

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
1515 Calle Sur, Suite 174
Hobbs, New Mexico 88240

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



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



Ashton H. Thielke
Staff Geologist

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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: 10

- 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 Doppiebock 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 (Doppiebock 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.

Tables

Table 1

1RP-3979

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

Page 3 of 3

Site Number	Site Name	Location	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:												
10501000												
#4	Guadalupe State COM 1H	DP-1	5	3/29/2018	In-Situ	--	--	--	--	--	--	89.8
			10	3/29/2018	In-Situ	--	--	--	--	120		
			15	3/29/2018	In-Situ	--	--	--	--	60.6		
			0 - 1	1/9/2018	In-Situ	<0.00109	<0.05002	<26.9	<26.9	<26.9	559	
		DP-2	0 - 1	1/9/2018	In-Situ	<0.00106	<0.04888	<26.6	136	58.9	194.9	2.29
			1 - 2	1/9/2018	In-Situ	--	--	--	--	--	--	<1.11
			2 - 3	1/9/2018	In-Situ	--	--	--	--	--	--	<1.10
			3 - 4	1/9/2018	In-Situ	--	--	--	--	--	--	<1.10
		DP-3	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	--	--	--	--	--	--	<1.06
2 - 3	1/9/2018		In-Situ	--	--	--	--	--	--	2.13		
3 - 4	1/9/2018		In-Situ	--	--	--	--	--	--	<1.04		
SB-4	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	--	--	--	--	--	--	<1.11		
			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

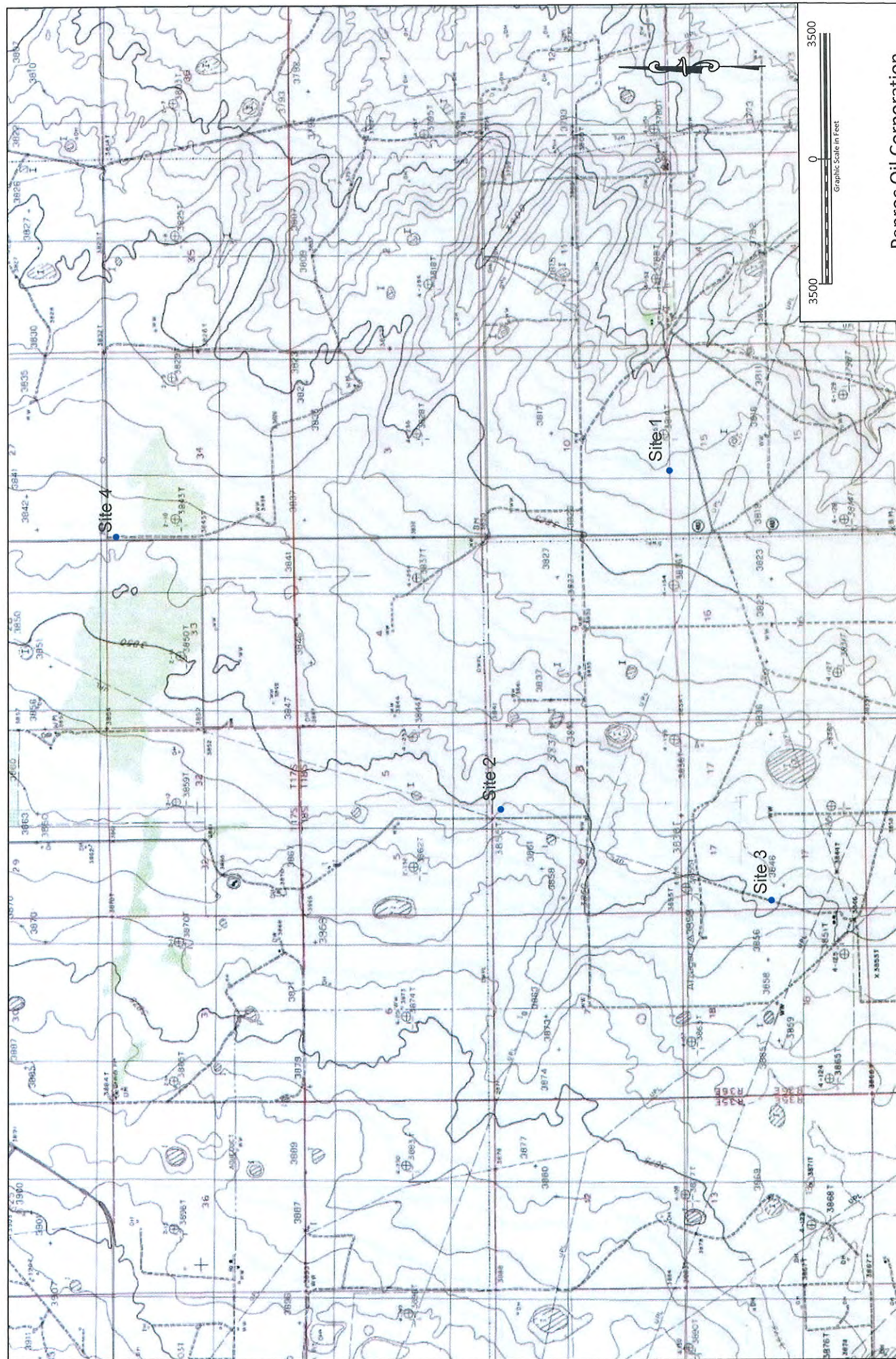
Depth in feet below ground surface (bgs)

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

--: sample not analyzed

Bold and highlighted denotes concentration exceeds RRAL

Figures



Penroc Oil Corporation
Lea County, New Mexico



Legend ● - Site Location

Site 1	32° 45' 24.43"N 103° 20' 40.08"W	Site 2	32° 46' 06.36"N 103° 22' 35.33"W	Site 3	32° 44' 51.76"N 103° 23' 04.24"W	Site 4	32° 47' 51.96"N 103° 21' 03.11"W
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Figure 1 - Topographic Map



100 0 100
Graphic Scale in Feet

Penroc Oil Corporation
Altbeir 10 State #1H
Unit N (SE 1/4 of SW 1/4)
Sec. 10, T. 18 S., R. 36 E.
Lea County, New Mexico
32° 45' 24.43"N
103° 20' 40.08"W

Arson & Associates, Inc.
Environmental Consultants

Legend

DP-3 - Proposed Sample Location

- Spill Area

Figure 2a - Aerial Map



Figure 2b - Aerial Map



Figure 2 - Aerial Map



Legend

- DP-3 ● - Sample Location
- - Spill Area



Graphic Scale in Feet

Penroc Oil Corporation

Guadalcanal State Com #1H

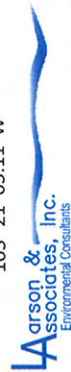
Unit D (NW 1/4 of NW 1/4)

Sec. 34, T. 17 S., R. 36 E.

Lea County, New Mexico

32° 47' 51.96"N

103° 21' 03.11"W



Environmental Consultants

Figure 2d - Aerial Map

Appendix A

Initial C-141 and Documentation

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

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

State of New Mexico
Energy Minerals and Natural Resources

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

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production	Contact Rudy Zuniga
Address 6488 Seven Rivers Hwy Artesia, NM 88220	Telephone No. 575-390-5435
Facility Name Altbeir 10 State 1H	Facility Type Oil

Surface Owner State	Mineral Owner State	API No. 30-025-42290
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LOCATION OF RELEASE

Unit Letter N	Section 10	Township 18S	Range 36E	Feet from the 230	North/South Line South	Feet from the 1980	East/West Line West	County Lea
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Latitude: N 32°76'85.22"

Longitude: W 103°34'45.64"

NATURE OF RELEASE

Type of Release Spill Produced Water	Volume of Release Unknown	Volume Recovered None
Source of Release Illegal dumping on lease roads	Date and Hour of Occurrence August 21 or 22, 2015	Date and Hour of Discovery August 26, 7:00 AM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? OCD Thomas Oberding BLM	
By Whom? Ruben Garcia	Date and Hour September 1, 2015 @ 2:00 PM September 1, 2015 @ 1:50 PM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

On September 1, 2015 Land owner was out checking his land when he noticed there was discoloration and tire tracks on his land. He went to the nearest location and notified Devon lease operator and advised him of the illegal dumping. There was an unknown amount of produced water that had been dumped on the pasture.

Describe Area Affected and Cleanup Action Taken.*

Devon Security was called out to location and is investigating the situation.

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

Signature: *Corina Moya*

Printed Name: Corina Moya

Title: Field Admin Support

E-mail Address: corina.moya@dv.com

Date: 9.2.2015

Phone: 575.746.5559

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: *Janet Keyes*

Approval Date: 11/12/2015

Expiration Date: 01/12/2016

Conditions of Approval:
Discrete site samples required. Delineate and
remediate per NMOCD guidelines.

Attached ☐
IRP 3979

* Attach Additional Sheets If Necessary

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Devon Energy Production	Contact	Rudy Zuniga
Address	6488 Seven Rivers Hwy Artesia, NM 88220	Telephone No.	575-390-5435
Facility Name	Dopplebock 8 State Com 1H	Facility Type	Oil

Surface Owner	State	Mineral Owner	State	API No.	30-025-41694
---------------	-------	---------------	-------	---------	--------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	8	18S	36E	200	North	1980	East	Lea

Latitude: N 32°76'87.75"

Longitude: W 103°37'45.81"

NATURE OF RELEASE

Type of Release Spill	Produced Water	Volume of Release	unknown	Volume Recovered	none
Source of Release	Illegal dumping on lease roads	Date and Hour of Occurrence	August 21 or 22, 2015	Date and Hour of Discovery	August 26, 7:00 AM
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	OCD Thomas Oberding BLM		
By Whom?	Ruben Garcia	Date and Hour	September 1, 2015 @ 2:00 PM September 1, 2015 @ 1:50 PM		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, Volume Impacting the Watercourse			

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

On September 1, 2015 Land owner was out checking his land when he noticed there was discoloration and tire tracks on his land. He went to the nearest location and notified Devon lease operator and advised him of the illegal dumping. There was an unknown amount of produced water that had been dumped on the pasture.

Describe Area Affected and Cleanup Action Taken.*

Devon Security was called out to location and is investigating the situation.

