

Incident ID	nAPP2109535887
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>>60</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Joe D. Hardin Title: President
 Signature: Joe D. Hardin Date: 10/15/2021
 email: vwenergy@vw-energy.net Telephone: 806-771-7766

OCD Only

Received by: _____ Date: _____

Incident ID	nAPP2109535887
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Remediation Plan

Remediation Plan Checklist: Each of the following items must be included in the plan.

- Detailed description of proposed remediation technique
- Scaled sitemap with GPS coordinates showing delineation points
- Estimated volume of material to be remediated
- Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: Each of the following items must be confirmed as part of any request for deferral of remediation.

- Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- Extents of contamination must be fully delineated.
- Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Joe D. Hardin Title: President
 Signature: [Handwritten Signature] Date: 10/15/2021
 email: vawenergy@vaw-energy.net Telephone: 806.771-7766

OCD Only

Received by: _____ Date: _____

- Approved Approved with Attached Conditions of Approval Denied Deferral Approved

Signature: _____ Date: _____

Incident ID	nAPP2109535887
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: Each of the following items must be included in the closure report.

- A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Joe D. Hardin Title: President
 Signature: [Handwritten Signature] Date: 10/15/2021
 email: vawenergy@vaw-energy.net Telephone: 806-771-7766

OCD Only

Received by: Chad Hensley Date: 11/18/2021

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: [Handwritten Signature] Date: 11/18/2021
 Printed Name: Chad Hensley Title: Environmental Specialist Advanced

Tracking Number: nAPP2109535887
Closure Report
Raley A #001
Crude Oil Release
Lea County, New Mexico

Latitude: N 32.58314°
Longitude: W -103.16532°

LAI Project No. 21-0107-02

October 7, 2021

Prepared for:
RAW Oil & Gas, Inc.
1415 Buddy Holly Ave.
Lubbock, Texas 79401

Prepared by:
Larson & Associates, Inc.
507 North Marienfeld Street, Suite 202
Midland, Texas 79701



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



Robert Nelson
Sr. Geoscientist

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Tracking Number: nAPP2109535887
Closure Report – Raley A No. 1 Crude Oil Release
October 7, 2021

1.0 INTRODUCTION

Larson & Associates, Inc. (LAI), has prepared this closure report on behalf of RAW Oil & Gas, Inc. (RAW) for submittal to the New Mexico Oil Conservation Division (NMOCD) District 1 for a crude oil release at the Raley A No. 1 (Site) located in Unit P (SE/4, SE/4), Section 8, Township 20 South, Range 38 East, in Lea County, New Mexico. The geodetic position is North 32.58314° and West -103.16532°. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The release was discovered on March 24, 2021 and occurred when the packing around the stuffing box failed resulting in a release of produced fluids into the cellar and surrounding area. RAW reported that 10 barrels (bbls) of crude oil were released with 5 bbl of fluid recovered. The affected area measures approximately 403 square feet. The initial C-141 was submitted to OCD District 1 and assigned incident number nAPP2109535887.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,567 feet above mean sea level (msl).
- The surface elevation decreases to the southwest.
- There are no surface water features within 1,000 feet of the Site.
- Karst data provided by the USGS describes the Site as “Low Risk” potential.
- The soils are designated as “Ratliff-Wink Fine Sandy Loams”, consisting of 4 inches of fine sandy loam, underlain by 56 inches of a clay loam, in descending order.
- The surface geology is described as colluvial deposits (Holocene to Pleistocene) derived from the Eocene-age Blackwater Draw and underlying Tertiary-age Ogallala Formations and consisting of red to gray sand, silt, and gravel deposited by slope wash, and talus.
- Groundwater occurs greater than 60 feet below ground surface (bgs) based on depth to groundwater measurements 72 hours after installing a groundwater bore (GWB-1) on September 13, 2021.

Figure 3 presents the groundwater bore location. Appendix A presents the Karst Risk Potential map.

1.3 Remediation Standards

The following remediation standards are based on closure criteria for soils impacted by a release as presented in Table 1 of 19.15.29 NMAC:

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 2,500 mg/Kg
- Chloride 10,000 mg/Kg

Further, 19.15.29.13 NMAC (Restoration, Reclamation and Re-Vegetation) requires the operator to restore the impacted surface area that existed prior to the release or their final land use.

Tracking Number: nAPP2109535887
 Closure Report – Raley A No. 1 Crude Oil Release
 October 7, 2021

2.0 REMEDIATION

On March 26, 2021, 1st Backhoe Services, LLC (1st Backhoe) began excavating soil from the spill area measuring approximately 403 square feet. Soil was initially excavated to a depth of approximately 1.5 feet bgs. Approximately 20 cubic yards of contaminated soil was stockpiled in the excavation prior to disposal.

On April 12, 2021, LAI personnel collected five (5) 5-point composite bottom and sidewall confirmation soil samples (C-1 through C-5). Soil samples were delivered under chain of custody and preservation to Permian Basin Environmental Laboratory (PBEL) in Midland, Texas, which analyzed the samples for benzene, toluene, ethylbenzene, and xylenes (BTEX) and TPH, including gasoline range organics (C6-C12), diesel range organics (>C12-C28) and oil range organics (>C28-C35), and chloride by EPA SW-846 Methods 8021B, 8015M, and Method 300.0, respectively. Figure 2 presents an aerial map showing the sample locations. Appendix B presents the laboratory reports.

Benzene and BTEX were reported below the NMOCD remediation standard in Table 1 (19.15.29 NMAC) or below 10 milligrams per kilogram (mg/Kg) and 50 mg/Kg, respectively. Chloride and/or TPH exceeded the NMOCD remediation standards of 600 mg/Kg and 100 mg/Kg, respectively, in the following samples:

Sample ID	Depth (Feet)	Chloride (mg/kg)	TPH (mg/Kg)
C-1	1.5	1,840	2,820
C-2	1.5	1,760	6,110
C-3	1.5	--	305
C-4	0 – 1.5	--	1,520
C-5	0 – 1.5	--	5,130

During April 2021, 1st Backhoe excavated an additional 3.5 vertical feet of contaminated soil encompassing bottom sample locations C-1, C-2 and C-3. Two (2) feet of soil was excavated from the sidewalls encompassing sample locations C-4 and C-5. Subsequent laboratory analysis confirmed benzene, BTEX, TPH, and chloride in all samples below the NMOCD remediation standards in Table 1 of 19.15.29 NMAC, for groundwater between 50 and 100 feet bgs.

On April 21, 2021, LAI personnel collected one (1) discreet soil sample (D-1) from the sidewall adjacent to the cellar where hydrocarbon staining was observed. Laboratory analysis reported benzene, BTEX, TPH, and chloride concentrations at 21.5 mg/Kg, 3,997.994 mg/Kg, 45,500 mg/Kg, and 12,500 mg/Kg, respectively. Benzene, BTEX, TPH and chloride were below the remediation standards in the bottom confirmation soil sample (C-2) collected below sample D-1 and demonstrates vertical delineation for the sidewall sample D-1.

On May 10, 2021, LAI personnel collected a 5-spot composite sample of caliche from the landowner's burrow pit. Benzene, BTEX, and TPH were below the analytical method reporting limits and chloride was less than 600 mg/Kg in the backfill composite sample. Table 1 presents the confirmation soil analytical data summary. Figure 2 presents the excavations and confirmation sample locations. Appendix C presents photographs.

Tracking Number: nAPP2109535887
Closure Report – Raley A No. 1 Crude Oil Release
October 7, 2021

3.0 DEFERRAL REQUEST

The residual contamination adjacent to the well cellar (D-1) prohibits excavation of the contaminated soil without risking damage to the well and causing further environmental impacts, therefore, RAW requests approval from NMOCD to defer remediation of residual contamination (D-1) until well plugging at which time the residual contamination will be remediated. Upon plugging and abandonment, soil from the affected area encompassing sample location D-1 will be excavated to a depth where concentrations for benzene, BTEX, TPH and chloride are below the NMOCD remediation standards in Table 1 of 19.15.29 NMAC for groundwater between 50 and 100 feet bgs. A final closure report with photographs will be submitted to NMOCD District I upon well plugging.

Tables

Table 2
Confirmation Soil Sample Analytical Data Summary
RAW Oil and Gas, Raley A Well #1
Lea County, New Mexico
North 32°34'59.27" West -103°09'55.45"

Sample ID	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)		
RAL:					10	50						100 / 2,500	600 / 10,000
C-1	Bottom	1.5	4/12/2021	Excavated	0.00208	0.19778	153	2,320	342	2,820	1,840		
		5	4/21/2021	In-Situ	0.00421	0.01266	<30.9	37.6	<30.9	37.6	<1.23		
C-2	Bottom	1.5	4/12/2021	Excavated	0.0116	0.3395	425	4,780	901	6,110	1,760		
		5	4/22/2021	In-Situ	<0.00112	0.00135	<28.1	195	109	304	464		
C-3	Bottom	1.5	4/12/2021	Excavated	<0.00100	0.00676	<25.0	250	54.9	305	281		
		5	4/21/2021	In-Situ	0.00519	0.11789	<27.8	39.9	<27.8	39.9	<1.11		
C-4	Sidewall	0 - 1.5	4/12/2021	Excavated	0.00113	0.22943	135	1,160	226	1,520	225		
		0 - 5	4/21/2021	In-Situ	0.0108	0.03162	<28.4	57.7	<28.4	57.7	<1.14		
C-5	Sidewall	0 - 1.5	4/12/2021	Excavated	<0.00101	0.04978	82.6	4,270	779	5,130	375		
		0 - 5	4/21/2021	In-Situ	0.0116	0.03027	<28.4	55.9	<28.4	55.9	20		
D-1	Sidewall	4	4/21/2021	In-Situ	21.5	397.994	13,400	27,000	5,030	45,500	12,500		
Backfill Caliche 1	--	--	5/10/2021	In-Situ	<0.00102	<0.00102	<25.5	<25.5	<25.5	<25.5	46.0		

Notes: analysis performed by Permian Basin Environmental Laboratory (PBEL), Midland, Texas by EPA SW-846 Methods 8021B (BTEX) and 8015M (TPH), and Method 300 (chloride)

Depth in feet below ground surface (bgs)

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

Bold and Highlighted Denotes Conentrations Above OCD Closure Criteria

Table 2
Confirmation Soil Sample Analytical Data Summary
RAW Oil and Gas, Raley A Well #1
Lea County, New Mexico
North 32°34'59.27" West -103°09'55.45"

Figures



Legend

- C-4 - Soil Sample Location
- - Spill Area

Graphic Scale in Feet

20 0 20

Raw Oil and Gas
 Raley A Well No. 1
 Unit P (SE 1/4 of SE 1/4)
 Sec. 8, T. 20 S., R. 38 E.,
 Lea County, New Mexico
 32° 34' 59.27"N,
 103° 09' 55.45"W

Larson &
Associates, Inc.
 Environmental Consultants

Figure 2 - Aerial Map

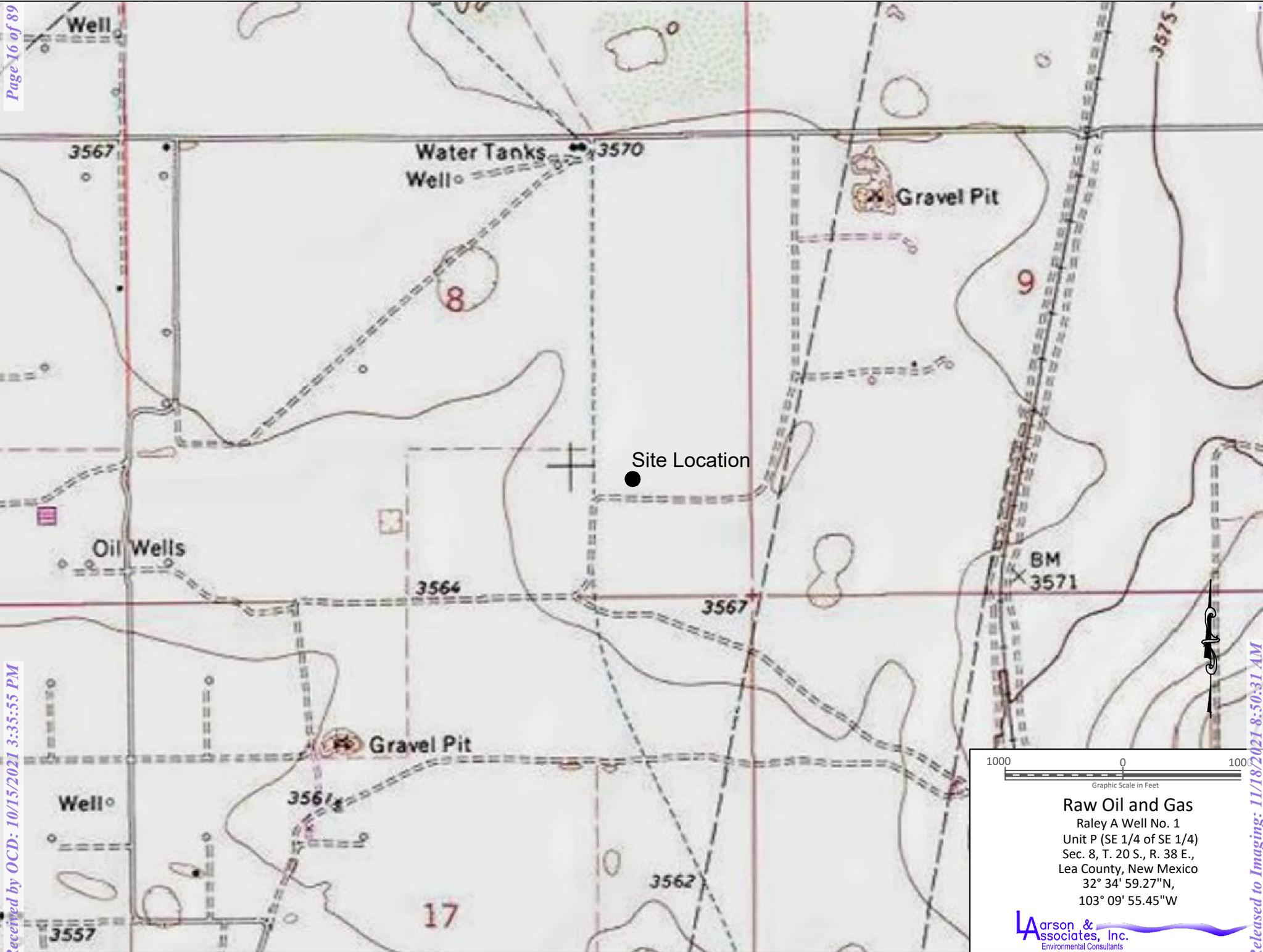
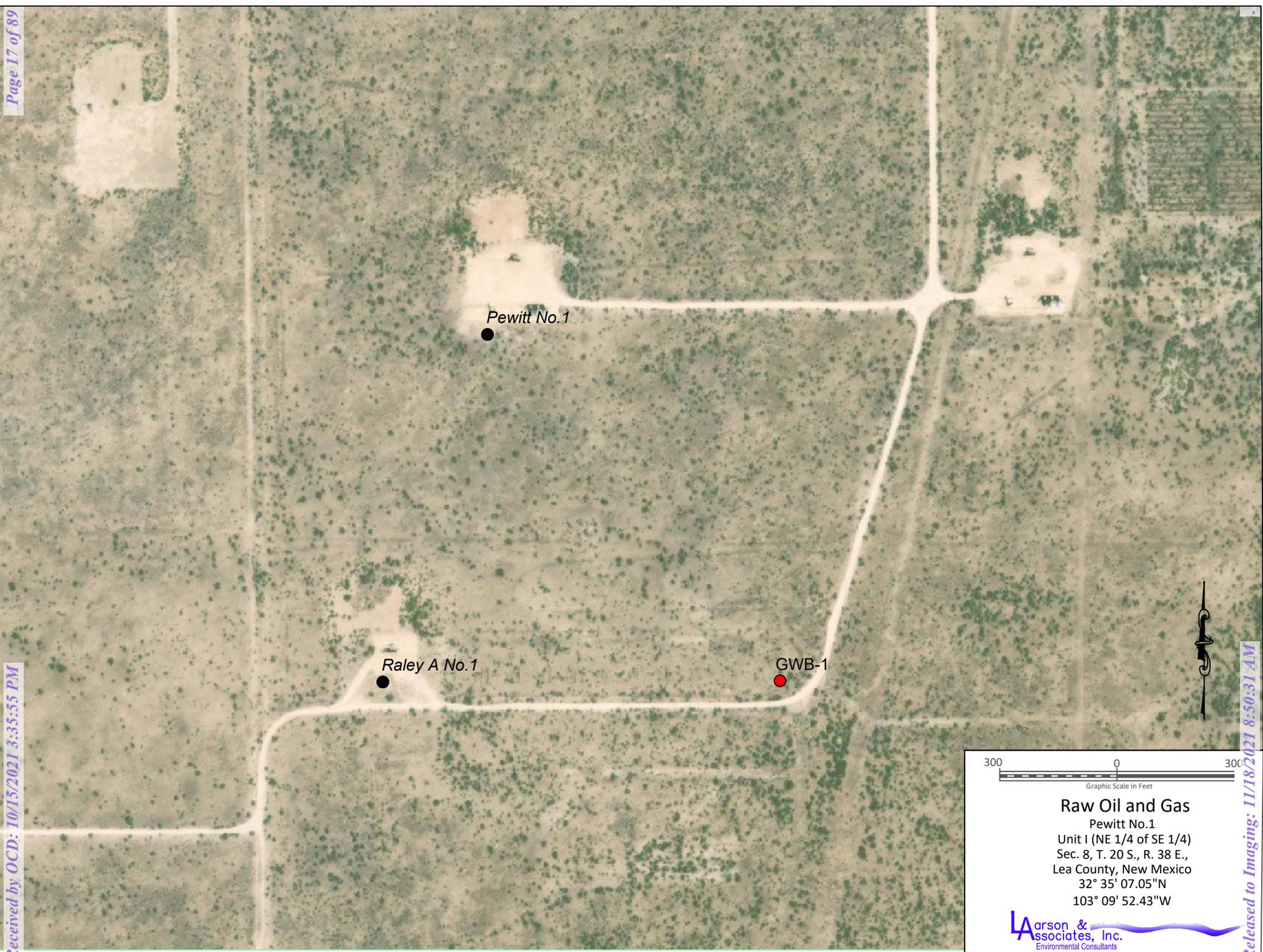


Figure 1 - Topographic Map



300 0 300
Graphic Scale in Feet

Raw Oil and Gas
Pewitt No.1
Unit I (NE 1/4 of SE 1/4)
Sec. 8, T. 20 S., R. 38 E.,
Lea County, New Mexico
32° 35' 07.05"N
103° 09' 52.43"W

Larson &
Associates, Inc.
Environmental Consultants

Figure 3 - Aerial Map Showing Groundwater Bore Location

Appendix A
Laboratory Reports

**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: Raley A Well No. 1
Project Number: 21-0107-02
Location: NM

Lab Order Number: 1D13003



NELAP/TCEQ # T104704516-17-8

Report Date: 04/19/21

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
C-1	1D13003-01	Soil	04/12/21 08:33	04-13-2021 08:45
C-2	1D13003-02	Soil	04/12/21 08:34	04-13-2021 08:45
C-3	1D13003-03	Soil	04/12/21 08:35	04-13-2021 08:45
C-4	1D13003-04	Soil	04/12/21 08:36	04-13-2021 08:45
C-5	1D13003-05	Soil	04/12/21 08:37	04-13-2021 08:45

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

C-1
1D13003-01 (Soil)

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

BTEX by 8021B

Benzene	0.00208	0.00101	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Toluene	0.0537	0.00101	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Ethylbenzene	0.0332	0.00101	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Xylene (p/m)	0.0780	0.00202	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Xylene (o)	0.0308	0.00101	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.2 %		80-120	P1D1411	04/14/21	04/15/21	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		97.6 %		80-120	P1D1411	04/14/21	04/15/21	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	1840	5.05	mg/kg dry	5	P1D1402	04/14/21	04/14/21	EPA 300.0	
% Moisture	1.0	0.1	%	1	P1D1405	04/14/21	04/14/21	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	153	25.3	mg/kg dry	1	P1D1306	04/13/21	04/14/21	TPH 8015M	
>C12-C28	2320	25.3	mg/kg dry	1	P1D1306	04/13/21	04/14/21	TPH 8015M	
>C28-C35	342	25.3	mg/kg dry	1	P1D1306	04/13/21	04/14/21	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		117 %		70-130	P1D1306	04/13/21	04/14/21	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		118 %		70-130	P1D1306	04/13/21	04/14/21	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	2820	25.3	mg/kg dry	1	[CALC]	04/13/21	04/14/21	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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

C-2
1D13003-02 (Soil)

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

BTEX by 8021B

Benzene	0.0116	0.00102	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Toluene	0.0856	0.00102	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Ethylbenzene	0.0601	0.00102	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Xylene (p/m)	0.135	0.00204	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Xylene (o)	0.0472	0.00102	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		92.1 %	80-120		P1D1411	04/14/21	04/15/21	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		109 %	80-120		P1D1411	04/14/21	04/15/21	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	1760	5.10	mg/kg dry	5	P1D1402	04/14/21	04/14/21	EPA 300.0	
% Moisture	2.0	0.1	%	1	P1D1405	04/14/21	04/14/21	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	425	128	mg/kg dry	5	P1D1310	04/13/21	04/17/21	TPH 8015M	
>C12-C28	4780	128	mg/kg dry	5	P1D1310	04/13/21	04/17/21	TPH 8015M	
>C28-C35	901	128	mg/kg dry	5	P1D1310	04/13/21	04/17/21	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		96.8 %	70-130		P1D1310	04/13/21	04/17/21	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		108 %	70-130		P1D1310	04/13/21	04/17/21	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	6110	128	mg/kg dry	5	[CALC]	04/13/21	04/17/21	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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

C-3
1D13003-03 (Soil)

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

BTEX by 8021B

Benzene	ND	0.00100	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Toluene	0.00151	0.00100	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Ethylbenzene	0.00103	0.00100	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Xylene (p/m)	0.00265	0.00200	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Xylene (o)	0.00157	0.00100	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		101 %	80-120		P1D1411	04/14/21	04/15/21	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		108 %	80-120		P1D1411	04/14/21	04/15/21	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	281	1.00	mg/kg dry	1	P1D1402	04/14/21	04/14/21	EPA 300.0	
% Moisture	ND	0.1	%	1	P1D1405	04/14/21	04/14/21	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.0	mg/kg dry	1	P1D1310	04/13/21	04/17/21	TPH 8015M	
>C12-C28	250	25.0	mg/kg dry	1	P1D1310	04/13/21	04/17/21	TPH 8015M	
>C28-C35	54.9	25.0	mg/kg dry	1	P1D1310	04/13/21	04/17/21	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		97.3 %	70-130		P1D1310	04/13/21	04/17/21	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		100 %	70-130		P1D1310	04/13/21	04/17/21	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	305	25.0	mg/kg dry	1	[CALC]	04/13/21	04/17/21	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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

C-4
1D13003-04 (Soil)

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

BTEX by 8021B

Benzene	0.00113	0.00100	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Toluene	0.0175	0.00100	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Ethylbenzene	0.0421	0.00100	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Xylene (p/m)	0.114	0.00200	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Xylene (o)	0.0547	0.00100	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		102 %	80-120		P1D1411	04/14/21	04/15/21	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		105 %	80-120		P1D1411	04/14/21	04/15/21	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	225	1.00	mg/kg dry	1	P1D1402	04/14/21	04/14/21	EPA 300.0	
% Moisture	ND	0.1	%	1	P1D1405	04/14/21	04/14/21	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	135	25.0	mg/kg dry	1	P1D1310	04/13/21	04/17/21	TPH 8015M	
>C12-C28	1160	25.0	mg/kg dry	1	P1D1310	04/13/21	04/17/21	TPH 8015M	
>C28-C35	226	25.0	mg/kg dry	1	P1D1310	04/13/21	04/17/21	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		102 %	70-130		P1D1310	04/13/21	04/17/21	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		105 %	70-130		P1D1310	04/13/21	04/17/21	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	1520	25.0	mg/kg dry	1	[CALC]	04/13/21	04/17/21	calc	

Permian Basin Environmental Lab, L.P.

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

C-5
1D13003-05 (Soil)

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

BTEX by 8021B

Benzene	ND	0.00101	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Toluene	0.00474	0.00101	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Ethylbenzene	0.00614	0.00101	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Xylene (p/m)	0.0274	0.00202	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
Xylene (o)	0.0115	0.00101	mg/kg dry	1	P1D1411	04/14/21	04/15/21	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %	80-120		P1D1411	04/14/21	04/15/21	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		107 %	80-120		P1D1411	04/14/21	04/15/21	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	375	1.01	mg/kg dry	1	P1D1402	04/14/21	04/14/21	EPA 300.0	
% Moisture	1.0	0.1	%	1	P1D1405	04/14/21	04/14/21	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	82.6	25.3	mg/kg dry	1	P1D1310	04/13/21	04/17/21	TPH 8015M	
>C12-C28	4270	126	mg/kg dry	5	P1D1310	04/13/21	04/17/21	TPH 8015M	
>C28-C35	779	126	mg/kg dry	5	P1D1310	04/13/21	04/17/21	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		96.5 %	70-130		P1D1310	04/13/21	04/17/21	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		104 %	70-130		P1D1310	04/13/21	04/17/21	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	5130	126	mg/kg dry	5	[CALC]	04/13/21	04/17/21	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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 P1D1411 - * DEFAULT PREP *******Blank (P1D1411-BLK1)**

Prepared: 04/14/21 Analyzed: 04/15/21

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.118		"	0.120		98.4	80-120			
Surrogate: 4-Bromofluorobenzene	0.116		"	0.120		96.6	80-120			

LCS (P1D1411-BS1)

Prepared: 04/14/21 Analyzed: 04/15/21

Benzene	0.0957	0.00100	mg/kg wet				70-130			
Toluene	0.0979	0.00100	"				70-130			
Ethylbenzene	0.0969	0.00100	"				70-130			
Xylene (p/m)	0.187	0.00200	"				70-130			
Xylene (o)	0.0962	0.00100	"				70-130			
Surrogate: 4-Bromofluorobenzene	0.122		"	0.120		102	80-120			
Surrogate: 1,4-Difluorobenzene	0.121		"	0.120		101	80-120			

LCS Dup (P1D1411-BSD1)

Prepared: 04/14/21 Analyzed: 04/15/21

Benzene	0.0870	0.00100	mg/kg wet				70-130		20	
Toluene	0.0883	0.00100	"				70-130		20	
Ethylbenzene	0.0884	0.00100	"				70-130		20	
Xylene (p/m)	0.172	0.00200	"				70-130		20	
Xylene (o)	0.0856	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.120		"	0.120		100	80-120			
Surrogate: 4-Bromofluorobenzene	0.120		"	0.120		99.9	80-120			

Calibration Blank (P1D1411-CCB2)

Prepared: 04/14/21 Analyzed: 04/15/21

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	0.116		"	0.120		96.6	80-120			
Surrogate: 1,4-Difluorobenzene	0.120		"	0.120		100	80-120			

Permian Basin Environmental Lab, L.P.

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 PID1411 - * DEFAULT PREP *******Calibration Check (PID1411-CCV2)**

Prepared: 04/14/21 Analyzed: 04/15/21

Benzene	0.0814	0.00100	mg/kg wet				80-120			
Toluene	0.0853	0.00100	"				80-120			
Ethylbenzene	0.0864	0.00100	"				80-120			
Xylene (p/m)	0.169	0.00200	"				80-120			
Xylene (o)	0.0875	0.00100	"				80-120			
Surrogate: 1,4-Difluorobenzene	0.121		"	0.120		101	75-125			
Surrogate: 4-Bromofluorobenzene	0.122		"	0.120		102	75-125			

Calibration Check (PID1411-CCV3)

Prepared: 04/14/21 Analyzed: 04/15/21

Benzene	0.0911	0.00100	mg/kg wet				80-120			
Toluene	0.0901	0.00100	"				80-120			
Ethylbenzene	0.0901	0.00100	"				80-120			
Xylene (p/m)	0.176	0.00200	"				80-120			
Xylene (o)	0.0939	0.00100	"				80-120			
Surrogate: 4-Bromofluorobenzene	0.119		"	0.120		99.0	75-125			
Surrogate: 1,4-Difluorobenzene	0.121		"	0.120		101	75-125			

Matrix Spike (PID1411-MS1)

Source: 1D13008-01

Prepared: 04/14/21 Analyzed: 04/15/21

Benzene	0.0691	0.00101	mg/kg dry		ND		80-120			
Toluene	0.0550	0.00101	"		ND		80-120			
Ethylbenzene	0.0439	0.00101	"		ND		80-120			
Xylene (p/m)	0.0923	0.00202	"		ND		80-120			
Xylene (o)	0.0400	0.00101	"		ND		80-120			
Surrogate: 1,4-Difluorobenzene	0.128		"	0.121		105	80-120			
Surrogate: 4-Bromofluorobenzene	0.118		"	0.121		97.5	80-120			

Matrix Spike Dup (PID1411-MSD1)

Source: 1D13008-01

Prepared: 04/14/21 Analyzed: 04/15/21

Benzene	0.0677	0.00101	mg/kg dry		ND		80-120		20	
Toluene	0.0560	0.00101	"		ND		80-120		20	
Ethylbenzene	0.0443	0.00101	"		ND		80-120		20	
Xylene (p/m)	0.0935	0.00202	"		ND		80-120		20	
Xylene (o)	0.0413	0.00101	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	0.126		"	0.121		104	80-120			
Surrogate: 4-Bromofluorobenzene	0.121		"	0.121		99.4	80-120			

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: Raley A Well No. 1
Project Number: 21-0107-02
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
Batch PID1402 - *** DEFAULT PREP ***										
Blank (PID1402-BLK1) Prepared & Analyzed: 04/14/21										
Chloride	ND	1.00	mg/kg wet							
LCS (PID1402-BS1) Prepared & Analyzed: 04/14/21										
Chloride	399	1.00	mg/kg wet	400		99.6	90-110			
LCS Dup (PID1402-BSD1) Prepared & Analyzed: 04/14/21										
Chloride	399	1.00	mg/kg wet	400		99.8	90-110	0.125	20	
Calibration Check (PID1402-CCV1) Prepared & Analyzed: 04/14/21										
Chloride	20.0		mg/kg	20.0		100	90-110			
Calibration Check (PID1402-CCV2) Prepared & Analyzed: 04/14/21										
Chloride	20.1		mg/kg	20.0		101	90-110			
Calibration Check (PID1402-CCV3) Prepared & Analyzed: 04/14/21										
Chloride	20.2		mg/kg	20.0		101	90-110			
Matrix Spike (PID1402-MS1) Source: 1D14001-01 Prepared & Analyzed: 04/14/21										
Chloride	515	1.03	mg/kg dry	515	22.9	95.5	80-120			
Matrix Spike (PID1402-MS2) Source: 1D13010-01 Prepared & Analyzed: 04/14/21										
Chloride	1470	10.6	mg/kg dry	1060	335	106	80-120			
Matrix Spike Dup (PID1402-MSD1) Source: 1D14001-01 Prepared & Analyzed: 04/14/21										
Chloride	526	1.03	mg/kg dry	515	22.9	97.6	80-120	2.15	20	
Matrix Spike Dup (PID1402-MSD2) Source: 1D13010-01 Prepared & Analyzed: 04/14/21										
Chloride	1470	10.6	mg/kg dry	1060	335	107	80-120	0.254	20	

Permian Basin Environmental Lab, L.P.

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

Project: Raley A Well No. 1
 Project Number: 21-0107-02
 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
Batch P1D1405 - *** DEFAULT PREP ***										
Blank (P1D1405-BLK1)										
Prepared & Analyzed: 04/14/21										
% Moisture	ND	0.1	%							
Duplicate (P1D1405-DUP1)										
Source: 1D12026-45 Prepared & Analyzed: 04/14/21										
% Moisture	7.0	0.1	%		7.0			0.00	20	
Duplicate (P1D1405-DUP2)										
Source: 1D13003-01 Prepared & Analyzed: 04/14/21										
% Moisture	1.0	0.1	%		1.0			0.00	20	
Duplicate (P1D1405-DUP3)										
Source: 1D13001-07 Prepared & Analyzed: 04/14/21										
% Moisture	1.0	0.1	%		1.0			0.00	20	
Duplicate (P1D1405-DUP4)										
Source: 1D13001-17 Prepared & Analyzed: 04/14/21										
% Moisture	5.0	0.1	%		5.0			0.00	20	
Duplicate (P1D1405-DUP5)										
Source: 1D13002-08 Prepared & Analyzed: 04/14/21										
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P1D1405-DUP6)										
Source: 1D13002-18 Prepared & Analyzed: 04/14/21										
% Moisture	6.0	0.1	%		6.0			0.00	20	

Permian Basin Environmental Lab, L.P.

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
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	%REC Limits	RPD	RPD Limit	Notes
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Batch PID1310 - TX 1005**Blank (PID1310-BLK1)**

Prepared: 04/13/21 Analyzed: 04/17/21

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	98.6		"	100		98.6	70-130			
Surrogate: o-Terphenyl	51.2		"	50.0		102	70-130			

LCS (PID1310-BS1)

Prepared: 04/13/21 Analyzed: 04/17/21

C6-C12	919	25.0	mg/kg wet	1000		91.9	75-125			
>C12-C28	827	25.0	"	1000		82.7	75-125			
Surrogate: 1-Chlorooctane	103		"	100		103	70-130			
Surrogate: o-Terphenyl	53.0		"	50.0		106	70-130			

LCS Dup (PID1310-BSD1)

Prepared: 04/13/21 Analyzed: 04/17/21

C6-C12	917	25.0	mg/kg wet	1000		91.7	75-125	0.272	20	
>C12-C28	825	25.0	"	1000		82.5	75-125	0.227	20	
Surrogate: 1-Chlorooctane	101		"	100		101	70-130			
Surrogate: o-Terphenyl	52.1		"	50.0		104	70-130			

Calibration Check (PID1310-CCV1)

Prepared: 04/13/21 Analyzed: 04/17/21

C6-C12	438	25.0	mg/kg wet	500		87.7	85-115			
>C12-C28	471	25.0	"	500		94.3	85-115			
Surrogate: 1-Chlorooctane	93.9		"	100		93.9	70-130			
Surrogate: o-Terphenyl	48.1		"	50.0		96.3	70-130			

Calibration Check (PID1310-CCV2)

Prepared: 04/13/21 Analyzed: 04/17/21

C6-C12	469	25.0	mg/kg wet	500		93.7	85-115			
>C12-C28	532	25.0	"	500		106	85-115			
Surrogate: 1-Chlorooctane	99.4		"	100		99.4	70-130			
Surrogate: o-Terphenyl	52.2		"	50.0		104	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: Raley A Well No. 1
 Project Number: 21-0107-02
 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	%REC Limits	RPD	RPD Limit	Notes
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Batch PID1310 - TX 1005

Matrix Spike (PID1310-MS1)

Source: 1D13008-02

Prepared: 04/13/21 Analyzed: 04/17/21

C6-C12	809	128	mg/kg dry	1020	ND	79.3	75-125			
>C12-C28	4820	128	"	1020	1110	363	75-125			
Surrogate: 1-Chlorooctane	78.6		"	102		77.0	70-130			
Surrogate: o-Terphenyl	41.6		"	51.0		81.6	70-130			

Matrix Spike Dup (PID1310-MSD1)

Source: 1D13008-02

Prepared: 04/13/21 Analyzed: 04/17/21

C6-C12	819	128	mg/kg dry	1020	ND	80.3	75-125	1.23	20	
>C12-C28	4630	128	"	1020	1110	344	75-125	5.27	20	
Surrogate: 1-Chlorooctane	81.5		"	102		79.9	70-130			
Surrogate: o-Terphenyl	52.7		"	51.0		103	70-130			

Permian Basin Environmental Lab, L.P.

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P.O. Box 50685
Midland TX, 79710

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

ROI Received on Ice

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: 4/19/2021

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

**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: Raley A Well No. 1
Project Number: 21-0107-02

Location:

Lab Order Number: 1D22004



NELAP/TCEQ # T104704516-17-8

Report Date: 04/30/21

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
C-1	1D22004-01	Soil	04/21/21 09:01	04-22-2021 09:23
C-3	1D22004-02	Soil	04/21/21 09:03	04-22-2021 09:23
C-4	1D22004-03	Soil	04/21/21 09:05	04-22-2021 09:23
C-5	1D22004-04	Soil	04/21/21 09:07	04-22-2021 09:23
D-1	1D22004-05	Soil	04/21/21 09:11	04-22-2021 09:23

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

C-1
1D22004-01 (Soil)

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

BTEX by 8021B

Benzene	0.00421	0.00123	mg/kg dry	1	P1D2211	04/22/21	04/22/21	EPA 8021B	
Toluene	0.00586	0.00123	mg/kg dry	1	P1D2211	04/22/21	04/22/21	EPA 8021B	
Ethylbenzene	ND	0.00123	mg/kg dry	1	P1D2211	04/22/21	04/22/21	EPA 8021B	
Xylene (p/m)	0.00259	0.00247	mg/kg dry	1	P1D2211	04/22/21	04/22/21	EPA 8021B	
Xylene (o)	ND	0.00123	mg/kg dry	1	P1D2211	04/22/21	04/22/21	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>110 %</i>			<i>P1D2211</i>	<i>04/22/21</i>	<i>04/22/21</i>	<i>EPA 8021B</i>	
<i>Surrogate: 1,4-Difluorobenzene</i>		<i>111 %</i>			<i>P1D2211</i>	<i>04/22/21</i>	<i>04/22/21</i>	<i>EPA 8021B</i>	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.23	mg/kg dry	1	P1D2608	04/26/21	04/27/21	EPA 300.0	
% Moisture	19.0	0.1	%	1	P1D2304	04/23/21	04/23/21	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	30.9	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
>C12-C28	37.6	30.9	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
>C28-C35	ND	30.9	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		<i>110 %</i>			<i>P1D2210</i>	<i>04/22/21</i>	<i>04/25/21</i>	<i>TPH 8015M</i>	
<i>Surrogate: o-Terphenyl</i>		<i>115 %</i>			<i>P1D2210</i>	<i>04/22/21</i>	<i>04/25/21</i>	<i>TPH 8015M</i>	
Total Petroleum Hydrocarbon C6-C35	37.6	30.9	mg/kg dry	1	[CALC]	04/22/21	04/25/21	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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

C-3
1D22004-02 (Soil)

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

BTEX by 8021B

Benzene	0.00519	0.00111	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Toluene	0.0241	0.00111	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Ethylbenzene	0.0217	0.00111	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Xylene (p/m)	0.0499	0.00222	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Xylene (o)	0.0170	0.00111	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		117 %	80-120		P1D2211	04/22/21	04/23/21	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		112 %	80-120		P1D2211	04/22/21	04/23/21	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.11	mg/kg dry	1	P1D2608	04/26/21	04/27/21	EPA 300.0	
% Moisture	10.0	0.1	%	1	P1D2304	04/23/21	04/23/21	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	27.8	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
>C12-C28	39.9	27.8	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		111 %	70-130		P1D2210	04/22/21	04/25/21	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		116 %	70-130		P1D2210	04/22/21	04/25/21	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	39.9	27.8	mg/kg dry	1	[CALC]	04/22/21	04/25/21	calc	

Permian Basin Environmental Lab, L.P.

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

C-4
1D22004-03 (Soil)

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

BTEX by 8021B

Benzene	0.0108	0.00114	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Toluene	0.0143	0.00114	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Ethylbenzene	0.00184	0.00114	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Xylene (p/m)	0.00468	0.00227	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Xylene (o)	ND	0.00114	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		109 %	80-120		P1D2211	04/22/21	04/23/21	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %	80-120		P1D2211	04/22/21	04/23/21	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.14	mg/kg dry	1	P1D2608	04/26/21	04/27/21	EPA 300.0	
% Moisture	12.0	0.1	%	1	P1D2304	04/23/21	04/23/21	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	28.4	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
>C12-C28	57.7	28.4	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		112 %	70-130		P1D2210	04/22/21	04/25/21	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		117 %	70-130		P1D2210	04/22/21	04/25/21	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	57.7	28.4	mg/kg dry	1	[CALC]	04/22/21	04/25/21	calc	

Permian Basin Environmental Lab, L.P.

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Page 5 of 20

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

C-5
1D22004-04 (Soil)

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

BTEX by 8021B

Benzene	0.0116	0.00114	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Toluene	0.0140	0.00114	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Ethylbenzene	0.00144	0.00114	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Xylene (p/m)	0.00323	0.00227	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
Xylene (o)	ND	0.00114	mg/kg dry	1	P1D2211	04/22/21	04/23/21	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		112 %	80-120		P1D2211	04/22/21	04/23/21	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		108 %	80-120		P1D2211	04/22/21	04/23/21	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	19.5	1.14	mg/kg dry	1	P1D2608	04/26/21	04/27/21	EPA 300.0	
% Moisture	12.0	0.1	%	1	P1D2304	04/23/21	04/23/21	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	28.4	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
>C12-C28	55.9	28.4	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P1D2210	04/22/21	04/25/21	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		112 %	70-130		P1D2210	04/22/21	04/25/21	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		118 %	70-130		P1D2210	04/22/21	04/25/21	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	55.9	28.4	mg/kg dry	1	[CALC]	04/22/21	04/25/21	calc	

Permian Basin Environmental Lab, L.P.

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Page 6 of 20

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

D-1
1D22004-05 (Soil)

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

BTEX by 8021B

Benzene	21.5	0.575	mg/kg dry	500	P1D2606	04/26/21	04/29/21	EPA 8021B	
Toluene	155	0.575	mg/kg dry	500	P1D2606	04/26/21	04/29/21	EPA 8021B	
Ethylbenzene	89.4	0.575	mg/kg dry	500	P1D2606	04/26/21	04/29/21	EPA 8021B	
Xylene (p/m)	173	1.15	mg/kg dry	500	P1D2606	04/26/21	04/29/21	EPA 8021B	
Xylene (o)	47.6	0.575	mg/kg dry	500	P1D2606	04/26/21	04/29/21	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		85.3 %		80-120	P1D2606	04/26/21	04/29/21	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		97.2 %		80-120	P1D2606	04/26/21	04/29/21	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	12500	28.7	mg/kg dry	25	P1D2608	04/26/21	04/27/21	EPA 300.0	
% Moisture	13.0	0.1	%	1	P1D2304	04/23/21	04/23/21	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	13400	575	mg/kg dry	20	P1D2210	04/22/21	04/25/21	TPH 8015M	
>C12-C28	27000	575	mg/kg dry	20	P1D2210	04/22/21	04/25/21	TPH 8015M	
>C28-C35	5030	575	mg/kg dry	20	P1D2210	04/22/21	04/25/21	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		76.2 %		70-130	P1D2210	04/22/21	04/25/21	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		162 %		70-130	P1D2210	04/22/21	04/25/21	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	45500	575	mg/kg dry	20	[CALC]	04/22/21	04/25/21	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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 P1D2211 - * DEFAULT PREP *******Blank (P1D2211-BLK1)**

Prepared & Analyzed: 04/22/21

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.130		"	0.120		108	80-120			
Surrogate: 4-Bromofluorobenzene	0.122		"	0.120		102	80-120			

LCS (P1D2211-BS1)

Prepared & Analyzed: 04/22/21

Benzene	0.117	0.00100	mg/kg wet	0.100		117	70-130			
Toluene	0.114	0.00100	"	0.100		114	70-130			
Ethylbenzene	0.110	0.00100	"	0.100		110	70-130			
Xylene (p/m)	0.224	0.00200	"	0.200		112	70-130			
Xylene (o)	0.102	0.00100	"	0.100		102	70-130			
Surrogate: 1,4-Difluorobenzene	0.125		"	0.120		104	80-120			
Surrogate: 4-Bromofluorobenzene	0.117		"	0.120		97.8	80-120			

LCS Dup (P1D2211-BSD1)

Prepared & Analyzed: 04/22/21

Benzene	0.114	0.00100	mg/kg wet	0.100		114	70-130	2.46	20	
Toluene	0.103	0.00100	"	0.100		103	70-130	10.0	20	
Ethylbenzene	0.101	0.00100	"	0.100		101	70-130	8.29	20	
Xylene (p/m)	0.206	0.00200	"	0.200		103	70-130	8.36	20	
Xylene (o)	0.0963	0.00100	"	0.100		96.3	70-130	5.54	20	
Surrogate: 4-Bromofluorobenzene	0.119		"	0.120		99.2	80-120			
Surrogate: 1,4-Difluorobenzene	0.124		"	0.120		103	80-120			

Calibration Blank (P1D2211-CCB1)

Prepared & Analyzed: 04/22/21

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	0.118		"	0.120		98.6	80-120			
Surrogate: 1,4-Difluorobenzene	0.131		"	0.120		109	80-120			

Permian Basin Environmental Lab, L.P.

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Midland TX, 79710

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 P1D2211 - * DEFAULT PREP *******Calibration Blank (P1D2211-CCB2)**

Prepared & Analyzed: 04/22/21

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	0.129		"	0.120		108	80-120			
Surrogate: 4-Bromofluorobenzene	0.123		"	0.120		102	80-120			

Calibration Check (P1D2211-CCV1)

Prepared & Analyzed: 04/22/21

Benzene	0.104	0.00100	mg/kg wet	0.100		104	80-120			
Toluene	0.0959	0.00100	"	0.100		95.9	80-120			
Ethylbenzene	0.0919	0.00100	"	0.100		91.9	80-120			
Xylene (p/m)	0.188	0.00200	"	0.200		94.0	80-120			
Xylene (o)	0.0878	0.00100	"	0.100		87.8	80-120			
Surrogate: 1,4-Difluorobenzene	0.124		"	0.120		104	75-125			
Surrogate: 4-Bromofluorobenzene	0.117		"	0.120		97.8	75-125			

Calibration Check (P1D2211-CCV2)

Prepared & Analyzed: 04/22/21

Benzene	0.115	0.00100	mg/kg wet	0.100		115	80-120			
Toluene	0.105	0.00100	"	0.100		105	80-120			
Ethylbenzene	0.0981	0.00100	"	0.100		98.1	80-120			
Xylene (p/m)	0.203	0.00200	"	0.200		101	80-120			
Xylene (o)	0.0986	0.00100	"	0.100		98.6	80-120			
Surrogate: 4-Bromofluorobenzene	0.124		"	0.120		103	75-125			
Surrogate: 1,4-Difluorobenzene	0.127		"	0.120		106	75-125			

Calibration Check (P1D2211-CCV3)

Prepared: 04/22/21 Analyzed: 04/23/21

Benzene	0.116	0.00100	mg/kg wet	0.100		116	80-120			
Toluene	0.104	0.00100	"	0.100		104	80-120			
Ethylbenzene	0.0947	0.00100	"	0.100		94.7	80-120			
Xylene (p/m)	0.200	0.00200	"	0.200		100	80-120			
Xylene (o)	0.0917	0.00100	"	0.100		91.7	80-120			
Surrogate: 1,4-Difluorobenzene	0.129		"	0.120		108	75-125			
Surrogate: 4-Bromofluorobenzene	0.134		"	0.120		111	75-125			

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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 P1D2211 - * DEFAULT PREP *****

Matrix Spike (P1D2211-MS1)	Source: 1D21010-13			Prepared: 04/22/21 Analyzed: 04/23/21						
Benzene	0.0689	0.00100	mg/kg dry	0.100	0.00410	64.8	80-120			QM-07
Toluene	0.0634	0.00100	"	0.100	0.0122	51.2	80-120			QM-07
Ethylbenzene	0.0463	0.00100	"	0.100	0.00730	39.0	80-120			QM-07
Xylene (p/m)	0.116	0.00200	"	0.200	0.0689	23.6	80-120			QM-07
Xylene (o)	0.0471	0.00100	"	0.100	0.0267	20.4	80-120			QM-07
Surrogate: 4-Bromofluorobenzene	0.120		"	0.120		99.9	80-120			
Surrogate: 1,4-Difluorobenzene	0.131		"	0.120		109	80-120			

Matrix Spike Dup (P1D2211-MSD1)	Source: 1D21010-13			Prepared: 04/22/21 Analyzed: 04/23/21						
Benzene	0.0638	0.00100	mg/kg dry	0.100	0.00410	59.7	80-120	8.15	20	QM-07
Toluene	0.0582	0.00100	"	0.100	0.0122	46.0	80-120	10.7	20	QM-07
Ethylbenzene	0.0443	0.00100	"	0.100	0.00730	37.0	80-120	5.29	20	QM-07
Xylene (p/m)	0.111	0.00200	"	0.200	0.0689	21.0	80-120	11.6	20	QM-07
Xylene (o)	0.0447	0.00100	"	0.100	0.0267	18.0	80-120	12.5	20	QM-07
Surrogate: 4-Bromofluorobenzene	0.116		"	0.120		97.0	80-120			
Surrogate: 1,4-Difluorobenzene	0.128		"	0.120		106	80-120			

Batch P1D2606 - * DEFAULT PREP *****

Blank (P1D2606-BLK1)				Prepared: 04/26/21 Analyzed: 04/27/21						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.122		"	0.120		102	80-120			
Surrogate: 4-Bromofluorobenzene	0.131		"	0.120		109	80-120			

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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 P1D2606 - * DEFAULT PREP *******LCS (P1D2606-BS1)**

Prepared: 04/26/21 Analyzed: 04/27/21

Benzene	0.102	0.00100	mg/kg wet	0.100		102	70-130			
Toluene	0.110	0.00100	"	0.100		110	70-130			
Ethylbenzene	0.117	0.00100	"	0.100		117	70-130			
Xylene (p/m)	0.204	0.00200	"	0.200		102	70-130			
Xylene (o)	0.105	0.00100	"	0.100		105	70-130			
Surrogate: 1,4-Difluorobenzene	0.126		"	0.120		105	80-120			
Surrogate: 4-Bromofluorobenzene	0.124		"	0.120		103	80-120			

LCS Dup (P1D2606-BSD1)

Prepared: 04/26/21 Analyzed: 04/27/21

Benzene	0.109	0.00100	mg/kg wet	0.100		109	70-130	6.76	20	
Toluene	0.118	0.00100	"	0.100		118	70-130	7.07	20	
Ethylbenzene	0.119	0.00100	"	0.100		119	70-130	1.97	20	
Xylene (p/m)	0.228	0.00200	"	0.200		114	70-130	11.5	20	
Xylene (o)	0.114	0.00100	"	0.100		114	70-130	8.87	20	
Surrogate: 1,4-Difluorobenzene	0.130		"	0.120		108	80-120			
Surrogate: 4-Bromofluorobenzene	0.132		"	0.120		110	80-120			

Calibration Blank (P1D2606-CCB1)

Prepared: 04/26/21 Analyzed: 04/27/21

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	0.122		"	0.120		102	80-120			
Surrogate: 4-Bromofluorobenzene	0.129		"	0.120		107	80-120			

Calibration Blank (P1D2606-CCB2)

Prepared: 04/26/21 Analyzed: 04/27/21

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	0.124		"	0.120		103	80-120			
Surrogate: 4-Bromofluorobenzene	0.135		"	0.120		113	80-120			

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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 P1D2606 - * DEFAULT PREP *******Calibration Check (P1D2606-CCV1)**

Prepared: 04/26/21 Analyzed: 04/27/21

Benzene	0.0901	0.00100	mg/kg wet	0.100		90.1	80-120			
Toluene	0.0981	0.00100	"	0.100		98.1	80-120			
Ethylbenzene	0.108	0.00100	"	0.100		108	80-120			
Xylene (p/m)	0.209	0.00200	"	0.200		104	80-120			
Xylene (o)	0.0981	0.00100	"	0.100		98.1	80-120			
Surrogate: 4-Bromofluorobenzene	0.125		"	0.120		105	75-125			
Surrogate: 1,4-Difluorobenzene	0.127		"	0.120		106	75-125			

Calibration Check (P1D2606-CCV2)

Prepared: 04/26/21 Analyzed: 04/27/21

Benzene	0.0921	0.00100	mg/kg wet	0.100		92.1	80-120			
Toluene	0.0971	0.00100	"	0.100		97.1	80-120			
Ethylbenzene	0.105	0.00100	"	0.100		105	80-120			
Xylene (p/m)	0.210	0.00200	"	0.200		105	80-120			
Xylene (o)	0.0991	0.00100	"	0.100		99.1	80-120			
Surrogate: 1,4-Difluorobenzene	0.126		"	0.120		105	75-125			
Surrogate: 4-Bromofluorobenzene	0.128		"	0.120		106	75-125			

Calibration Check (P1D2606-CCV3)

Prepared: 04/26/21 Analyzed: 04/28/21

Benzene	0.0992	0.00100	mg/kg wet	0.100		99.2	80-120			
Toluene	0.106	0.00100	"	0.100		106	80-120			
Ethylbenzene	0.118	0.00100	"	0.100		118	80-120			
Xylene (p/m)	0.225	0.00200	"	0.200		112	80-120			
Xylene (o)	0.108	0.00100	"	0.100		108	80-120			
Surrogate: 1,4-Difluorobenzene	0.129		"	0.120		107	75-125			
Surrogate: 4-Bromofluorobenzene	0.133		"	0.120		111	75-125			

Matrix Spike (P1D2606-MS1)

Source: 1D22005-01

Prepared: 04/26/21 Analyzed: 04/27/21

Benzene	0.0870	0.00104	mg/kg dry	0.104	ND	83.5	80-120			
Toluene	0.0919	0.00104	"	0.104	0.00939	79.2	80-120			QM-07
Ethylbenzene	0.0961	0.00104	"	0.104	0.00341	89.0	80-120			
Xylene (p/m)	0.187	0.00208	"	0.208	0.00935	85.3	80-120			
Xylene (o)	0.0888	0.00104	"	0.104	0.00293	82.4	80-120			
Surrogate: 4-Bromofluorobenzene	0.150		"	0.125		120	80-120			
Surrogate: 1,4-Difluorobenzene	0.144		"	0.125		116	80-120			

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: Raley A Well No. 1
 Project Number: 21-0107-02
 Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 P1D2606 - * DEFAULT PREP *****

Matrix Spike Dup (P1D2606-MSD1)	Source: 1D22005-01			Prepared: 04/26/21 Analyzed: 04/27/21						
Benzene	0.0766	0.00104	mg/kg dry	0.104	ND	73.5	80-120	12.7	20	QM-07
Toluene	0.0811	0.00104	"	0.104	0.00939	68.8	80-120	14.0	20	QM-07
Ethylbenzene	0.0877	0.00104	"	0.104	0.00341	80.9	80-120	9.52	20	
Xylene (p/m)	0.173	0.00208	"	0.208	0.00935	78.7	80-120	8.15	20	QM-07
Xylene (o)	0.0770	0.00104	"	0.104	0.00293	71.1	80-120	14.7	20	QM-07
Surrogate: 1,4-Difluorobenzene	0.135		"	0.125		108	80-120			
Surrogate: 4-Bromofluorobenzene	0.138		"	0.125		110	80-120			

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: Raley A Well No. 1
Project Number: 21-0107-02
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
Batch P1D2304 - *** DEFAULT PREP ***										
Blank (P1D2304-BLK1)										
Prepared & Analyzed: 04/23/21										
% Moisture	ND	0.1	%							
Duplicate (P1D2304-DUP1)										
Source: 1D22003-04 Prepared & Analyzed: 04/23/21										
% Moisture	7.0	0.1	%		8.0			13.3	20	
Duplicate (P1D2304-DUP2)										
Source: 1D22005-02 Prepared & Analyzed: 04/23/21										
% Moisture	2.0	0.1	%		3.0			40.0	20	QM-05
Duplicate (P1D2304-DUP3)										
Source: 1D22010-10 Prepared & Analyzed: 04/23/21										
% Moisture	8.0	0.1	%		10.0			22.2	20	QM-05
Duplicate (P1D2304-DUP4)										
Source: 1D22010-20 Prepared & Analyzed: 04/23/21										
% Moisture	3.0	0.1	%		3.0			0.00	20	
Batch P1D2608 - *** DEFAULT PREP ***										
Blank (P1D2608-BLK1)										
Prepared: 04/26/21 Analyzed: 04/27/21										
Chloride	ND	1.00	mg/kg wet							
LCS (P1D2608-BS1)										
Prepared: 04/26/21 Analyzed: 04/27/21										
Chloride	397	1.00	mg/kg wet	400		99.1	90-110			
LCS Dup (P1D2608-BSD1)										
Prepared: 04/26/21 Analyzed: 04/27/21										
Chloride	397	1.00	mg/kg wet	400		99.3	90-110	0.171	20	
Calibration Check (P1D2608-CCV1)										
Prepared: 04/26/21 Analyzed: 04/27/21										
Chloride	19.4		mg/kg	20.0		97.2	90-110			

Permian Basin Environmental Lab, L.P.

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Page 14 of 20

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

Project: Raley A Well No. 1
 Project Number: 21-0107-02
 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
Batch P1D2608 - *** DEFAULT PREP ***										
Calibration Check (P1D2608-CCV2)				Prepared: 04/26/21 Analyzed: 04/27/21						
Chloride	19.4		mg/kg	20.0		97.2	90-110			
Calibration Check (P1D2608-CCV3)				Prepared: 04/26/21 Analyzed: 04/27/21						
Chloride	18.9		mg/kg	20.0		94.6	90-110			
Matrix Spike (P1D2608-MS1)				Source: 1D22003-01		Prepared: 04/26/21 Analyzed: 04/27/21				
Chloride	1350	5.56	mg/kg dry	556	732	112	80-120			
Matrix Spike (P1D2608-MS2)				Source: 1D22004-04		Prepared: 04/26/21 Analyzed: 04/27/21				
Chloride	528	1.14	mg/kg dry	568	19.5	89.5	80-120			
Matrix Spike Dup (P1D2608-MSD1)				Source: 1D22003-01		Prepared: 04/26/21 Analyzed: 04/27/21				
Chloride	1350	5.56	mg/kg dry	556	732	110	80-120	0.646	20	
Matrix Spike Dup (P1D2608-MSD2)				Source: 1D22004-04		Prepared: 04/26/21 Analyzed: 04/27/21				
Chloride	533	1.14	mg/kg dry	568	19.5	90.4	80-120	0.966	20	

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: Raley A Well No. 1
Project Number: 21-0107-02
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	%REC Limits	RPD	RPD Limit	Notes
Batch P1D2210 - TX 1005										
Blank (P1D2210-BLK1)										
					Prepared: 04/22/21 Analyzed: 04/23/21					
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	112		"	100		112	70-130			
Surrogate: o-Terphenyl	61.9		"	50.0		124	70-130			
LCS (P1D2210-BS1)										
					Prepared: 04/22/21 Analyzed: 04/23/21					
C6-C12	1000	25.0	mg/kg wet	1000		100	75-125			
>C12-C28	986	25.0	"	1000		98.6	75-125			
Surrogate: 1-Chlorooctane	117		"	100		117	70-130			
Surrogate: o-Terphenyl	62.6		"	50.0		125	70-130			
LCS Dup (P1D2210-BSD1)										
					Prepared: 04/22/21 Analyzed: 04/23/21					
C6-C12	992	25.0	mg/kg wet	1000		99.2	75-125	0.820	20	
>C12-C28	992	25.0	"	1000		99.2	75-125	0.636	20	
Surrogate: 1-Chlorooctane	117		"	100		117	70-130			
Surrogate: o-Terphenyl	63.4		"	50.0		127	70-130			
Calibration Check (P1D2210-CCV1)										
					Prepared: 04/22/21 Analyzed: 04/23/21					
C6-C12	467	25.0	mg/kg wet	500		93.5	85-115			
>C12-C28	472	25.0	"	500		94.3	85-115			
Surrogate: 1-Chlorooctane	115		"	100		115	70-130			
Surrogate: o-Terphenyl	62.9		"	50.0		126	70-130			
Calibration Check (P1D2210-CCV2)										
					Prepared: 04/22/21 Analyzed: 04/23/21					
C6-C12	441	25.0	mg/kg wet	500		88.2	85-115			
>C12-C28	444	25.0	"	500		88.7	85-115			
Surrogate: 1-Chlorooctane	130		"	100		130	70-130			
Surrogate: o-Terphenyl	61.9		"	50.0		124	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: Raley A Well No. 1
 Project Number: 21-0107-02
 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	%REC Limits	RPD	RPD Limit	Notes
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Batch PID2210 - TX 1005

Matrix Spike (PID2210-MS1)

Source: 1D22003-01

Prepared: 04/22/21 Analyzed: 04/25/21

C6-C12	1150	27.8	mg/kg dry	1110	ND	103	75-125			
>C12-C28	1140	27.8	"	1110	162	88.0	75-125			
Surrogate: 1-Chlorooctane	114		"	111		103	70-130			
Surrogate: o-Terphenyl	57.3		"	55.6		103	70-130			

Matrix Spike Dup (PID2210-MSD1)

Source: 1D22003-01

Prepared: 04/22/21 Analyzed: 04/25/21

C6-C12	1110	27.8	mg/kg dry	1110	ND	99.8	75-125	3.42	20	
>C12-C28	1120	27.8	"	1110	162	86.1	75-125	2.28	20	
Surrogate: 1-Chlorooctane	142		"	111		128	70-130			
Surrogate: o-Terphenyl	64.4		"	55.6		116	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: Raley A Well No. 1
Project Number: 21-0107-02
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.
- ROI Received on Ice
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
- BULK Samples received in Bulk soil containers
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- LCS Laboratory Control Spike
- MS Matrix Spike
- Dup Duplicate

Report Approved By:  Date: 4/30/2021

Brent Barron, Laboratory Director/Technical Director

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

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

**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: Raley A Well No. 1
Project Number: 21-0107-02

Location:

Lab Order Number: 1D23002



Current Certification

Report Date: 04/30/21

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
C-2	1D23002-01	Soil	04/22/21 11:35	04-23-2021 08:41

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

C-2
1D23002-01 (Soil)

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

BTEX by 8021B

Benzene	ND	0.00112	mg/kg dry	1	P1D2606	04/26/21 14:02	04/27/21 15:59	EPA 8021B
Toluene	0.00135	0.00112	mg/kg dry	1	P1D2606	04/26/21 14:02	04/27/21 15:59	EPA 8021B
Ethylbenzene	ND	0.00112	mg/kg dry	1	P1D2606	04/26/21 14:02	04/27/21 15:59	EPA 8021B
Xylene (p/m)	ND	0.00225	mg/kg dry	1	P1D2606	04/26/21 14:02	04/27/21 15:59	EPA 8021B
Xylene (o)	ND	0.00112	mg/kg dry	1	P1D2606	04/26/21 14:02	04/27/21 15:59	EPA 8021B
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>113 %</i>	<i>80-120</i>			<i>P1D2606</i>	<i>04/26/21 14:02</i>	<i>04/27/21 15:59</i>	<i>EPA 8021B</i>
<i>Surrogate: 1,4-Difluorobenzene</i>	<i>107 %</i>	<i>80-120</i>			<i>P1D2606</i>	<i>04/26/21 14:02</i>	<i>04/27/21 15:59</i>	<i>EPA 8021B</i>

General Chemistry Parameters by EPA / Standard Methods

Chloride	464	1.12	mg/kg dry	1	P1D2803	04/28/21 11:27	04/29/21 05:35	EPA 300.0
% Moisture	11.0	0.1	%	1	P1D2603	04/26/21 09:32	04/26/21 09:39	ASTM D2216

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	28.1	mg/kg dry	1	P1D2302	04/23/21 13:00	04/26/21 09:39	TPH 8015M
>C12-C28	195	28.1	mg/kg dry	1	P1D2302	04/23/21 13:00	04/26/21 09:39	TPH 8015M
>C28-C35	109	28.1	mg/kg dry	1	P1D2302	04/23/21 13:00	04/26/21 09:39	TPH 8015M
<i>Surrogate: 1-Chlorooctane</i>	<i>113 %</i>	<i>70-130</i>			<i>P1D2302</i>	<i>04/23/21 13:00</i>	<i>04/26/21 09:39</i>	<i>TPH 8015M</i>
<i>Surrogate: o-Terphenyl</i>	<i>118 %</i>	<i>70-130</i>			<i>P1D2302</i>	<i>04/23/21 13:00</i>	<i>04/26/21 09:39</i>	<i>TPH 8015M</i>
Total Petroleum Hydrocarbon C6-C35	304	28.1	mg/kg dry	1	[CALC]	04/23/21 13:00	04/26/21 09:39	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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 P1D2606 - * DEFAULT PREP *******Blank (P1D2606-BLK1)**

Prepared: 04/26/21 Analyzed: 04/27/21

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.122		"	0.120		102	80-120			
Surrogate: 4-Bromofluorobenzene	0.131		"	0.120		109	80-120			

LCS (P1D2606-BS1)

Prepared: 04/26/21 Analyzed: 04/27/21

Benzene	0.102	0.00100	mg/kg wet	0.100		102	70-130			
Toluene	0.110	0.00100	"	0.100		110	70-130			
Ethylbenzene	0.117	0.00100	"	0.100		117	70-130			
Xylene (p/m)	0.204	0.00200	"	0.200		102	70-130			
Xylene (o)	0.105	0.00100	"	0.100		105	70-130			
Surrogate: 1,4-Difluorobenzene	0.126		"	0.120		105	80-120			
Surrogate: 4-Bromofluorobenzene	0.124		"	0.120		103	80-120			

LCS Dup (P1D2606-BS1)

Prepared: 04/26/21 Analyzed: 04/27/21

Benzene	0.109	0.00100	mg/kg wet	0.100		109	70-130	6.76	20	
Toluene	0.118	0.00100	"	0.100		118	70-130	7.07	20	
Ethylbenzene	0.119	0.00100	"	0.100		119	70-130	1.97	20	
Xylene (p/m)	0.228	0.00200	"	0.200		114	70-130	11.5	20	
Xylene (o)	0.114	0.00100	"	0.100		114	70-130	8.87	20	
Surrogate: 4-Bromofluorobenzene	0.132		"	0.120		110	80-120			
Surrogate: 1,4-Difluorobenzene	0.130		"	0.120		108	80-120			

Calibration Blank (P1D2606-CCB1)

Prepared: 04/26/21 Analyzed: 04/27/21

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	0.122		"	0.120		102	80-120			
Surrogate: 4-Bromofluorobenzene	0.129		"	0.120		107	80-120			

Permian Basin Environmental Lab, L.P.

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Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 PID2606 - * DEFAULT PREP *******Calibration Blank (PID2606-CCB2)**

Prepared: 04/26/21 Analyzed: 04/27/21

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	0.124		"	0.120		103	80-120			
Surrogate: 4-Bromofluorobenzene	0.135		"	0.120		113	80-120			

Calibration Check (PID2606-CCV1)

Prepared: 04/26/21 Analyzed: 04/27/21

Benzene	0.0901	0.00100	mg/kg wet	0.100		90.1	80-120			
Toluene	0.0981	0.00100	"	0.100		98.1	80-120			
Ethylbenzene	0.108	0.00100	"	0.100		108	80-120			
Xylene (p/m)	0.209	0.00200	"	0.200		104	80-120			
Xylene (o)	0.0981	0.00100	"	0.100		98.1	80-120			
Surrogate: 1,4-Difluorobenzene	0.127		"	0.120		106	75-125			
Surrogate: 4-Bromofluorobenzene	0.125		"	0.120		105	75-125			

Calibration Check (PID2606-CCV2)

Prepared: 04/26/21 Analyzed: 04/27/21

Benzene	0.0921	0.00100	mg/kg wet	0.100		92.1	80-120			
Toluene	0.0971	0.00100	"	0.100		97.1	80-120			
Ethylbenzene	0.105	0.00100	"	0.100		105	80-120			
Xylene (p/m)	0.210	0.00200	"	0.200		105	80-120			
Xylene (o)	0.0991	0.00100	"	0.100		99.1	80-120			
Surrogate: 4-Bromofluorobenzene	0.128		"	0.120		106	75-125			
Surrogate: 1,4-Difluorobenzene	0.126		"	0.120		105	75-125			

Calibration Check (PID2606-CCV3)

Prepared: 04/26/21 Analyzed: 04/28/21

Benzene	0.0992	0.00100	mg/kg wet	0.100		99.2	80-120			
Toluene	0.106	0.00100	"	0.100		106	80-120			
Ethylbenzene	0.118	0.00100	"	0.100		118	80-120			
Xylene (p/m)	0.225	0.00200	"	0.200		112	80-120			
Xylene (o)	0.108	0.00100	"	0.100		108	80-120			
Surrogate: 1,4-Difluorobenzene	0.129		"	0.120		107	75-125			
Surrogate: 4-Bromofluorobenzene	0.133		"	0.120		111	75-125			

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Midland TX, 79710

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BTEX by 8021B - 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 P1D2606 - * DEFAULT PREP *****

Matrix Spike (P1D2606-MS1)	Source: 1D22005-01		Prepared: 04/26/21		Analyzed: 04/27/21					
Benzene	0.0870	0.00104	mg/kg dry	0.104	ND	83.5	80-120			
Toluene	0.0919	0.00104	"	0.104	0.00939	79.2	80-120			QM-07
Ethylbenzene	0.0961	0.00104	"	0.104	0.00341	89.0	80-120			
Xylene (p/m)	0.187	0.00208	"	0.208	0.00935	85.3	80-120			
Xylene (o)	0.0888	0.00104	"	0.104	0.00293	82.4	80-120			
Surrogate: 4-Bromofluorobenzene	0.150		"	0.125		120	80-120			
Surrogate: 1,4-Difluorobenzene	0.144		"	0.125		116	80-120			

Matrix Spike Dup (P1D2606-MSD1)	Source: 1D22005-01		Prepared: 04/26/21		Analyzed: 04/27/21					
Benzene	0.0766	0.00104	mg/kg dry	0.104	ND	73.5	80-120	12.7	20	QM-07
Toluene	0.0811	0.00104	"	0.104	0.00939	68.8	80-120	14.0	20	QM-07
Ethylbenzene	0.0877	0.00104	"	0.104	0.00341	80.9	80-120	9.52	20	
Xylene (p/m)	0.173	0.00208	"	0.208	0.00935	78.7	80-120	8.15	20	QM-07
Xylene (o)	0.0770	0.00104	"	0.104	0.00293	71.1	80-120	14.7	20	QM-07
Surrogate: 4-Bromofluorobenzene	0.138		"	0.125		110	80-120			
Surrogate: 1,4-Difluorobenzene	0.135		"	0.125		108	80-120			

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

Project: Raley A Well No. 1
 Project Number: 21-0107-02
 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
Batch P1D2603 - *** DEFAULT PREP ***										
Blank (P1D2603-BLK1)	Prepared & Analyzed: 04/26/21									
% Moisture	ND	0.1	%							
Blank (P1D2603-BLK2)	Prepared & Analyzed: 04/26/21									
% Moisture	ND	0.1	%							
Duplicate (P1D2603-DUP1)	Source: 1D22006-10 Prepared & Analyzed: 04/26/21									
% Moisture	7.0	0.1	%		7.0			0.00	20	
Duplicate (P1D2603-DUP2)	Source: 1D22006-20 Prepared & Analyzed: 04/26/21									
% Moisture	7.0	0.1	%		7.0			0.00	20	
Duplicate (P1D2603-DUP3)	Source: 1D22006-35 Prepared & Analyzed: 04/26/21									
% Moisture	4.0	0.1	%		4.0			0.00	20	
Duplicate (P1D2603-DUP4)	Source: 1D22007-09 Prepared & Analyzed: 04/26/21									
% Moisture	9.0	0.1	%		10.0			10.5	20	
Duplicate (P1D2603-DUP5)	Source: 1D22007-24 Prepared & Analyzed: 04/26/21									
% Moisture	12.0	0.1	%		12.0			0.00	20	
Duplicate (P1D2603-DUP6)	Source: 1D22007-34 Prepared & Analyzed: 04/26/21									
% Moisture	7.0	0.1	%		8.0			13.3	20	
Duplicate (P1D2603-DUP7)	Source: 1D23004-02 Prepared & Analyzed: 04/26/21									
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P1D2603-DUP8)	Source: 1D23005-08 Prepared & Analyzed: 04/26/21									
% Moisture	7.0	0.1	%		7.0			0.00	20	

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Midland TX, 79710

Project: Raley A Well No. 1
Project Number: 21-0107-02
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
Batch P1D2603 - *** DEFAULT PREP ***										
Duplicate (P1D2603-DUP9)		Source: 1D23009-06			Prepared & Analyzed: 04/26/21					
% Moisture	ND	0.1	%		ND				20	
Duplicate (P1D2603-DUPA)		Source: 1D23012-03			Prepared & Analyzed: 04/26/21					
% Moisture	1.0	0.1	%		1.0			0.00	20	
Batch P1D2803 - *** DEFAULT PREP ***										
Blank (P1D2803-BLK1)					Prepared & Analyzed: 04/28/21					
Chloride	ND	1.00	mg/kg wet							
LCS (P1D2803-BS1)					Prepared & Analyzed: 04/28/21					
Chloride	407	1.00	mg/kg wet	400		102	90-110			
LCS Dup (P1D2803-BSD1)					Prepared & Analyzed: 04/28/21					
Chloride	408	1.00	mg/kg wet	400		102	90-110	0.194	20	
Calibration Check (P1D2803-CCV1)					Prepared & Analyzed: 04/28/21					
Chloride	20.4		mg/kg	20.0		102	90-110			
Calibration Check (P1D2803-CCV2)					Prepared: 04/28/21 Analyzed: 04/29/21					
Chloride	20.4		mg/kg	20.0		102	90-110			
Calibration Check (P1D2803-CCV3)					Prepared: 04/28/21 Analyzed: 04/29/21					
Chloride	20.2		mg/kg	20.0		101	90-110			
Matrix Spike (P1D2803-MS1)		Source: 1D28006-01			Prepared & Analyzed: 04/28/21					
Chloride	650	1.32	mg/kg dry	658	29.3	94.3	80-120			

Permian Basin Environmental Lab, L.P.

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Page 8 of 13

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

Project: Raley A Well No. 1
 Project Number: 21-0107-02
 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 P1D2803 - * DEFAULT PREP *****

Matrix Spike (P1D2803-MS2)		Source: 1D22009-03		Prepared: 04/28/21		Analyzed: 04/29/21				
Chloride	13600	29.4	mg/kg dry	2940	10600	102	80-120			
Matrix Spike Dup (P1D2803-MSD1)		Source: 1D28006-01		Prepared & Analyzed: 04/28/21						
Chloride	700	1.32	mg/kg dry	658	29.3	102	80-120	7.52	20	
Matrix Spike Dup (P1D2803-MSD2)		Source: 1D22009-03		Prepared: 04/28/21		Analyzed: 04/29/21				
Chloride	13800	29.4	mg/kg dry	2940	10600	107	80-120	0.909	20	

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Midland TX, 79710

Project: Raley A Well No. 1
Project Number: 21-0107-02
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	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch P1D2302 - TX 1005**Blank (P1D2302-BLK1)**

Prepared & Analyzed: 04/23/21

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	96.8		"	100		96.8	70-130			
Surrogate: o-Terphenyl	48.3		"	50.0		96.7	70-130			

LCS (P1D2302-BS1)

Prepared & Analyzed: 04/23/21

C6-C12	1080	25.0	mg/kg wet	1000		108	75-125			
>C12-C28	1110	25.0	"	1000		111	75-125			
Surrogate: 1-Chlorooctane	100		"	100		100	70-130			
Surrogate: o-Terphenyl	53.6		"	50.0		107	70-130			

LCS Dup (P1D2302-BSD1)

Prepared & Analyzed: 04/23/21

C6-C12	1100	25.0	mg/kg wet	1000		110	75-125	1.73	20	
>C12-C28	1130	25.0	"	1000		113	75-125	1.56	20	
Surrogate: 1-Chlorooctane	102		"	100		102	70-130			
Surrogate: o-Terphenyl	50.0		"	50.0		100	70-130			

Calibration Check (P1D2302-CCV1)

Prepared & Analyzed: 04/23/21

C6-C12	489	25.0	mg/kg wet	500		97.8	85-115			
>C12-C28	517	25.0	"	500		103	85-115			
Surrogate: 1-Chlorooctane	113		"	100		113	70-130			
Surrogate: o-Terphenyl	50.8		"	50.0		102	70-130			

Matrix Spike (P1D2302-MS1)

Source: 1D22008-05

Prepared: 04/23/21 Analyzed: 04/26/21

C6-C12	1070	25.0	mg/kg dry	1000	12.8	106	75-125			
>C12-C28	1030	25.0	"	1000	53.4	97.8	75-125			
Surrogate: 1-Chlorooctane	87.0		"	100		87.0	70-130			
Surrogate: o-Terphenyl	47.6		"	50.0		95.2	70-130			

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

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

Project: Raley A Well No. 1
 Project Number: 21-0107-02
 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	%REC Limits	RPD	RPD Limit	Notes
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Batch P1D2302 - TX 1005

Matrix Spike Dup (P1D2302-MSD1)

Source: 1D22008-05

Prepared: 04/23/21

Analyzed: 04/26/21

C6-C12	999	25.0	mg/kg dry	1000	12.8	98.6	75-125	7.37	20	
>C12-C28	966	25.0	"	1000	53.4	91.3	75-125	6.92	20	
Surrogate: 1-Chlorooctane	81.0		"	100		81.0	70-130			
Surrogate: o-Terphenyl	41.1		"	50.0		82.2	70-130			

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Project Number: 21-0107-02
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

- ROI Received on Ice
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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: 4/30/2021

Brent Barron, Laboratory Director/Technical Director

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

Varison & Associates, Inc.
Environmental Consultants

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

CHAIN-OF-CUSTODY

No 1450

Data Reported to:

DATE: 4/23/2021 PAGE 1 OF 1
PO#: _____ LAB WORK ORDER#: 1D23002
PROJECT LOCATION OR NAME: Raley A No. 1
LAI PROJECT #: 20-0107-02 COLLECTOR: TJ

TRRP report?
 Yes No

TIME ZONE:
Time zone/State:
MST

PRESERVATION
HCl
HNO₃
H₂SO₄ NaOH
ICE
UNPRESERVED

- ANALYSES**
- BTEX (MTBE)
 - TRPH 418.1 TPH 1005 TPH 1006
 - GASOLINE MOD 8015
 - DIESEL - MOD 8015
 - OIL - MOD 8015
 - VOC 8260
 - SVOC 8270 PAH 8270 HOLDPAH
 - 8081 PESTICIDES 8151 HERBICIDES
 - 8082 PCBs
 - TBLP - METALS (RCRA) TCLP VOC
 - TCLP - PEST HERB Semi-VOC
 - TOTAL METALS (RCRA) D.W. 200.8 TCLP
 - LEAD - TOTAL FLASHPOINT
 - RCI TOX % MOISTURE CYANIDE
 - TDS TSS
 - pH HEXAVALENT CHROMIUM
 - EXPLOSIVES PECTHLORATE
 - CHLORIDES ANIONS ALKALINITY

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO ₃	H ₂ SO ₄ <input type="checkbox"/>	NaOH <input type="checkbox"/>	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
C-2		4/22/21	135	S	1					X		X X X X X	
TOTAL													

RELINQUISHED BY: (Signature) _____ DATE/TIME: 4/23/21 8:43 RECEIVED BY: (Signature) _____

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

RELINQUISHED BY: (Signature) _____ DATE/TIME: 4/23/21 8:41 RECEIVED BY: (Signature) _____

LABORATORY: PBEI

TURN AROUND TIME
 NORMAL
 1 DAY
 2 DAY
 OTHER

LABORATORY USE ONLY:
 RECEIVING TEMP: 40 SD THERM #: CE1 H1
 CUSTODY SEALS: BROKEN INTACT NOT USED
 CARRIER BILL # _____
 HAND DELIVERED

**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: Raley A Well No. 1
Project Number: 21-0107-02
Location:

Lab Order Number: 1E10010



Current Certification

Report Date: 05/20/21

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Backfill-1	1E10010-01	Soil	05/10/21 08:42	05-10-2021 16:34

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Backfill-1
1E10010-01 (Soil)

Analyte	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Result	Limit							

Permian Basin Environmental Lab, L.P.

BTEX by 8021B

Benzene	ND	0.00102	mg/kg dry	1	P1E1213	05/12/21 16:52	05/13/21 03:23	EPA 8021B	
Toluene	ND	0.00102	mg/kg dry	1	P1E1213	05/12/21 16:52	05/13/21 03:23	EPA 8021B	
Ethylbenzene	ND	0.00102	mg/kg dry	1	P1E1213	05/12/21 16:52	05/13/21 03:23	EPA 8021B	
Xylene (p/m)	ND	0.00204	mg/kg dry	1	P1E1213	05/12/21 16:52	05/13/21 03:23	EPA 8021B	
Xylene (o)	ND	0.00102	mg/kg dry	1	P1E1213	05/12/21 16:52	05/13/21 03:23	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		103 %	80-120		P1E1213	05/12/21 16:52	05/13/21 03:23	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		103 %	80-120		P1E1213	05/12/21 16:52	05/13/21 03:23	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	46.0	1.02	mg/kg dry	1	P1E1410	05/14/21 16:15	05/17/21 16:19	EPA 300.0	
% Moisture	2.0	0.1	%	1	P1E1201	05/12/21 08:34	05/12/21 09:28	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.5	mg/kg dry	1	P1E1107	05/11/21 15:57	05/12/21 13:32	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P1E1107	05/11/21 15:57	05/12/21 13:32	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P1E1107	05/11/21 15:57	05/12/21 13:32	TPH 8015M	
Surrogate: 1-Chlorooctane		94.0 %	70-130		P1E1107	05/11/21 15:57	05/12/21 13:32	TPH 8015M	
Surrogate: o-Terphenyl		95.4 %	70-130		P1E1107	05/11/21 15:57	05/12/21 13:32	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	05/11/21 15:57	05/12/21 13:32	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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

BTEX by 8021B - 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 P1E1213 - * DEFAULT PREP *****

Blank (P1E1213-BLK1)

Prepared & