal Project Number: 17-0201-05

Project Manager: Mark Larson

DP4 (0-1) 8A10002-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin I	Environmen	ıtal Lab,	L.P.				
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	í	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0110	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Ethylbenzene	ND	0.00549	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0220	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0110	mg/kg dry	I	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		92.2 %	75-1.	25	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		108 %	75-1.	25	P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EF	A / Standard Method	ls							
Chloride	ND	1.10	ing/kg dry	1	P8A1505	01/15/18	01/16/18	EPA 300.0	
% Moisture	9.0	0.1	%	}	P8A1501	01/15/18	01/15/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	35 by EPA Method 80	15M							
C6-C12	ND	27.5	mg/kg dry	1	P8A1105	01/11/18	01/13/18	TPH 8015M	
>C12-C28	51.7	27.5	mg/kg dry	i	P8A1105	01/11/18	01/13/18	TPH 8015M	
>C28-C35	65.0	27.5	mg/kg dry	1	P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		118%	70-1.	30	P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: o-Terphenyl		130 %	70-1.	30	P8A1105	01/11/18	01/13/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	117	27.5	mg/kg dry	1	[CALC]	01/11/18	01/13/18	calc	

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal

Project Number: 17-0201-05 Project Manager: Mark Larson

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 P8A1108 - General Preparatio	n (GC)							•		
Blank (P8A1108-BLK1)				Prepared; ()1/11/18 A	nalyzed: 01	/18/18			
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	o o							
Ethylbenzene	ND	0.00500	0							
Xylene (p/m)	ND	0.0200	0							
Xylene (o)	ND	0.0100	o							
Surrogate: 1,4-Difluorobenzene	0.0548		n	0.0600		91.3	75-125			
Surrogate: 4-Bromofluorobenzene	0.0571		и	0.0600		95.2	75-125			
LCS (P8A1108-BS1)				Prepared: 0)1/11/18 A:	nalyzed: 01	/18/18			
Benzene	0.105	0.00100	mg/kg wet	0.100		105	70-130			
Toluene	0.110	0.0100	и	0.100		110	70-130			
Ethylbenzene	0.110	0.00500	н	0.100		110	70-130			
Xylene (p/m)	0.220	0.0200	**				70-130			
Xylene (o)	0.116	0.0100	u				70-130			
Surrogate: 4-Bromofluorobenzene	0.0667		и	0.0600		111	75-125			
Surrogate: 1,4-Difluorobenzene	0.0562		н	0.0600		93.7	75-125			
LCS Dup (P8A1108-BSD1)				Prepared: 0	01/11/18 Ai	nalyzed; 01	/18/18			
Benzene	0.100	0.00100	mg⁄kg wet	0.100		100	70-130	4.88	20	
Toluene	0.101	0.0100	11	0.100		101	70-130	8.53	20	
Ethylbenzene	0.103	0.00500	0	0.100		103	70-130	6.57	20	
Xylene (p/m)	0.215	0.0200	11				70-130		20	
Xylene (o)	0.108	0.0100					70-130		20	
Surrogate: 4-Bromofluorobenzene	0.0582		<i>"</i>	0.0600		97.0	75-125			
Surrogate: 1,4-Difluorobenzene	0.0548		"	0.0600		91.3	75-125			
Matrix Spike (P8A1108-MS1)	Sou	rce: 8A10002	-11	Prepared: 0)1/11/18 Aı	nalyzed: 01	/18/18			
Benzene	0.133	0.00110	mg/kg dry	0.110	ND	121	80-120			QM-05
Toluene	0.127	0.0110	41	0.110	ND	116	80-120			
Ethylbenzene	0.127	0.00549	0	0.110	ND	116	80-120			
Xylene (p/m)	0.238	0.0220	а		ND		80-120			
Xylene (o)	0.123	0.0110	a a		ND		80-120			
Surrogate: 1,4-Difluorobenzene	0.0488		<i>u</i>	0.0659		74.0	75-125			S-GC
Surrogate: 4-Bromofluorobenzene	0.0600		n	0.0659		91.0	75-125			

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal

Project Number: 17-0201-05 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 P8A1108 - General Preparation (GC)							***************************************			
Matrix Spike Dup (P8A1108-MSD1)	Sou	rce: 8A10002	-11	Prepared: 0)1/11/18 A	nalyzed: 01	/18/18			
Benzene	0.130	0.00110	mg/kg dry	0.110	ND	118	80-120	2.51	20	
Toluene	0.142	0.0110	н	0.110	ND	129	80-120	10.6	20	QM-
Ethylbenzene	0.158	0.00549		0.110	ND	144	80-120	21.5	20	QM-0
Xylene (p/m)	0.263	0.0220	n		ND		80-120		20	-
Xylene (o)	0.133	0.0110	•		ND		80-120		20	
Surrogate: 4-Bromofluorobenzene	0.0784		и	0.0659		119	75~125			
Surrogate: 1,4-Difluorobenzene	0.0622		,,	0.0659		0.4.3	75-125			

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal

Project Number: 17-0201-05 Project Manager: Mark Larson Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8A1204 - *** DEFAULT PREP ***				***************************************	***************************************					
Blank (P8A1204-BLK1)			***************************************	Prepared &	: Analyzed:	01/12/18			***************************************	
Chloride	ND	1.00	mg/kg wet					***************************************		
LCS (P8A1204-BS1)				Prepared &	Analyzed:	01/12/18				
Chloride	347	1.00	mg/kg wet	400		86.9	80-120		10 To	
LCS Dup (P8A1204-BSDI)				Prepared &	Analyzed;	01/12/18				
Chloride	412	1.00	mg/kg wet	400		103	80-120	17.0	20	
Duplicate (P8A1204-DUP1)	Sour	rce: 8A08009	-01	Prepared &	: Analyzed:	01/12/18				
Chloride	9040		mg/kg dry		8180			9.95	20	
Duplicate (P8A1204-DUP2)	Source: 8A10001-21			Prepared: 0	01/12/18 Ar	ialvzed: 01	/13/18			
Chloride	0.400	1.00	mg/kg dry		ND	,			20	
Matrix Spike (P8A1204-MS1)	Sour	rce: 8A08009	-01	Prepared & Analyzed; 01/12/18						
Chloride	12000	26.9	mg/kg dry	2150	8180	176	80-120			QM-05
Batch P8A1501 - *** DEFAULT PREP ***										
Blank (P8A1501-BLK1)				Prepared &	Analyzed:	01/15/18				
% Moisture	ND	0.1	%			,5,10				
Duplicate (P8A1501-DUP1)	Sour	ce: 8A10001	-27	Prepared &	Analyzed	01/15/18				
% Moisture	11.0	0.1	%		8.0			31.6	20	
Duplicate (P8A1501-DUP2)	Sour	ee: 8A10008	-02	Prepared &	Analyzed	01/15/18				
% Moisture	14.0	0.1	%	- Ilanda Pe	15.0	-1,15,10		6.90	20	

Project: Guadalcanal

P.O. Box 50685 Project Number: 17-0201-05
Midland TX, 79710 Project Manager: Mark Larsor

Fax: (432) 687-0456

Project Manager: Mark Larson

General Chemistry Parameters by EPA / Standard Methods - Quality Control Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Resul		%REC Limits	RPD	RPD Limit	Notes
Batch P8A1501 - *** DEFAULT PREP ***					····					
Duplicate (P8A1501-DUP3)	Sou	rce: 8A10009	-06	Prepared &	k Analyz	ed: 01/15/18				
% Moisture	11.0	0.1	%		8.0	.,,	************	31.6	20	
Batch P8A1505 - *** DEFAULT PREP ***						••••••				
Blank (P8A1505-BLK1)				Prepared: (01/15/18	Analyzed: 0	1/16/18			
Chloride	ND	1.00	mg/kg wet				*****			
LCS (P8A1505-BS1)				Prepared: (01/15/18	Analyzed: 0	1/16/18			
Chloride	411	1.00	mg/kg wet	400		103	80-120			
LCS Dup (P8A1505-BSD1)				Prepared: (01/15/18	Analyzed: 0	1/16/18			
Chloride	406	1.00	mg/kg wet	400		101	80-120	1.25	20	
Duplicate (P8A1505-DUP1)	Sou	rce: 8A10002	-04	Prepared: (01/15/18	Analyzed: 0	1/16/18			
Chloride	ND	1.10	mg/kg dry	F	ND				20	
Duplicate (P8A1505-DUP2)	Sou	rce: 8A10004	-03	Prepared: (01/15/18	Analyzed: 0	1/16/18			
Chloride	250	6.02	mg/kg dry		245			2.24	20	
Matrix Spike (P8A1505-MS1)	Sou	rce: 8A10002	-04	Prepared: (01/15/18	Analyzed: 0	1/16/18			
Chloride	1150		mg/kg dry	1100	ND	105	80-120			

P.O. Box 50685 Midland TX, 79710 Project: Guadalcanal

Project Number: 17-0201-05 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	ŘPD	RPD Limit	Notes
Batch P8A1105 - General Preparation (GC)									
Blank (P8A1105-BLK1)				Prepared &	Analyzed:	01/11/18			***************************************	
C6-C12	ND	25.0	mg/kg wet			0,,,,,,,				
>C12-C28	ND	25.0	н							
>C28-C35	ND	25.0	ti.							
Surrogate: 1-Chlorooctane	/33	·······	a	130		102	70-130			
Surrogate: o-Terphenyl	69.5		n	65.0		107	70-130			
LCS (P8A1105-BS1)				Prepared &	: Analyzed:	01/11/18				
C6-C12	1050	25.0	mg/kg wet	1000		105	75-125			•••••
>C12-C28	1100	25.0	h	1000		110	75-125			
Surrogate: 1-Chlorooctane	127			130		97.4	70-130			
Surrogate: o-Terphenyl	59.7		u	65.0		91.8	70-130			
LCS Dup (P8A1105-BSD1)				Prepared &	Analyzed	01/11/18				
C6-C12	1020	25.0	mg/kg wet	1000		102	75-125	3.31	20	
>C12-C28	1090	25.0		1000		109	75-125	1.13	20	
Surrogate: 1-Chlorooctane	124		<i>n</i>	130		95.7	70-130			
Surrogate: o-Terphenyl	59.4		u	65.0		91.3	70-130			
Calibration Blank (P8A1105-CCB1)				Prepared &	Analyzed:	01/11/18				
C6-C12	14.1		mg/kg wet							
>C12-C28	13.3		н							
Surrogate: 1-Chlorooctane	129		<i>u</i>	130		98.9	70-130			
Surrogate: o-Terphenyl	66.5		u	65.0		102	70-130			
Calibration Blank (P8A1105-CCB2)				Prepared: 0	1/11/18 An	alvzed- 81a	(12/18			
C6-C12	15.3		mg/kg wet					***************************************		
>C12-C28	12.2									
Surrogate: 1-Chlorooctane	129			130		99.4	70-130			
Surrogate: o-Terphenyl	67.5		u.	65.0		104	70-130			

Project: Guadalcanal

P.O. Box 50685

Project Number: 17-0201-05

Midland TX, 79710

Project Manager: Mark Larson

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 P8A1105 - General Preparation (GC)										
Calibration Check (P8A1105-CCV1)				Prepared &	k Analyzed:	01/11/18		· · · · · · · · · · · · · · · · · · ·		
C6-C12	514	25.0	mg/kg wet	500		103	85-115			
>C12-C28	556	25.0	0	500		111	85-115			
Surrogate: 1-Chlorooctane	147		п	130		113	70-130			
Surrogate: o-Terphenyl	70.2		n	65.0		108	70-130			
Calibration Check (P8A1105-CCV2)				Prepared; (01/11/18 Aı	nalyzed: 01	/12/18			
C6-C12	519	25.0	mg/kg wet	500	***************************************	104	85-115	·····		
>C12-C28	554	25.0	11	500		111	85-115			
Surrogate: 1-Chlorooctane	144		н	130		111	70-130			
Surrogate: o-Terphenyl	69.2		"	65.0		106	70-130			
Calibration Check (P8A1105-CCV3)				Prepared: 0	01/11/18 Ar	nalyzed; 01	/12/18			
C6-C12	527	25.0	mg/kg wet	500	*···	105	85-115			************
C12-C28	562	25.0	и	500		112	85-115			
Surrogate: 1-Chlorooctane	151		<i>n</i>	130		116	70-130	**.***.*********		
Surrogate: o-Terphenyl	70.9		н	65.0		109	70-130			
Matrix Spike (P8A1105-MS1)	Sou	rce: 8A10003	-01	Prepared: 0	01/11/18 Ar	nalyzed: 01	/12/18			
C6-C12	981	26.9	mg/kg dry	1080	18.2	89.5	75-125			
·C12-C28	1060	26.9	II.	1080	ND	98.6	75-125			
Surrogate: 1-Chlorooctane	161		<i>H</i>	140		115	70-130			
Surrogate: o-Terphenyl	69.8		"	69.9		99.9	70-130			
Matrix Spike Dup (P8A1105-MSD1)	Sou	rce: 8/110003	-01	Prepared: 0)]/]]/]8 Ar	nalyzed: 01	/12/18			
C6-C12	974	26.9	mg/kg dry	1080	18.2	88.9	75-125	0.720	20	
·C12-C28	1090	26.9	0	1080	ND	101	75-125	2.69	20	
urrogate: 1-Chlorooctane	157		н	140		112	70-130			
urrogate: o-Terphenyl	64.9		**	69.9		92.8	70-130			

Larson & Associates, Inc.

Project: Guadalcanal
Project Number: 17-0201-05
Midland TX, 79710

Project Manager: Mark Larson

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
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

	Control Imparter		
Report Approved By:		Date:	1/19/2018

Brent Barron, Laboratory Director/Technical Director

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

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

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

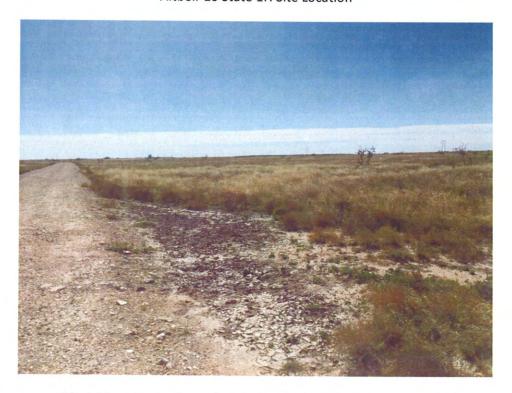
Page 21 of 21																			EB	-	
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			Date	1181/6/		2)		111			<u></u>			<u>-</u>						1/1	1
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Appendix D

Photographs



Altbeir 10 State 1H Site Location



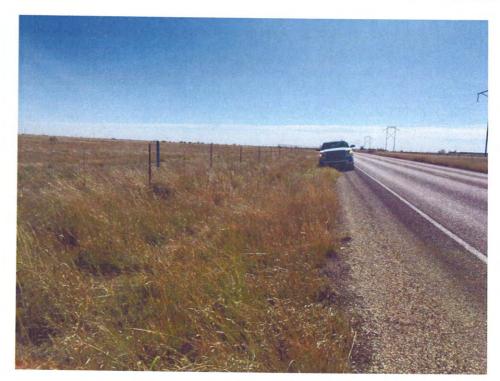
Altbeir Site Prior to Remediation Viewing West, November 1, 2017



Altbeir Site Prior to Remediation Viewing North, November 1, 2017



Altbeir Site Prior to Remediation Viewing East, November 1, 2017



Altbeir Site Prior to Remediation Viewing South, November 1, 2017



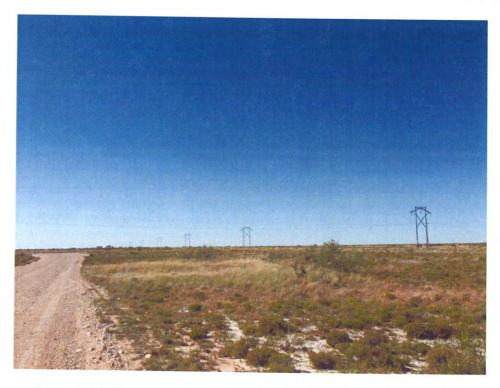
Dopplebock 8 State Com 1H Site Location



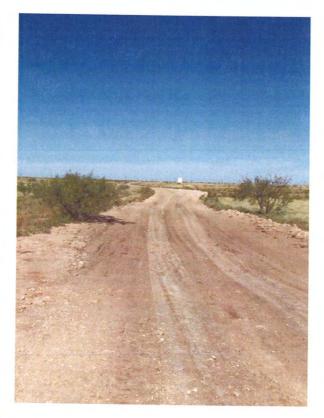
Dopplebock Site Prior to Remediation Viewing North, November 1, 2017



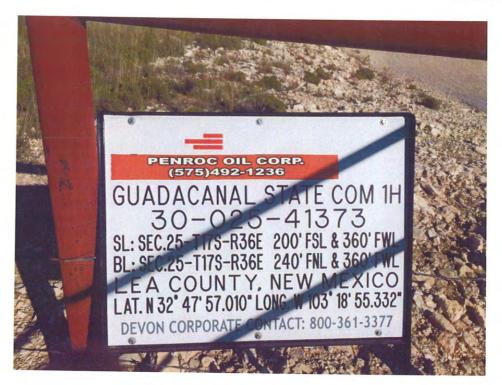
Dopplebock Site Prior to Remediation Viewing Northwest, November 1, 2017



Dopplebock Site Prior to Remediation Viewing South, November 1, 2017



Dunkel 7 State 1H Prior to Remediation viewing North, November 1, 2017



Guadacanal State Com 1H Site Locaation



Guadacanal Site Viewing South, November 6, 2017



Guadacanal Site Prior to Remediation Viewing North, November 6, 2017



Guadacanal Site Prior to Remediation Viewing South, November 6, 2017

Appendix E

Final C-141

District 1 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 Fc, NM 87505

State of New Mexico Energy Minerals and Natural Resources

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back

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

side of form

Form C-141

Revised October 10, 2003

		Rel	ease Notific		n and Co		ction								
					OPERATOR										
Name of Company;					Contact: M.Y. "Merch" Merchant										
Address: 1515 Call			NM 88240		Telephone No.: (575) 492-1236										
Facility Name: Alt	peir 1- State 11	<u> </u>			Facility Type: Oil										
Surface Owner: St	ate		Mineral C	wner:	State	· · · · · · · · · · · · · · · · · · ·	Lease	No.30-025-	42290)					
			LOCA	TIO	ON OF RELEASE										
Unit Letter Section	Township	Range	Feet from the		/South Line	Feet from the	East/West Line County								
N 10	18S	36E	230		South	1980	West		Lea						
		L	atitude: 32° 45	' 24,43	3" Longitud	e: 103° 20' 40.0)8"	<u> </u>							
					OF RELI		, •								
Type of Release: Proc					Volume of Release: Unknown Volume Recovered: None										
Source of Release: Ille	gal dumping on	lease road	is			our of Occurrence		Hour of Dis							
Was Immediate Notice	Cinan?				August 21		August	26, 2015							
was ininediate Notice		Yes [No 🗌 Not Re	quired	If YES, To Whom? OCD - Tomas Oberding and BLM										
By Whom? Ruben Ga		rgy)			Date and Hour 9/1/2015@2:00PM/9/1/2015@1:50PM										
Was a Watercourse Re		V 177			If YES, Volume Impacting the Watercourse.										
		Yes 🛚			5, landowner was out checking his land when he noticed there was discoloration and										
Describe Cause of Pro Penroc acquired the let which were analyzed f mg/Kg), TPH (1,000 n (756 mg/Kg) and was of Penroc requests no furt	olem and Remedises from Devoror BTEX, TPH ang/Kg) and chloidelineated vertical her action for 11	dial Action on 01/01, and chloride deline cally to 600 RP-3979.	Taken.* Devon Taken.	securitified by	n lease operate ial C-141 date y was called o y OCD of IRF e 114 all samp Chloride exc	or and advised hir d 9/2/2015). Out to location and a 3979. LAI persites were below the bedded delineation	n of the illegal du d is investigation onnel collected so the RRAL for benza	mping. Ther the situation (bil samples frame (10 mg/)	(from ir om each	nitial C-141). h location TEX (50					
Describe Area Affected	and Cleanup A	ction Tak	en.*												
		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·											
I hereby certify that the regulations all operator public health or the en- should their operations or the environment. In federal, state, or local le	s are required to fronment. The have failed to a addition, NMO	report and acceptance dequately CD accept	d/or file certain re e of a C-141 repor investigate and re	lease no t by the mediate	otifications and NMOCD ma contamination	d perform correct rked as "Final Re n that pose a thre	tive actions for re port" does not re at to ground wate	leases which ieve the oper	may en ator of ter how	danger liability					
Signature: LC	de m	de C		OIL CONSERVATION DIVISION											
Printed Name: M.Y. "M	1erch" Merchan	t		<i>F</i>	Approved by I	District Superviso	r:								
Title: President					Approval Date	1	Expiration Date:								
E-mail Address: mymer	ch@penrocoil.c	om			Conditions of A	Approval:		Attached							

Date: 3/31/2018

Phone: (575) 492-1236