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

Signature: <i>Corina Moya</i>	OIL CONSERVATION DIVISION		
Printed Name: Corina Moya			
Title: Field Admin Support	Approved by Environmental Specialist:		
E-mail Address: corina.moya@dvn.com	Approval Date:	Expiration Date:	
Date: 9.2.2015 Phone: 575.746.5559	Conditions of Approval:		Attached <input type="checkbox"/>

* Attach Additional Sheets If Necessary

District I
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State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Devon Energy Production	Contact	Rudy Zuniga
Address	6488 Seven Rivers Hwy Artesia, NM 88220	Telephone No.	575-390-5435
Facility Name	Dunkel 7 State 1H	Facility Type	oil
Surface Owner State	Mineral Owner State	API No. 30-025-41693	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
4	7	18S	36E	200	South	865	West	Lea

Latitude: N 32°76'84.12"

Longitude: W 103°40'01.27"

NATURE OF RELEASE

Type of Release Spill Produced Water	Volume of Release Unknown	Volume Recovered none
Source of Release Illegal Dumping on lease roads	Date and Hour of Occurrence August 21 or 22, 2015	Date and Hour of Discovery August 26, 2015
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? OCD Thomas Oberding BLM	
By Whom? Ruben Garcia	Date and Hour September 1, 2015 @ 2:00 PM September 1, 2015 @ 1:50 PM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.* On September 1, 2015 Land owner was out checking his land when he noticed there was discoloration and tire tracks on his land. He went to the nearest location and notified Devon lease operator and advised him of the illegal dumping. There was an unknown amount of produced water that had been dumped on the pasture.		
Describe Area Affected and Cleanup Action Taken.* Devon Security was called out to location and is investigating the situation.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		
Signature: <i>Corina Moya</i>	OIL CONSERVATION DIVISION	
Printed Name: Corina Moya	Approved by Environmental Specialist:	
Title: Field Admin Support	Approval Date:	Expiration Date:
E-mail Address: corina.moya@dvn.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 9.2.2015 Phone: 575.746.5559		

* Attach Additional Sheets If Necessary

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Devon Energy Production	Contact	Rudy Zuniga
Address	6488 Seven Rivers Hwy Artesia, NM 88220	Telephone No.	575-390-5435
Facility Name	Guadalupe State Com 1H	Facility Type	Oil

Surface Owner	State	Mineral Owner	State	API No.	30-025-41373
---------------	-------	---------------	-------	---------	--------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	25	17S	36E	100	South	360	West	Lea

Latitude: N 32° 8' 13" 52"

Longitude: W 103° 31' 65.44"

NATURE OF RELEASE

Type of Release Spill	Produced Water	Volume of Release	Unknown	Volume Recovered	None
Source of Release	Illegal dumping on lease roads	Date and Hour of Occurrence	August 21 or 22, 2015	Date and Hour of Discovery	August 26, 7:00 AM
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	OCD Thomas Oberding BLM		
By Whom?	Ruben Garcia	Date and Hour	September 1, 2015 @ 2:00 PM September 1, 2015 @ 1:50 PM		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse			

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

On September 1, 2015 Land owner was out checking his land when he noticed there was discoloration and tire tracks on his land. He went to the nearest location and notified Devon lease operator and advised him of the illegal dumping. There was an unknown amount of produced water that had been dumped on the pasture.

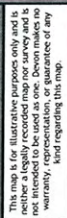
Describe Area Affected and Cleanup Action Taken.*


Devon Security was called out to location and is investigating the situation.

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

Signature: <i>Corina Moya</i>	OIL CONSERVATION DIVISION		
Printed Name: Corina Moya	Approved by Environmental Specialist:		
Title: Field Admin Support	Approval Date:	Expiration Date:	
E-mail Address: corina.moya@dvn.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 9.2.2015	Phone: 575.746.5559		

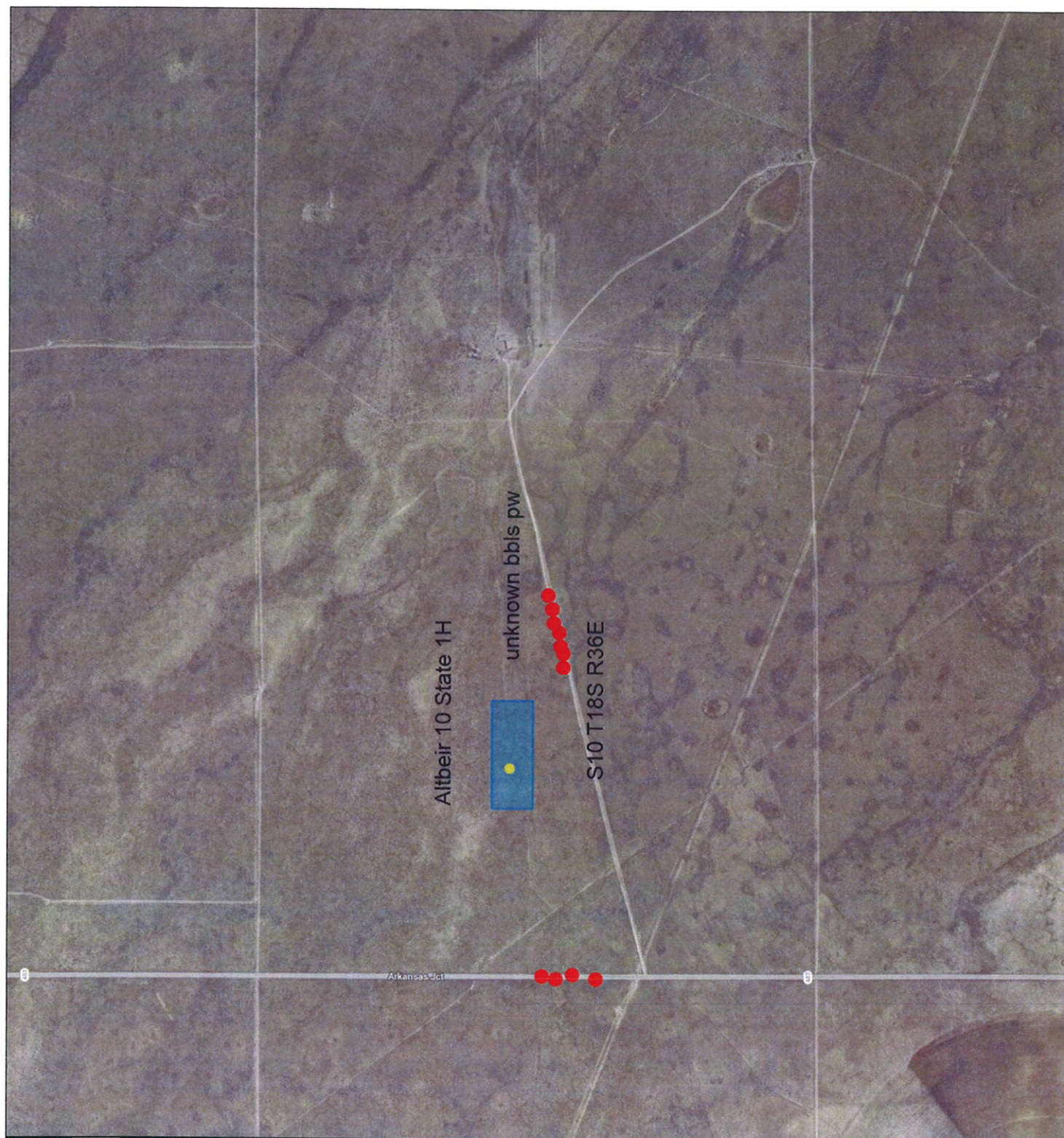
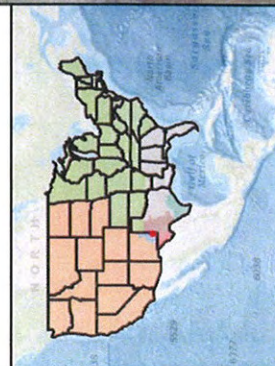
* Attach Additional Sheets If Necessary

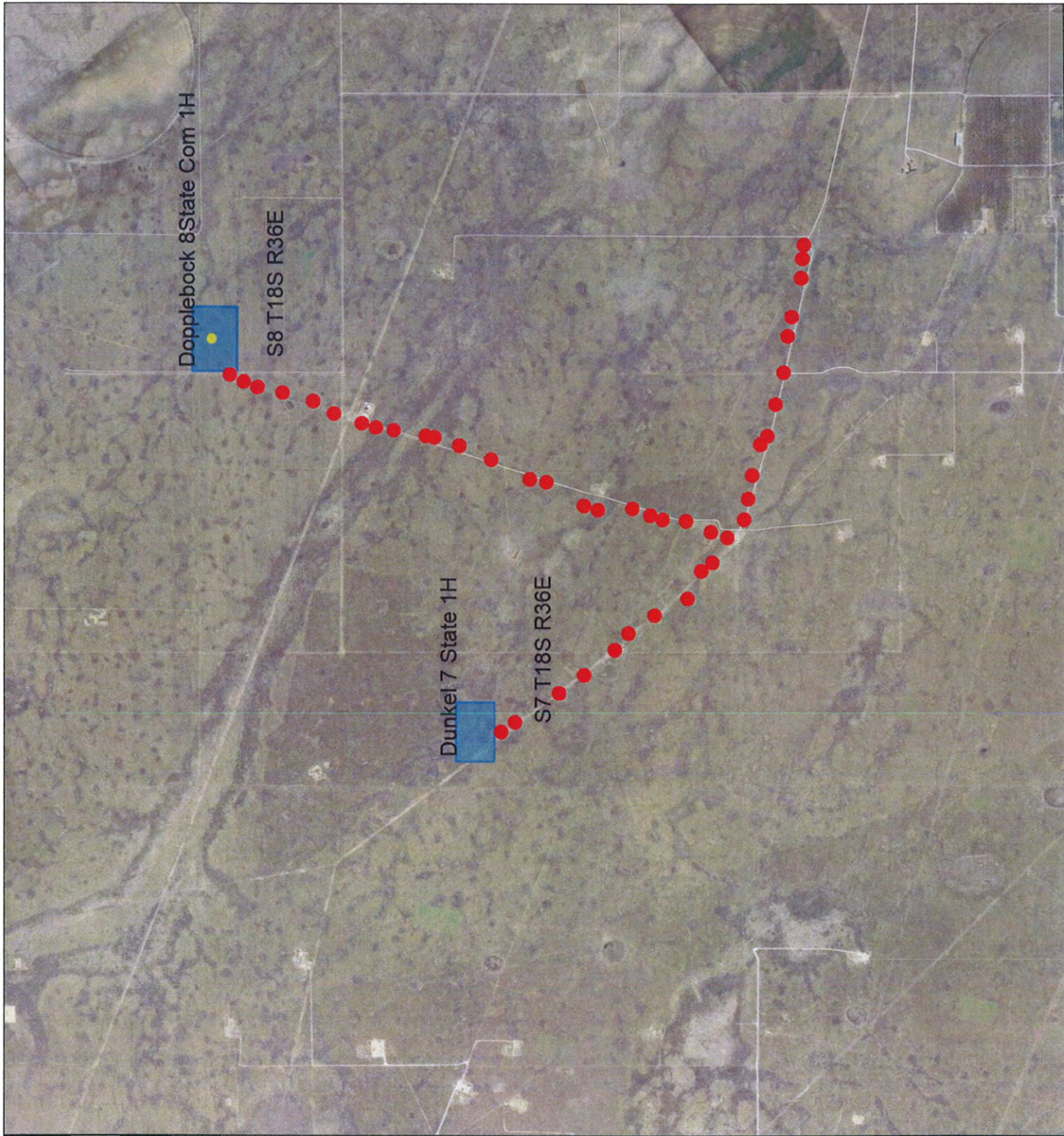




 : 1984_Web_Mercator_Auxiliary_Sphere
 Prepared by:
 Map is current as of: 10-Sep-2015

Prepared by:
Map is current as of: 10-Sep-2015

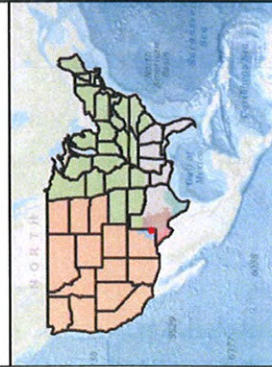




This map is for illustrative purposes only and is not intended to be used as a legal document. It is not intended to be used as a legal document. It is not intended to be used as a legal document.



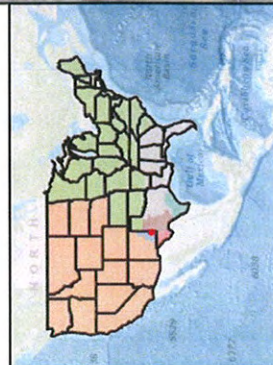
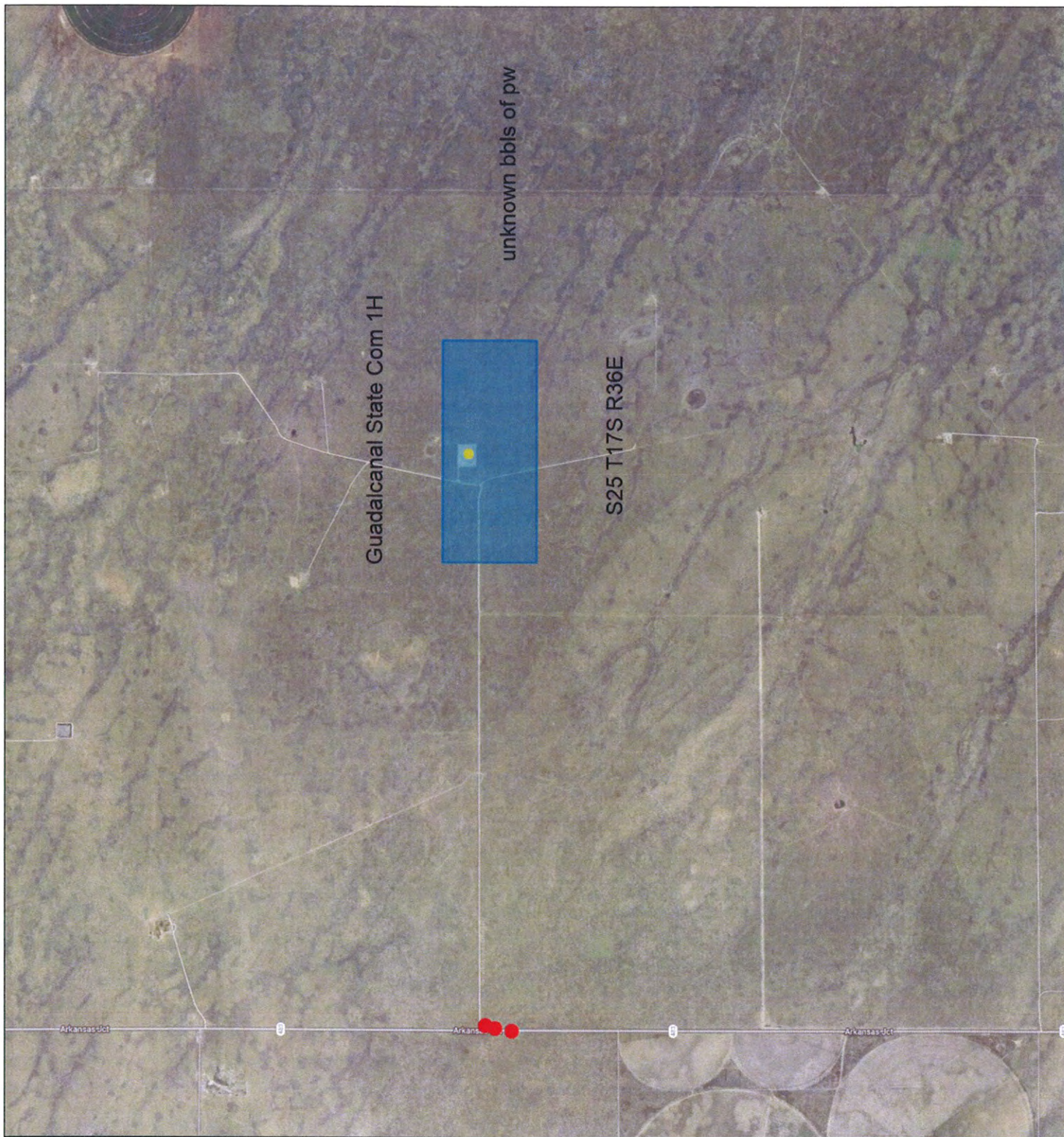
WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by:
Map is current as of: 10-Sep-2015



This map is for illustrative purposes only and is not intended to be used as a legal document. It is not intended to be used as a legal document. It is not intended to be used as a legal document.



WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by:
Map is current as of: 10-Sep-2015





















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 Guadalcanal.

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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CONFIDENTIALITY NOTICE - This e-mail transmission, including all documents, files, or previous e-mail messages attached hereto, may contain confidential and/or legally privileged information. If you are not the intended recipient, or a person responsible for delivering it to the intended recipient, you are hereby notified that you must not read this transmission and that any disclosure, copying, printing, distribution, or use of any of the information contained in and/or attached to this transmission is STRICTLY PROHIBITED. If you have received this transmission in error, please immediately notify the sender and delete the original transmission and its attachments without reading or saving in any manner. Thank you.

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

Amber,

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/45aec3f-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/45aec3f-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

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

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

Fax: (432) 687-0456

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

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

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

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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 %	75-125		P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-125		P8A1203	01/12/18	01/12/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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 8015M

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	1	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	

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

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

Fax: (432) 687-0456

DP-1 (1-2)
8A11002-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

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

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

Fax: (432) 687-0456

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

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

General Chemistry Parameters by EPA / Standard Methods

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	

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

Project: Altbeir
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
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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	7.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	

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

Project: Altbeir
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
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.04	mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0	
% Moisture	4.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	

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

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

Fax: (432) 687-0456

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

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

Organics by GC

Benzene	ND	0.00109	mg/kg dry	1	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	1	P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		114 %	75-125		P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		92.7 %	75-125		P8A1203	01/12/18	01/12/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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 8015M

C6-C12	ND	27.2	mg/kg dry	1	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 %	70-130		P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		107 %	70-130		P8A1502	01/12/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	01/12/18	01/12/18	calc	

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

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

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

Larson & Associates, Inc.
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)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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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DP-2 (4-6)

8A11002-10 (Soil)

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

General Chemistry Parameters by EPA / Standard Methods

Chloride	7.68	1.15	mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0	
% Moisture	13.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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 %	75-125		P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		91.0 %	75-125		P8A1203	01/12/18	01/12/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.15	mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0	
% Moisture	13.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

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: 1-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	calc	

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DP-3 (1-2)
8A11002-12 (Soil)

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

General Chemistry Parameters by EPA / Standard Methods

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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DP-3 (2-3)
8A11002-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	7.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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 %	75-125		P8A1203	01/12/18	01/12/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		102 %	75-125		P8A1203	01/12/18	01/12/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.15	mg/kg dry	1	P8A1609	01/16/18	01/17/18	EPA 300.0	
% Moisture	13.0	0.1	%	1	P8A1506	01/15/18	01/15/18	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

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: 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	calc	

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DP-4 (1-2)

8A11002-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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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DP-5 (0-1)
8A11002-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-125		P8A1203	01/12/18	01/13/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		122 %	75-125		P8A1203	01/12/18	01/13/18	EPA 8021B	

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	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.6	mg/kg dry	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	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	
Surrogate: 1-Chlorooctane		109 %	70-130		P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		121 %	70-130		P8A1502	01/12/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	01/12/18	01/12/18	calc	

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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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DP-5 (2-3)
8A11002-18 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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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DP-5 (3-4)
8A11002-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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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DP-6 (0-1)
8A11002-20 (Soil)

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

Organics by GC

Benzene	ND	0.00108	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Toluene	ND	0.00215	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P8A1203	01/12/18	01/13/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		99.1 %	75-125		P8A1203	01/12/18	01/13/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		119 %	75-125		P8A1203	01/12/18	01/13/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

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	1	P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: 1-Chlorooctane		116 %	70-130		P8A1502	01/12/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		128 %	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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DP-6 (1-2)
8A11002-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P8A1203 - * DEFAULT PREP *****

Blank (P8A1203-BLK1)

Prepared & Analyzed: 01/12/18

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0561		"	0.0600		93.5	75-125			
Surrogate: 4-Bromofluorobenzene	0.0694		"	0.0600		116	75-125			

LCS (P8A1203-BS1)

Prepared & Analyzed: 01/12/18

Benzene	0.106	0.00100	mg/kg wet	0.100		106	70-130			
Toluene	0.111	0.00200	"	0.100		111	70-130			
Ethylbenzene	0.111	0.00100	"	0.100		111	70-130			
Xylene (p/m)	0.210	0.00200	"				70-130			
Xylene (o)	0.114	0.00100	"				70-130			
Surrogate: 1,4-Difluorobenzene	0.0388		"	0.0600		98.0	75-125			
Surrogate: 4-Bromofluorobenzene	0.0644		"	0.0600		107	75-125			

LCS Dup (P8A1203-BSD1)

Prepared & Analyzed: 01/12/18

Benzene	0.0986	0.00100	mg/kg wet	0.100		98.6	70-130	7.12	20	
Toluene	0.105	0.00200	"	0.100		105	70-130	5.45	20	
Ethylbenzene	0.109	0.00100	"	0.100		109	70-130	1.96	20	
Xylene (p/m)	0.196	0.00200	"				70-130		20	
Xylene (o)	0.110	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.0638		"	0.0600		106	75-125			
Surrogate: 4-Bromofluorobenzene	0.0635		"	0.0600		106	75-125			

Calibration Blank (P8A1203-CCB1)

Prepared & Analyzed: 01/12/18

Benzene	0.580		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.0556		"	0.0600		92.6	75-125			
Surrogate: 4-Bromofluorobenzene	0.0586		"	0.0600		97.6	75-125			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P8A1203 - * DEFAULT PREP *****

Calibration Blank (P8A1203-CCB2)

Prepared & Analyzed: 01/12/18

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.0561		"	0.0600		93.6	75-125			
Surrogate: 4-Bromofluorobenzene	0.0659		"	0.0600		110	75-125			

Calibration Check (P8A1203-CCV1)

Prepared & Analyzed: 01/12/18

Benzene	0.107	0.00100	mg/kg wet	0.100		107	80-120			
Toluene	0.118	0.00200	"	0.100		118	80-120			
Ethylbenzene	0.105	0.00100	"	0.100		105	80-120			
Xylene (p/m)	0.232	0.00200	"	0.200		116	80-120			
Xylene (o)	0.119	0.00100	"	0.100		119	80-120			
Surrogate: 4-Bromofluorobenzene	0.0687		"	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	"	0.100		107	80-120			
Ethylbenzene	0.108	0.00100	"	0.100		108	80-120			
Xylene (p/m)	0.222	0.00200	"	0.200		111	80-120			
Xylene (o)	0.120	0.00100	"	0.100		120	80-120			
Surrogate: 1,4-Difluorobenzene	0.0648		"	0.0600		108	75-125			
Surrogate: 4-Bromofluorobenzene	0.0744		"	0.0600		124	75-125			

Calibration Check (P8A1203-CCV3)

Prepared: 01/12/18 Analyzed: 01/13/18

Benzene	0.110	0.00100	mg/kg wet	0.100		110	80-120			
Toluene	0.113	0.00200	"	0.100		113	80-120			
Ethylbenzene	0.117	0.00100	"	0.100		117	80-120			
Xylene (p/m)	0.239	0.00200	"	0.200		120	80-120			
Xylene (o)	0.119	0.00100	"	0.100		119	80-120			
Surrogate: 1,4-Difluorobenzene	0.0624		"	0.0600		104	75-125			
Surrogate: 4-Bromofluorobenzene	0.0736		"	0.0600		123	75-125			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P8A1203 - * DEFAULT PREP *****

Matrix Spike (P8A1203-MS1)		Source: 8A11002-11		Prepared: 01/12/18		Analyzed: 01/13/18				
Benzene	0.0969	0.00115	mg/kg dry	0.115	ND	84.3	80-120			
Toluene	0.0882	0.00230	"	0.115	ND	76.7	80-120			QM-07
Ethylbenzene	0.0860	0.00115	"	0.115	ND	74.9	80-120			QM-07
Xylene (p/m)	0.144	0.00230	"		ND		80-120			
Xylene (o)	0.0703	0.00115	"		ND		80-120			
Surrogate: 1,4-Difluorobenzene	0.0814		"	0.0690		118	75-125			
Surrogate: 4-Bromofluorobenzene	0.0867		"	0.0690		126	75-125			S-GC
Matrix Spike Dup (P8A1203-MSD1)		Source: 8A11002-11		Prepared: 01/12/18		Analyzed: 01/13/18				
Benzene	0.0960	0.00115	mg/kg dry	0.115	ND	83.5	80-120	0.930	20	
Toluene	0.0877	0.00230	"	0.115	ND	76.3	80-120	0.484	20	QM-07
Ethylbenzene	0.0902	0.00115	"	0.115	ND	78.5	80-120	4.73	20	QM-07
Xylene (p/m)	0.152	0.00230	"		ND		80-120		20	
Xylene (o)	0.0686	0.00115	"		ND		80-120		20	
Surrogate: 4-Bromofluorobenzene	0.0869		"	0.0690		126	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0831		"	0.0690		120	75-125			

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

Project: Altbeir
Project Number: 17-0201-02
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
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Batch P8A1506 - * DEFAULT PREP *****

Blank (P8A1506-BLK1)		Prepared & Analyzed: 01/15/18								
% Moisture	ND	0.1	%							
Duplicate (P8A1506-DUP1)		Source: 8A11002-08		Prepared & Analyzed: 01/15/18						
% Moisture	7.0	0.1	%		9.0			25.0	20	
Duplicate (P8A1506-DUP2)		Source: 8A12005-14		Prepared & Analyzed: 01/15/18						
% Moisture	11.0	0.1	%		11.0			0.00	20	
Duplicate (P8A1506-DUP3)		Source: 8A12007-01		Prepared & Analyzed: 01/15/18						
% Moisture	8.0	0.1	%		4.0			66.7	20	
Duplicate (P8A1506-DUP4)		Source: 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							
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)		Source: 8A15009-01		Prepared & Analyzed: 01/15/18						
Chloride	9.98	1.08	mg/kg dry		17.1			52.3	20	

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

Project: Altbeir
Project Number: 17-0201-02
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
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Batch P8A1512 - * DEFAULT PREP *****

Duplicate (P8A1512-DUP2)

Source: 8A11001-04

Prepared & Analyzed: 01/15/18

Chloride	504	1.10	mg/kg dry		498			1.16	20	
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Matrix Spike (P8A1512-MS1)

Source: 8A15009-01

Prepared & Analyzed: 01/15/18

Chloride	1160	1.08	mg/kg dry	1080	17.1	106	80-120			
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Batch P8A1609 - * DEFAULT PREP *****

Blank (P8A1609-BLK1)

Prepared: 01/16/18 Analyzed: 01/17/18

Chloride	ND	1.00	mg/kg wet							
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LCS (P8A1609-BS1)

Prepared: 01/16/18 Analyzed: 01/17/18

Chloride	391	1.00	mg/kg wet	400		97.8	80-120			
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LCS Dup (P8A1609-BSD1)

Prepared: 01/16/18 Analyzed: 01/17/18

Chloride	395	1.00	mg/kg wet	400		98.7	80-120	0.865	20	
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Duplicate (P8A1609-DUP1)

Source: 8A11001-17

Prepared: 01/16/18 Analyzed: 01/17/18

Chloride	103	5.26	mg/kg dry		117			12.5	20	
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Duplicate (P8A1609-DUP2)

Source: 8A11002-10

Prepared: 01/16/18 Analyzed: 01/17/18

Chloride	8.64	1.15	mg/kg dry		7.68			11.8	20	
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Matrix Spike (P8A1609-MS1)

Source: 8A11001-17

Prepared: 01/16/18 Analyzed: 01/17/18

Chloride	1230	5.26	mg/kg dry	1050	117	106	80-120			
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Batch P8A1705 - * DEFAULT PREP *****

Blank (P8A1705-BLK1)

Prepared: 01/17/18 Analyzed: 01/18/18

Chloride	ND	1.00	mg/kg wet							
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Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Altbeir
Project Number: 17-0201-02
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 Limits	RPD	RPD Limit	Notes
Batch P8A1705 - *** DEFAULT PREP ***									
LCS (P8A1705-BS1)				Prepared: 01/17/18 Analyzed: 01/18/18					
Chloride	424	1.00	mg/kg wet	400	106	80-120			
LCS Dup (P8A1705-BSD1)				Prepared: 01/17/18 Analyzed: 01/18/18					
Chloride	421	1.00	mg/kg wet	400	105	80-120	0.786	20	
Duplicate (P8A1705-DUP1)				Source: 8A17002-11		Prepared: 01/17/18 Analyzed: 01/18/18			
Chloride	9.16	1.04	mg/kg dry		11.7		24.6	20	
Duplicate (P8A1705-DUP2)				Source: 8A12002-06		Prepared: 01/17/18 Analyzed: 01/18/18			
Chloride	4800	59.5	mg/kg dry		4720		1.63	20	
Matrix Spike (P8A1705-MS1)				Source: 8A17002-11		Prepared: 01/17/18 Analyzed: 01/18/18			
Chloride	1100	1.04	mg/kg dry	1040	11.7	105	80-120		

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

Project: Altbeir
Project Number: 17-0201-02
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 Limits	RPD	RPD Limit	Notes
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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	"						
>C28-C35	ND	25.0	"						
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	"	1000		112	75-125		
Surrogate: 1-Chlorooctane	173		"	150		115	70-130		
Surrogate: o-Terphenyl	78.0		"	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	"	1000		109	75-125	2.36	20
Surrogate: 1-Chlorooctane	172		"	150		114	70-130		
Surrogate: o-Terphenyl	78.3		"	75.0		104	70-130		



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

Data Reported to:

TRRP report?
☐ Yes ☒ No

TIME ZONE:
Time zone/State:
MSE

Field
Sample I.D.

S=SOIL
W=WATER
A=AIR

P=PAINT
SL=SLUDGE
OT=OTHER

SA 1002

Lab #	Date	Time	Matrix	# of Containers	HCl	HNO ₃	H ₂ O ₂ □ NaOH □	ICE	UNPRESERVED
01	11/10/18	10:59	S	1					
02		11:01							
03		11:03							
04		11:05							
05		11:06							
06		11:07							
07		11:08							
08		11:10							
09		11:12							
10		11:14							
11		11:18							
12		11:20							
13		11:23							
14		11:47							
15		11:48							

TOTAL

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

TURN AROUND TIME

LABORATORY USE ONLY: ANAL 61

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

TURN AROUND TIME

LABORATORY USE ONLY: ANAL 61

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

TURN AROUND TIME

LABORATORY USE ONLY: ANAL 61

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

TURN AROUND TIME

LABORATORY USE ONLY: ANAL 61

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

TURN AROUND TIME

LABORATORY USE ONLY: ANAL 61

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

TURN AROUND TIME

LABORATORY USE ONLY: ANAL 61

CHAIN-OF-CUSTODY

PAGE 1 OF

DATE: 1/11/18

LAB WORK ORDER #:

PO #:

PROJECT LOCATION OR NAME: Altbeir

COLLECTOR: AT + RB

LAI PROJECT #: 17-0201-02

Data Reported to:

TRRP report?
☐ Yes ☒ No

TIME ZONE:
Time zone/State:
MSE

Field
Sample I.D.

S=SOIL
W=WATER
A=AIR

P=PAINT
SL=SLUDGE
OT=OTHER

8A11002

Lab #

Date

Time

Matrix

of Containers

PRESERVATION

HNO₃

H₂SO₄ NaOH

ICE

UNPRESERVED

ANALYSES
BTEX MTBE
TRP 418.1
GASOLINE MOD 8015
DIESEL MOD 8015
VOC 820
SVOC 8270
PAH 8270
8081 PESTICIDES
TCF - METALS (RCRA)
TCF - PEST
LEAD - TOTAL
FIC TOTAL
TDS TOX
PH
EXPLOSIVES
CHLORIDE
AMMONIUM
ALKALINITY

FIELD NOTES

TOTAL

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

TURN AROUND TIME

NORMAL

1 DAY

2 DAY

OTHER

LABORATORY USE ONLY:

RECEIVING TEMP: 0.2

TERMINAL #

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED

CARRIER BILL #

HAND DELIVERED

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

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

Project: Doppelbock 8
Project Number: 17-0201-01
Project Manager: Mark Larson

Fax: (432) 687-0456

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

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

Project: Doppelbock 8
Project Number: 17-0201-01
Project Manager: Mark Larson

Fax: (432) 687-0456

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

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

Organics by GC

Benzene	ND	0.00106	mg/kg dry	1	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		79.6 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		69.7 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	S-GC

General Chemistry Parameters by EPA / Standard Methods

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 8015M

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 %	70-130		P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		108 %	70-130		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	

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.

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

Larson & Associates, Inc.
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
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Permian Basin Environmental 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 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		69.3 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	S-GC

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.04	mg/kg dry	1	P8A1006	01/10/18	01/11/18	EPA 300.0	
% Moisture	4.0	0.1	%	1	P8A0501	01/05/18	01/05/18	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

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-Chlorooctane		105 %	70-130		P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		109 %	70-130		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	

Permian Basin Environmental Lab, L.P.

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

Larson & Associates, Inc.
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
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Permian Basin Environmental 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 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		76.5 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	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 8015M

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 %	70-130		P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		104 %	70-130		P8A0506	01/05/18	01/06/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	01/05/18	01/06/18	calc	

Permian Basin Environmental Lab, L.P.

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Larson & Associates, Inc.
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 1-2
8A04013-04 (Soil)

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

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.08	mg/kg dry	1	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	

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Midland TX, 79710

Project: Doppelbock 8
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
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

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	

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

Fax: (432) 687-0456

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

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

General Chemistry Parameters by EPA / Standard Methods

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	

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

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

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

General Chemistry Parameters by EPA / Standard Methods

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	

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

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

General Chemistry Parameters by EPA / Standard Methods

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	

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

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, 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		69.9 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	S-GC
Surrogate: 4-Bromofluorobenzene		79.5 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	
General Chemistry Parameters by EPA / Standard Methods									
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-C35 by EPA Method 8015M									
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 %	70-130		P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		105 %	70-130		P8A0506	01/05/18	01/06/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	164	26.3	mg/kg dry	1	[CALC]	01/05/18	01/06/18	calc	

Permian Basin Environmental Lab, L.P.

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

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.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)	ND	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 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		122 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	8.34	1.08	mg/kg dry	1	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 8015M

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 %	70-130		P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		103 %	70-130		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	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		89.9 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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-C35 by EPA Method 8015M

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 %	70-130		P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		93.4 %	70-130		P8A0506	01/05/18	01/06/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	184	26.3	mg/kg dry	1	[CALC]	01/05/18	01/06/18	calc	

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

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

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

Organics by GC

Benzene	ND	0.00106	mg/kg dry	1	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 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		75.4 %	75-125		P8A0904	01/05/18	01/08/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

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 %	70-130		P8A0506	01/05/18	01/06/18	TPH 8015M	
Surrogate: o-Terphenyl		97.8 %	70-130		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	

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Project: Doppelbock 8
Project Number: 17-0201-01
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P8A0904 - General Preparation (GC)

Blank (P8A0904-BLK1)		Prepared & Analyzed: 01/05/18								
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.0631		"	0.0600		105	75-125			
Surrogate: 1,4-Difluorobenzene	0.0585		"	0.0600		97.4	75-125			

LCS (P8A0904-BS1)		Prepared & Analyzed: 01/05/18								
Benzene	0.0857	0.00100	mg/kg wet	0.100		85.7	70-130			
Toluene	0.0902	0.00200	"	0.100		90.2	70-130			
Ethylbenzene	0.110	0.00100	"	0.100		110	70-130			
Xylene (p/m)	0.194	0.00200	"				70-130			
Xylene (o)	0.0998	0.00100	"				70-130			
Surrogate: 1,4-Difluorobenzene	0.0449		"	0.0600		74.8	75-125			S-GC
Surrogate: 4-Bromofluorobenzene	0.0499		"	0.0600		83.2	75-125			

LCS Dup (P8A0904-BSD1)		Prepared & Analyzed: 01/05/18								
Benzene	0.0871	0.00100	mg/kg wet	0.100		87.1	70-130	1.67	20	
Toluene	0.0910	0.00200	"	0.100		91.0	70-130	0.916	20	
Ethylbenzene	0.108	0.00100	"	0.100		108	70-130	1.57	20	
Xylene (p/m)	0.190	0.00200	"				70-130		20	
Xylene (o)	0.0980	0.00100	"				70-130		20	
Surrogate: 4-Bromofluorobenzene	0.0495		"	0.0600		82.6	75-125			
Surrogate: 1,4-Difluorobenzene	0.0483		"	0.0600		80.5	75-125			

Matrix Spike (P8A0904-MS1)		Source: 8A05005-12		Prepared: 01/05/18 Analyzed: 01/08/18						
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	"		ND		80-120			
Xylene (o)	0.0627	0.00103	"		ND		80-120			
Surrogate: 4-Bromofluorobenzene	0.0936		"	0.0619		151	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0692		"	0.0619		112	75-125			

Permian Basin Environmental Lab, L.P.

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Project: Doppelbock 8
Project Number: 17-0201-01
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
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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) Source: 8A04002-03 Prepared & Analyzed: 01/05/18

% Moisture 14.0 0.1 % 15.0 6.90 20

Duplicate (P8A0501-DUP2) Source: 8A04003-14 Prepared & Analyzed: 01/05/18

% Moisture 9.0 0.1 % 8.0 11.8 20

Duplicate (P8A0501-DUP3) Source: 8A04008-05 Prepared & Analyzed: 01/05/18

% Moisture 13.0 0.1 % 14.0 7.41 20

Duplicate (P8A0501-DUP4) Source: 8A04009-03 Prepared & Analyzed: 01/05/18

% Moisture 15.0 0.1 % 15.0 0.00 20

Duplicate (P8A0501-DUP5) Source: 8A04015-04 Prepared & Analyzed: 01/05/18

% Moisture 7.0 0.1 % 7.0 0.00 20

Duplicate (P8A0501-DUP6) Source: 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 Analyzed: 01/10/18

Chloride ND 1.00 mg/kg wet

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Project Number: 17-0201-01
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General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P8A0911 - *** DEFAULT PREP ***

LCS (P8A0911-BS1)				Prepared: 01/09/18 Analyzed: 01/10/18						
Chloride	396	1.00	mg/kg wet	400		99.1	80-120			
LCS Dup (P8A0911-BSD1)				Prepared: 01/09/18 Analyzed: 01/10/18						
Chloride	404	1.00	mg/kg wet	400		101	80-120	1.89	20	
Duplicate (P8A0911-DUP1)				Source: 8A09001-01		Prepared: 01/09/18 Analyzed: 01/10/18				
Chloride	1160	10.1	mg/kg dry		1150			1.22	20	
Duplicate (P8A0911-DUP2)				Source: 8A04008-23		Prepared: 01/09/18 Analyzed: 01/10/18				
Chloride	5210	28.7	mg/kg dry		5200			0.166	20	
Matrix Spike (P8A0911-MS1)				Source: 8A09001-01		Prepared: 01/09/18 Analyzed: 01/10/18				
Chloride	2250	10.1	mg/kg dry	1010	1150	109	80-120			

Batch P8A1006 - *** DEFAULT PREP ***

Blank (P8A1006-BLK1)				Prepared: 01/10/18 Analyzed: 01/11/18						
Chloride	ND	1.00	mg/kg wet							
LCS (P8A1006-BS1)				Prepared: 01/10/18 Analyzed: 01/11/18						
Chloride	407	1.00	mg/kg wet	400		102	80-120			
LCS Dup (P8A1006-BSD1)				Prepared: 01/10/18 Analyzed: 01/11/18						
Chloride	397	1.00	mg/kg wet	400		99.2	80-120	2.66	20	
Duplicate (P8A1006-DUP1)				Source: 8A04013-02		Prepared: 01/10/18 Analyzed: 01/11/18				
Chloride	ND	1.04	mg/kg dry		ND				20	

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Project Number: 17-0201-01
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General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P8A1006 - *** DEFAULT PREP ***

Duplicate (P8A1006-DUP2)

Source: 8A04013-12

Prepared: 01/10/18 Analyzed: 01/11/18

Chloride	ND	1.06	mg/kg dry	ND				20	
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Matrix Spike (P8A1006-MS1)

Source: 8A04013-02

Prepared: 01/10/18 Analyzed: 01/11/18

Chloride	1120	1.04	mg/kg dry	1040	ND	107	80-120		
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Project: Doppelbock 8
Project Number: 17-0201-01
Project Manager: Mark Larson

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch P8A0506 - General Preparation (GC)

Blank (P8A0506-BLK1)

Prepared: 01/05/18 Analyzed: 01/06/18

C6-C12	ND	25.0	mg/kg wet						
>C12-C28	ND	25.0	"						
>C28-C35	ND	25.0	"						
Surrogate: 1-Chlorooctane	116		"	100		116	70-130		
Surrogate: o-Terphenyl	61.6		"	50.0		123	70-130		

LCS (P8A0506-BS1)

Prepared: 01/05/18 Analyzed: 01/06/18

C6-C12	1180	25.0	mg/kg wet	1000		118	75-125		
>C12-C28	1170	25.0	"	1000		117	75-125		
Surrogate: 1-Chlorooctane	129		"	100		129	70-130		
Surrogate: o-Terphenyl	61.5		"	50.0		123	70-130		

LCS Dup (P8A0506-BSD1)

Prepared: 01/05/18 Analyzed: 01/06/18

C6-C12	1130	25.0	mg/kg wet	1000		113	75-125	3.71	20
>C12-C28	1250	25.0	"	1000		125	75-125	6.04	20
Surrogate: 1-Chlorooctane	125		"	100		125	70-130		
Surrogate: o-Terphenyl	67.7		"	50.0		135	70-130		S-GC

Calibration Blank (P8A0506-CCB1)

Prepared: 01/05/18 Analyzed: 01/06/18

C6-C12	20.7		mg/kg wet						
>C12-C28	20.5		"						
Surrogate: 1-Chlorooctane	114		"	100		114	70-130		
Surrogate: o-Terphenyl	60.9		"	50.0		122	70-130		

Calibration Blank (P8A0506-CCB2)

Prepared: 01/05/18 Analyzed: 01/06/18

C6-C12	24.3		mg/kg wet						
>C12-C28	16.4		"						
Surrogate: 1-Chlorooctane	116		"	100		116	70-130		
Surrogate: o-Terphenyl	62.5		"	50.0		125	70-130		

Permian Basin Environmental Lab, L.P.

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

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

Project: Doppelbock 8
Project Number: 17-0201-01
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8A0506 - General Preparation (GC)										
Calibration Check (P8A0506-CCV1)				Prepared: 01/05/18 Analyzed: 01/06/18						
C6-C12	534	25.0	mg/kg wet	500		107	85-115			
>C12-C28	519	25.0	"	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 Analyzed: 01/06/18						
C6-C12	543	25.0	mg/kg wet	500		109	85-115			
>C12-C28	524	25.0	"	500		105	85-115			
Surrogate: 1-Chlorooctane	120		"	100		120	70-130			
Surrogate: o-Terphenyl	56.3		"	50.0		113	70-130			
Calibration Check (P8A0506-CCV3)				Prepared: 01/05/18 Analyzed: 01/06/18						
C6-C12	553	25.0	mg/kg wet	500		111	85-115			
>C12-C28	549	25.0	"	500		110	85-115			
Surrogate: 1-Chlorooctane	121		"	100		121	70-130			
Surrogate: o-Terphenyl	56.4		"	50.0		113	70-130			
Matrix Spike (P8A0506-MS1)				Source: 8A04010-01		Prepared: 01/05/18 Analyzed: 01/06/18				
C6-C12	1760	130	mg/kg dry	1040	1170	56.3	75-125			QM-05
>C12-C28	5120	130	"	1040	5570	NR	75-125			QM-05
Surrogate: 1-Chlorooctane	107		"	104		103	70-130			
Surrogate: o-Terphenyl	53.0		"	52.1		102	70-130			
Matrix Spike Dup (P8A0506-MSD1)				Source: 8A04010-01		Prepared: 01/05/18 Analyzed: 01/06/18				
C6-C12	1760	130	mg/kg dry	1040	1170	56.6	75-125	0.629	20	QM-05
>C12-C28	5320	130	"	1040	5570	NR	75-125	NR	20	QM-05
Surrogate: 1-Chlorooctane	114		"	104		109	70-130			
Surrogate: o-Terphenyl	59.8		"	52.1		115	70-130			

Permian Basin Environmental Lab, L.P.

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

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

Project: Doppelbock 8
Project Number: 17-0201-01
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Report Approved By:



Date: 1/11/2018

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.

Permian Basin Environmental Lab, L.P.

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Page 21 of 22

Arson & Associates, Inc. Environmental Consultants

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

Data Reported to:

DATE: 1-4-2018 PAGE 1 OF 1
PO #: LAB WORK ORDER # 81A04013
PROJECT LOCATION OR NAME: Doppelback 8
LAI PROJECT #: 17-0201-01 COLLECTOR: AT #28

CHAIN-OF-CUSTODY

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION				ANALYSES	FIELD NOTES	
						HCl	HNO ₃	H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/>	ICE			UNPRESERVED
DP-1 0-1	1	1/2/18	11:41	S	1					X		
DP-2 0-1	2	1/2/18	11:56							X		
DP-5 0-1	3	1/2/18	12:30							X		
1-2	4	1/2/18	12:36							X		
2-3	5	1/2/18	12:39							X		
3-4	6	1/2/18	12:42							X		
4-6	7	1/3/18	11:15							X		
6-8	8	1/3/18	11:20							X		
DP-3 6-1	9	1/3/18	11:35							X		
DP-4 6-6"	10	1/3/18	10:50							X		
DP-6 0-1	11	1/3/18	10:15							X		
DP-7 0-1	12	1/3/18	10:25							X		
TOTAL												

RELINQUISHED BY: (Signature) <i>[Signature]</i>	DATE/TIME 1/4/18 0900	RECEIVED BY: (Signature) <i>[Signature]</i>	DATE/TIME 1/4/18 0900
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

TURN AROUND TIME NORMAL <input checked="" type="checkbox"/> 1 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> OTHER <input type="checkbox"/>	LABORATORY USE ONLY: RECEIVING TEMP: <u>2.0</u> THERM #: <u>LI</u> CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED <input type="checkbox"/> CARRIER BILL # <input type="checkbox"/> HAND DELIVERED
--	--

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: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP1 (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

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

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		84.8 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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 by EPA Method 8015M

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 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		123 %	70-130		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	

DRAFT REPORT

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

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

DP1 (1-2)
8A10001-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

DRAFT REPORT

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Larson & Associates, Inc.
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	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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	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: 1,4-Difluorobenzene		90.2 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		103 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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 by EPA Method 8015M

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 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		120 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	01/11/18	01/11/18	calc	

DRAFT REPORT

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

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.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 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		92.3 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

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 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		118 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	01/11/18	01/11/18	calc	

DRAFT REPORT

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

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		86.3 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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 by EPA Method 8015M

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 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		120 %	70-130		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	calc	

DRAFT REPORT

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

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0233	mg/kg dry	1	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 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		97.0 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	6.01	1.16	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	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	29.1	mg/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 dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		118 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		122 %	70-130		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	

DRAFT REPORT

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

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

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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)

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

General Chemistry Parameters by EPA / Standard Methods

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	

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Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

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DP5 (3-4)
8A10001-09 (Soil)

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

General Chemistry Parameters 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	P8A1501	01/15/18	01/15/18	ASTM D2216	

DRAFT REPORT

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Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

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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)

Analytic	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.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	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	

DRAFT REPORT

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Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00118	mg/kg dry	1	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 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		102 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
General Chemistry Parameters by EPA / Standard Methods									
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 by EPA Method 8015M									
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	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		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	calc	

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Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	

DRAFT REPORT

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Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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	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	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		90.0 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		106 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	485	1.10	mg/kg dry	1	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	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

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 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		116 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	01/11/18	01/11/18	calc	

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Larson & Associates, Inc.
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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
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Permian Basin Environmental Lab, 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	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: 4-Bromofluorobenzene		101 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		95.0 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	479	1.18	mg/kg dry	1	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 8015M

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	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: 1-Chlorooctane		123 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		126 %	70-130		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	calc	

DRAFT REPORT

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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
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

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 by EPA Method 8015M

C6-C12	ND	28.1	mg/kg dry	1	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 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		124 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	01/11/18	01/11/18	calc	

DRAFT REPORT

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Midland TX, 79710

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

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

General Chemistry Parameters by EPA / Standard Methods

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 by EPA Method 8015M

C6-C12	ND	27.8	mg/kg dry	1	P8A1105	01/11/18	01/11/18	TPH 8015M	
>C12-C28	ND	27.8	mg/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 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Surrogate: o-Terphenyl		125 %	70-130		P8A1105	01/11/18	01/11/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	01/11/18	01/11/18	calc	

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Midland TX, 79710

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

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

General Chemistry Parameters by EPA / Standard Methods

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 by EPA Method 8015M

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	1	P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: 1-Chlorooctane		125 %	70-130		P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		128 %	70-130		P8A1105	01/11/18	01/12/18	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	32.9	mg/kg dry	1	[CALC]	01/11/18	01/12/18	calc	

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Midland TX, 79710

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

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

General Chemistry Parameters 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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Midland TX, 79710

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

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

Organics by GC

Benzene	ND	0.00100	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Toluene	ND	0.0100	mg/kg dry	1	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	P8A1108	01/11/18	01/18/18	EPA 8021B	
Xylene (o)	ND	0.0100	mg/kg dry	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		94.8 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		79.7 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.00	mg/kg dry	1	P8A1204	01/12/18	01/13/18	EPA 300.0	
% Moisture	ND	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.0	mg/kg dry	1	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 %	70-130		P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		134 %	70-130		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	

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Midland TX, 79710

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

DP8 (1-2)
8A10001-22 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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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DP8 (2-3)
8A10001-23 (Soil)

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

General Chemistry Parameters by EPA / Standard Methods

Chloride	26.8	1.16	mg/kg dry	1	P8A1204	01/12/18	01/13/18	EPA 300.0	
% Moisture	14.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	

DRAFT REPORT

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Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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: 1,4-Difluorobenzene		98.0 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		106 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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 by EPA Method 8015M

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 %	70-130		P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		129 %	70-130		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	calc	

DRAFT REPORT

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Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		78.8 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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 8015M

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 %	70-130		P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		126 %	70-130		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	

DRAFT REPORT

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Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		86.8 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	1050	5.43	mg/kg dry	5	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 8015M

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 %	70-130		P8A1105	01/11/18	01/12/18	TPH 8015M	
Surrogate: o-Terphenyl		128 %	70-130		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: Dunkel 7
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Project Manager: Mark Larson

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

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

General Chemistry Parameters by EPA / Standard Methods

Chloride	77.1	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	

DRAFT REPORT

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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
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Batch P8A1108 - General Preparation (GC)

Blank (P8A1108-BLK1)				Prepared: 01/11/18 Analyzed: 01/18/18						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 1,4-Difluorobenzene	0.0548		"	0.0600		91.3	75-125			
Surrogate: 4-Bromofluorobenzene	0.0571		"	0.0600		95.2	75-125			

LCS (P8A1108-BS1)				Prepared: 01/11/18 Analyzed: 01/18/18						
Benzene	0.105	0.00100	mg/kg wet	0.100		105	70-130			
Toluene	0.110	0.0100	"	0.100		110	70-130			
Ethylbenzene	0.110	0.00500	"	0.100		110	70-130			
Xylene (p/m)	0.220	0.0200	"				70-130			
Xylene (o)	0.116	0.0100	"				70-130			
Surrogate: 1,4-Difluorobenzene	0.0562		"	0.0600		93.7	75-125			
Surrogate: 4-Bromofluorobenzene	0.0667		"	0.0600		111	75-125			

LCS Dup (P8A1108-BSD1)				Prepared: 01/11/18 Analyzed: 01/18/18						
Benzene	0.100	0.00100	mg/kg wet	0.100		100	70-130	4.88	20	
Toluene	0.101	0.0100	"	0.100		101	70-130	8.53	20	
Ethylbenzene	0.103	0.00500	"	0.100		103	70-130	6.57	20	
Xylene (p/m)	0.215	0.0200	"				70-130		20	
Xylene (o)	0.108	0.0100	"				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)				Source: 8A10002-11		Prepared: 01/11/18 Analyzed: 01/18/18				
Benzene	0.133	0.00110	mg/kg dry	0.110	ND	121	80-120			QM-05
Toluene	0.127	0.0110	"	0.110	ND	116	80-120			
Ethylbenzene	0.127	0.00549	"	0.110	ND	116	80-120			
Xylene (p/m)	0.238	0.0220	"		ND		80-120			
Xylene (o)	0.123	0.0110	"		ND		80-120			
Surrogate: 4-Bromofluorobenzene	0.0600		"	0.0659		91.0	75-125			
Surrogate: 1,4-Difluorobenzene	0.0488		"	0.0659		74.0	75-125			S-GC

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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
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Batch P8A1108 - General Preparation (GC)

Matrix Spike Dup (P8A1108-MSD1)		Source: 8A10002-11		Prepared: 01/11/18 Analyzed: 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	"	0.110	ND	129	80-120	10.6	20	QM-05
Ethylbenzene	0.158	0.00549	"	0.110	ND	144	80-120	21.5	20	QM-05
Xylene (p/m)	0.263	0.0220	"		ND		80-120		20	
Xylene (o)	0.133	0.0110	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	0.0622		"	0.0659		94.3	75-125			
Surrogate: 4-Bromofluorobenzene	0.0784		"	0.0659		119	75-125			

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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
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Batch P8A1201 - * DEFAULT PREP *****

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)

Source: 8A09006-02

Prepared & Analyzed: 01/12/18

Chloride 2360 27.2 mg/kg dry 2190 7.52 20

Duplicate (P8A1201-DUP2)

Source: 8A10001-04

Prepared & Analyzed: 01/12/18

Chloride 2.18 1.05 mg/kg dry ND 20

Matrix Spike (P8A1201-MS1)

Source: 8A09006-02

Prepared & Analyzed: 01/12/18

Chloride 4960 27.2 mg/kg dry 2170 2190 128 80-120 QM-05

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)

Prepared & Analyzed: 01/12/18

Chloride 412 1.00 mg/kg wet 400 103 80-120 17.0 20

DRAFT REPORT

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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
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Batch P8A1204 - * DEFAULT PREP *****

Duplicate (P8A1204-DUP1)		Source: 8A08009-01		Prepared & Analyzed: 01/12/18						
Chloride	9040	26.9	mg/kg dry		8180			9.95	20	
Duplicate (P8A1204-DUP2)		Source: 8A10001-21		Prepared: 01/12/18 Analyzed: 01/13/18						
Chloride	0.400	1.00	mg/kg dry		ND				20	
Matrix Spike (P8A1204-MS1)		Source: 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	%							
Duplicate (P8A1501-DUP1)		Source: 8A10001-27		Prepared & Analyzed: 01/15/18						
% Moisture	11.0	0.1	%		8.0			31.6	20	
Duplicate (P8A1501-DUP2)		Source: 8A10008-02		Prepared & Analyzed: 01/15/18						
% Moisture	14.0	0.1	%		15.0			6.90	20	
Duplicate (P8A1501-DUP3)		Source: 8A10009-06		Prepared & Analyzed: 01/15/18						
% Moisture	11.0	0.1	%		8.0			31.6	20	

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Midland TX, 79710

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P8A1105 - General Preparation (GC)

Blank (P8A1105-BLK1)

Prepared & Analyzed: 01/11/18

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	133		"	130		102	70-130			
Surrogate: o-Terphenyl	69.5		"	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	"	1000		110	75-125			
Surrogate: 1-Chlorooctane	127		"	130		97.4	70-130			
Surrogate: o-Terphenyl	59.7		"	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		"	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		"							
Surrogate: 1-Chlorooctane	129		"	130		98.9	70-130			
Surrogate: o-Terphenyl	66.5		"	65.0		102	70-130			

Calibration Blank (P8A1105-CCB2)

Prepared: 01/11/18 Analyzed: 01/12/18

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		"	65.0		104	70-130			

DRAFT REPORT

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Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P8A1105 - General Preparation (GC)

Calibration Check (P8A1105-CCV1)

Prepared & Analyzed: 01/11/18

C6-C12	514	25.0	mg/kg wet	500		103	85-115			
>C12-C28	556	25.0	"	500		111	85-115			
Surrogate: 1-Chlorooctane	147		"	130		113	70-130			
Surrogate: o-Terphenyl	70.2		"	65.0		108	70-130			

Calibration Check (P8A1105-CCV2)

Prepared: 01/11/18 Analyzed: 01/12/18

C6-C12	519	25.0	mg/kg wet	500		104	85-115			
>C12-C28	554	25.0	"	500		111	85-115			
Surrogate: 1-Chlorooctane	144		"	130		111	70-130			
Surrogate: o-Terphenyl	69.2		"	65.0		106	70-130			

Calibration Check (P8A1105-CCV3)

Prepared: 01/11/18 Analyzed: 01/12/18

C6-C12	527	25.0	mg/kg wet	500		105	85-115			
>C12-C28	562	25.0	"	500		112	85-115			
Surrogate: 1-Chlorooctane	151		"	130		116	70-130			
Surrogate: o-Terphenyl	70.9		"	65.0		109	70-130			

Matrix Spike (P8A1105-MS1)

Source: 8A10003-01

Prepared: 01/11/18 Analyzed: 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		"	140		115	70-130			
Surrogate: o-Terphenyl	69.8		"	69.9		99.9	70-130			

Matrix Spike Dup (P8A1105-MSD1)

Source: 8A10003-01

Prepared: 01/11/18 Analyzed: 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	"	1080	ND	101	75-125	2.69	20	
Surrogate: 1-Chlorooctane	157		"	140		112	70-130			
Surrogate: o-Terphenyl	64.9		"	69.9		92.8	70-130			

DRAFT REPORT

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.

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

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

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.

DRAFT REPORT

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.

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

Page 36 of 38

Arson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 1/10/18

PAGE 1 OF 1

PO 10

LAB WORK ORDER #: SA100011

PROJECT LOCATION OR NAME: Dunkel 7

LAI PROJECT #: 17-0201-04 COLLECTOR: AT+RB

TRRP report?		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER		# of Containers	Matrix	PRESERVATION				ANALYSES	FIELD NOTES
Yes	No	Lab #	Date	Time	HCl			HNO ₃	H ₂ SO ₄	NaOH	ICE		
TIME ZONE: MST		Field Sample I.D.	Lab #	Date	Time								
		DP-1(0-1)	1	1/18/18	10:51	S				X			
		DP-2(1-2)	2		11:00								
		DP-2(0-1)	3		11:19								
		DP-3(0-1)	4		11:26								
		DP-4(0-1)	5		11:33								
		DP-5(0-1)	6		11:54								
		(1-2)	7		11:58								
		(2-3)	8		12:02								
		(3-4)	9		12:06								
		(4-6)	10		12:12								
		(6-8)	11		12:15								
		DP-6(0-1)	12		13:16								
		(1-2)	13		13:19								
		(2-3)	14		13:24								
		DP-7(0-1)	15		13:31								
TOTAL													
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		TURN AROUND TIME		LABORATORY USE ONLY:		RECEIVING TEMP: 11.0		THERM #: 1.461	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		NORMAL <input checked="" type="checkbox"/>		1 DAY <input type="checkbox"/>		2 DAY <input type="checkbox"/>		OTHER <input type="checkbox"/>	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		CUSTODY SEALS - <input type="checkbox"/> BROKEN <input checked="" type="checkbox"/> CONTACT <input type="checkbox"/> NOT USED		CARRIER BILL #		HAND DELIVERED <input checked="" type="checkbox"/>			

42705

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

Data Reported to:

DATE: 1/10/18

PAGE 2 OF

LAB WORK ORDER #:

PROJECT LOCATION OR NAME: Dunkel 7

LAI PROJECT #: 17-0201-04 COLLECTOR: AT + RB

TRRP report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	TIME ZONE: Time zone/State: MST	Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION				ANALYSES	FIELD NOTES
								S=SOIL W=WATER A=AIR	P=PAINT SL=SLUDGE OT=OTHER	HCl	HNO ₃		
		DP-7 (1-2)	16	1/8/18	13:34	S	1						
		(2-3)	17		13:37								
		(3-4)	18		13:40								
		(4-6)	19		13:42								
		(6-8)	20		13:46								
		DP-8 (0-1)	21		13:50								
		(1-2)	22		13:59								
		(2-3)	23		14:00								
		DP-9 (0-1)	24		14:05								
		DP-10 (0-1)	25	1/9/18	11:30								
		DP-11 (0-1)	26	1/9/18	11:33								
		DP-12 (3-4)	27	1/8/18	13:29								
TOTAL													
RELINQUISHED BY: (Signature)			DATE/TIME			RECEIVED BY: (Signature)			TURN AROUND TIME			LABORATORY USE ONLY:	
RELINQUISHED BY: (Signature)			DATE/TIME			RECEIVED BY: (Signature)			NORMAL <input checked="" type="checkbox"/>			RECEIVING TEMP: 11.0 THERM #:	
RELINQUISHED BY: (Signature)			DATE/TIME			RECEIVED BY: (Signature)			1 DAY <input type="checkbox"/>			CUSTODY SEALS - <input type="checkbox"/> BROKEN <input checked="" type="checkbox"/> CONTACT <input type="checkbox"/> NOT USED	
RELINQUISHED BY: (Signature)			DATE/TIME			RECEIVED BY: (Signature)			2 DAY <input type="checkbox"/>			<input type="checkbox"/> CARRIER BILL #	
RELINQUISHED BY: (Signature)			DATE/TIME			RECEIVED BY: (Signature)			OTHER <input type="checkbox"/>			<input checked="" type="checkbox"/> HAND DELIVERED	

DP-12

**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

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

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

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

Larson & Associates, Inc.
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
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	89.8	1.08	mg/kg dry	1	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	

Larson & Associates, Inc.
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)

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

General Chemistry Parameters by EPA / Standard Methods

Chloride	120	1.08	mg/kg dry	1	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	

Larson & Associates, Inc.
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	Prepared	Analyzed	Method	Notes
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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	%	1	P8C2906	03/29/18	04/02/18	ASTM D2216	

Larson & Associates, Inc.
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
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Batch P8C2906 - * DEFAULT PREP *****

Blank (P8C2906-BLK1)

Prepared & Analyzed: 03/29/18

% Moisture ND 0.1 %

Duplicate (P8C2906-DUP1)

Source: 8C28007-12

Prepared & Analyzed: 03/29/18

% Moisture 5.0 0.1 % 5.0 0.00 20

Duplicate (P8C2906-DUP2)

Source: 8C28010-01

Prepared & Analyzed: 03/29/18

% Moisture 5.0 0.1 % 5.0 0.00 20

Duplicate (P8C2906-DUP3)

Source: 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

Chloride 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)

Source: 8C26001-27

Prepared: 04/02/18 Analyzed: 04/03/18

Chloride 803 1.12 mg/kg dry 966 18.4 20

Duplicate (P8D0202-DUP2)

Source: 8C27003-08

Prepared: 04/02/18 Analyzed: 04/03/18

Chloride 8470 29.4 mg/kg dry 8470 0.0208 20

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

Project: Dunkel 7
Project Number: 17-0201-04
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

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

Report Approved By:



Date:

4/4/2018

Brent Barron, Laboratory Director/Technical Director

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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

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

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

Fax: (432) 687-0456

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

Larson & Associates, Inc.
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	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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	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 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		78.7 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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-C35 by EPA Method 8015M

C6-C12	ND	26.6	mg/kg dry	1	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	
Surrogate: 1-Chlorooctane		102 %	70-130		P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: o-Terphenyl		113 %	70-130		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	

DRAFT REPORT

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Larson & Associates, Inc.
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	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.1}	mg/kg dry	1	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	

DRAFT REPORT

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

Larson & Associates, Inc.
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
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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	9.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	

DRAFT REPORT

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.

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

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

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

Fax: (432) 687-0456

DPI (3-4)

8A10002-04 (Soil)

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

General Chemistry Parameters by EPA / Standard Methods

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	

DRAFT REPORT

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.

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

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

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		83.8 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

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	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

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 %	70-130		P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: o-Terphenyl		142 %	70-130		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	

DRAFT REPORT

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

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

Fax: (432) 687-0456

DP2 (1-2)
8A10002-06 (Soil)

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

General Chemistry Parameters by EPA / Standard Methods

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	

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Midland TX, 79710

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

Fax: (432) 687-0456

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

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

General Chemistry Parameters by EPA / Standard Methods

Chloride	2.13	1.05	mg/kg dry	1	P8A1505	01/15/18	01/16/18	EPA 300.0	
% Moisture	5.0	0.1	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	

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

Fax: (432) 687-0456

DP2 (3-4)
8A10002-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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	%	1	P8A1501	01/15/18	01/15/18	ASTM D2216	

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

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

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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	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	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		91.5 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		80.3 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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 8015M

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	1	P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		118 %	70-130		P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: o-Terphenyl		130 %	70-130		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	calc	

DRAFT REPORT

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Midland TX, 79710

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

Fax: (432) 687-0456

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

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

General Chemistry Parameters by EPA / Standard Methods

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

DRAFT REPORT

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Midland TX, 79710

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

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, 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	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	1	P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		92.2 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		108 %	75-125		P8A1108	01/11/18	01/18/18	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

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 8015M

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	1	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 %	70-130		P8A1105	01/11/18	01/13/18	TPH 8015M	
Surrogate: o-Terphenyl		130 %	70-130		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	

Larson & Associates, Inc.
P.O. Box 50685
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Project: Guadalupe
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 Limits	RPD	RPD Limit	Notes
Batch P8A1108 - General Preparation (GC)									
Blank (P8A1108-BLK1)				Prepared: 01/11/18 Analyzed: 01/18/18					
Benzene	ND	0.00100	mg/kg wet						
Toluene	ND	0.0100	"						
Ethylbenzene	ND	0.00500	"						
Xylene (p/m)	ND	0.0200	"						
Xylene (o)	ND	0.0100	"						
Surrogate: 1,4-Difluorobenzene	0.0548		"	0.0600		91.3	75-125		
Surrogate: 4-Bromofluorobenzene	0.0571		"	0.0600		95.2	75-125		
LCS (P8A1108-BS1)				Prepared: 01/11/18 Analyzed: 01/18/18					
Benzene	0.105	0.00100	mg/kg wet	0.100		105	70-130		
Toluene	0.110	0.0100	"	0.100		110	70-130		
Ethylbenzene	0.110	0.00500	"	0.100		110	70-130		
Xylene (p/m)	0.220	0.0200	"				70-130		
Xylene (o)	0.116	0.0100	"				70-130		
Surrogate: 4-Bromofluorobenzene	0.0667		"	0.0600		111	75-125		
Surrogate: 1,4-Difluorobenzene	0.0562		"	0.0600		93.7	75-125		
LCS Dup (P8A1108-BSD1)				Prepared: 01/11/18 Analyzed: 01/18/18					
Benzene	0.100	0.00100	mg/kg wet	0.100		100	70-130	4.88	20
Toluene	0.101	0.0100	"	0.100		101	70-130	8.53	20
Ethylbenzene	0.103	0.00500	"	0.100		103	70-130	6.57	20
Xylene (p/m)	0.215	0.0200	"				70-130		20
Xylene (o)	0.108	0.0100	"				70-130		20
Surrogate: 4-Bromofluorobenzene	0.0582		"	0.0600		97.0	75-125		
Surrogate: 1,4-Difluorobenzene	0.0548		"	0.0600		91.3	75-125		
Matrix Spike (P8A1108-MS1)				Source: 8A10002-11	Prepared: 01/11/18 Analyzed: 01/18/18				
Benzene	0.133	0.00110	mg/kg dry	0.110	ND	121	80-120		QM-05
Toluene	0.127	0.0110	"	0.110	ND	116	80-120		
Ethylbenzene	0.127	0.00549	"	0.110	ND	116	80-120		
Xylene (p/m)	0.238	0.0220	"		ND		80-120		
Xylene (o)	0.123	0.0110	"		ND		80-120		
Surrogate: 1,4-Difluorobenzene	0.0488		"	0.0659		74.0	75-125		S-GC
Surrogate: 4-Bromofluorobenzene	0.0600		"	0.0659		91.0	75-125		

DRAFT REPORT

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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
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Batch P8A1108 - General Preparation (GC)

Matrix Spike Dup (P8A1108-MSD1)

Source: 8A10002-11

Prepared: 01/11/18 Analyzed: 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	"	0.110	ND	129	80-120	10.6	20	QM-05
Ethylbenzene	0.158	0.00549	"	0.110	ND	144	80-120	21.5	20	QM-05
Xylene (p/m)	0.263	0.0220	"		ND		80-120		20	
Xylene (o)	0.133	0.0110	"		ND		80-120		20	
Surrogate: 4-Bromofluorobenzene	0.0784		"	0.0659		119	75-125			
Surrogate: 1,4-Difluorobenzene	0.0622		"	0.0659		94.3	75-125			

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P.O. Box 50685
Midland TX, 79710

Project: Guadalupe
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			
LCS Dup (P8A1204-BSD1)				Prepared & Analyzed: 01/12/18						
Chloride	412	1.00	mg/kg wet	400		103	80-120	17.0	20	
Duplicate (P8A1204-DUP1)				Source: 8A08009-01		Prepared & Analyzed: 01/12/18				
Chloride	9040	26.9	mg/kg dry		8180			9.95	20	
Duplicate (P8A1204-DUP2)				Source: 8A10001-21		Prepared: 01/12/18 Analyzed: 01/13/18				
Chloride	0.400	1.00	mg/kg dry		ND				20	
Matrix Spike (P8A1204-MS1)				Source: 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	%							
Duplicate (P8A1501-DUP1)				Source: 8A10001-27		Prepared & Analyzed: 01/15/18				
% Moisture	11.0	0.1	%		8.0			31.6	20	
Duplicate (P8A1501-DUP2)				Source: 8A10008-02		Prepared & Analyzed: 01/15/18				
% Moisture	14.0	0.1	%		15.0			6.90	20	

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

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P8A1501 - * DEFAULT PREP *****

Duplicate (P8A1501-DUP3)

Source: 8A10009-06

Prepared & Analyzed: 01/15/18

% Moisture	11.0	0.1	%		8.0			31.6	20	
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Batch P8A1505 - * DEFAULT PREP *****

Blank (P8A1505-BLK1)

Prepared: 01/15/18 Analyzed: 01/16/18

Chloride	ND	1.00	mg/kg wet							
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LCS (P8A1505-BS1)

Prepared: 01/15/18 Analyzed: 01/16/18

Chloride	411	1.00	mg/kg wet	400		103	80-120			
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LCS Dup (P8A1505-BSD1)

Prepared: 01/15/18 Analyzed: 01/16/18

Chloride	406	1.00	mg/kg wet	400		101	80-120	1.25	20	
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Duplicate (P8A1505-DUP1)

Source: 8A10002-04

Prepared: 01/15/18 Analyzed: 01/16/18

Chloride	ND	1.10	mg/kg dry		ND				20	
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Duplicate (P8A1505-DUP2)

Source: 8A10004-03

Prepared: 01/15/18 Analyzed: 01/16/18

Chloride	250	6.02	mg/kg dry		245			2.24	20	
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Matrix Spike (P8A1505-MS1)

Source: 8A10002-04

Prepared: 01/15/18 Analyzed: 01/16/18

Chloride	1150	1.10	mg/kg dry	1100	ND	105	80-120			
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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	RPD	RPD Limit	Notes
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Batch P8A1105 - General Preparation (GC)

Blank (P8A1105-BLK1)

Prepared & Analyzed: 01/11/18

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	133		"	130		102	70-130			
Surrogate: o-Terphenyl	69.5		"	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	"	1000		110	75-125			
Surrogate: 1-Chlorooctane	127		"	130		97.4	70-130			
Surrogate: o-Terphenyl	59.7		"	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		"	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		"							
Surrogate: 1-Chlorooctane	129		"	130		98.9	70-130			
Surrogate: o-Terphenyl	66.5		"	65.0		102	70-130			

Calibration Blank (P8A1105-CCB2)

Prepared: 01/11/18 Analyzed: 01/12/18

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		"	65.0		104	70-130			

DRAFT REPORT

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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	RPD	RPD Limit	Notes
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Batch P8A1105 - General Preparation (GC)

Calibration Check (P8A1105-CCV1)

Prepared & Analyzed: 01/11/18

C6-C12	514	25.0	mg/kg wet	500		103	85-115			
>C12-C28	556	25.0	"	500		111	85-115			
Surrogate: 1-Chlorooctane	147		"	130		113	70-130			
Surrogate: o-Terphenyl	70.2		"	65.0		108	70-130			

Calibration Check (P8A1105-CCV2)

Prepared: 01/11/18 Analyzed: 01/12/18

C6-C12	519	25.0	mg/kg wet	500		104	85-115			
>C12-C28	554	25.0	"	500		111	85-115			
Surrogate: 1-Chlorooctane	144		"	130		111	70-130			
Surrogate: o-Terphenyl	69.2		"	65.0		106	70-130			

Calibration Check (P8A1105-CCV3)

Prepared: 01/11/18 Analyzed: 01/12/18

C6-C12	527	25.0	mg/kg wet	500		105	85-115			
>C12-C28	562	25.0	"	500		112	85-115			
Surrogate: 1-Chlorooctane	151		"	130		116	70-130			
Surrogate: o-Terphenyl	70.9		"	65.0		109	70-130			

Matrix Spike (P8A1105-MS1)

Source: 8A10003-01

Prepared: 01/11/18 Analyzed: 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		"	140		115	70-130			
Surrogate: o-Terphenyl	69.8		"	69.9		99.9	70-130			

Matrix Spike Dup (P8A1105-MSD1)

Source: 8A10003-01

Prepared: 01/11/18 Analyzed: 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	"	1080	ND	101	75-125	2.69	20	
Surrogate: 1-Chlorooctane	157		"	140		112	70-130			
Surrogate: o-Terphenyl	64.9		"	69.9		92.8	70-130			

DRAFT REPORT

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.

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

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

Fax: (432) 687-0456

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

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.

DRAFT REPORT

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.

Appendix D

Photographs

1RP-3979
Devon Lease
November 7, 2017



Altbeir 10 State 1H Site Location



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

1RP-3979
Devon Lease
November 7, 2017



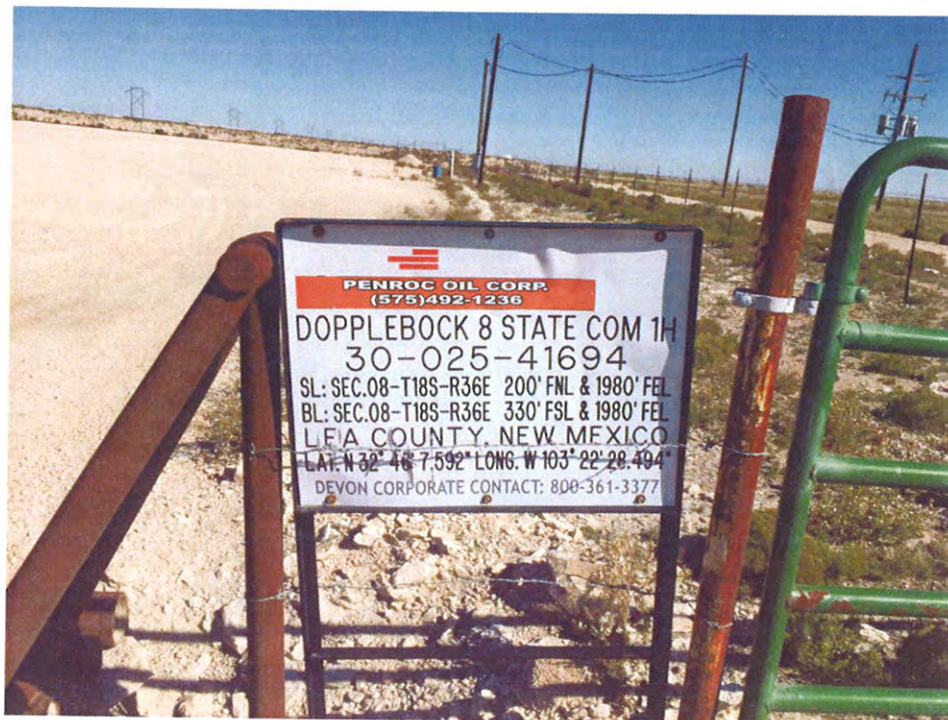
Altbeir Site Prior to Remediation Viewing North, November 1, 2017



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

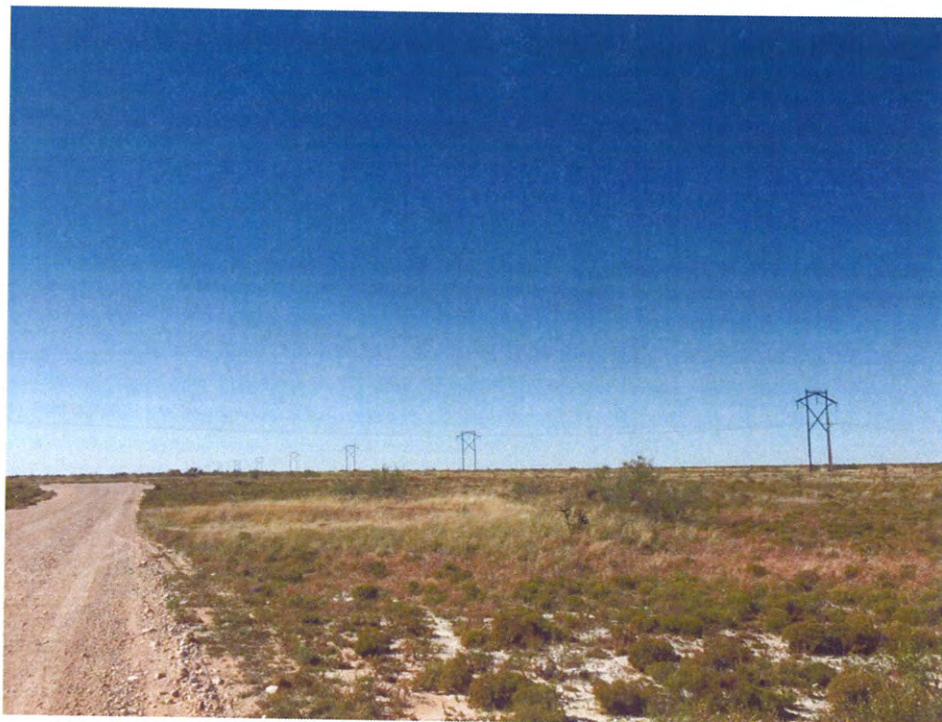


Dopplebock Site Prior to Remediation Viewing North, November 1, 2017



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

1RP-3979
Devon Lease
November 7, 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 Location



Guadacanal Site Viewing South, November 6, 2017

1RP-3979
Devon Lease
November 7, 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 I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: Penroc Oil Corporation	Contact: M.Y. "Merch" Merchant
Address: 1515 Calle Sur, Ste. 174, Hobbs, NM 88240	Telephone No.: (575) 492-1236
Facility Name: Altbeir 1- State 1H	Facility Type: Oil

Surface Owner: State	Mineral Owner: State	Lease No. 30-025-42290
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LOCATION OF RELEASE

Unit Letter N	Section 10	Township 18S	Range 36E	Feet from the 230	North/South Line South	Feet from the 1980	East/West Line West	County Lea
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Latitude: 32° 45' 24.43" Longitude: 103° 20' 40.08"

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: Unknown	Volume Recovered: None
Source of Release: Illegal dumping on lease roads	Date and Hour of Occurrence: August 21 or 22, 2015	Date and Hour of Discovery: August 26, 2015
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? OCD - Tomas Oberding and BLM	
By Whom? Ruben Garcia (Devon Energy)	Date and Hour 9/1/2015@2:00PM/9/1/2015@1:50PM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

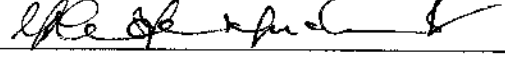
If a Watercourse was Impacted, Describe Fully. *On September 1, 2015, landowner was out checking his land when he noticed there was discoloration and tire tracks on his land. He went to the nearest location and notified Devon lease operator and advised him of the illegal dumping. There was an unknown amount of produced water that had been dumped on the pasture (from initial C-141 dated 9/2/2015).

Describe Cause of Problem and Remedial Action Taken.* Devon security was called out to location and is investigation the situation (from initial C-141). Penroc acquired the leases from Devon on 01/01/2017 and was notified by OCD of IRP-3979. LAI personnel collected soil samples from each location which were analyzed for BTEX, TPH and chloride. Except Dunkel 7 State 1H all samples were below the RRAL for benzene (10 mg/Kg), BTEX (50 mg/Kg), TPH (1,000 mg/Kg) and chloride delineation limit (600 mg/Kg). Chloride exceeded delineation limit at Dunkel 7 State 1H, DP-10, 0 - 1 foot (756 mg/Kg) and was delineated vertically to 600 mg/Kg plus 5 feet with concentrations below 60 mg/Kg. Sample DP-10 is located in the lease road. Penroc requests no further action for IRP-3979.

Describe Area Affected and Cleanup Action Taken.*

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

OIL CONSERVATION DIVISION

Signature: 	Approved by District Supervisor:		
Printed Name: M.Y. "Merch" Merchant	Approval Date:	Expiration Date:	
Title: President	Conditions of Approval:		
E-mail Address: mymerch@penrocoil.com	Attached <input type="checkbox"/>		
Date: 3/31/2018	Phone: (575) 492-1236		

* Attach Additional Sheets If Necessary

IRP-3979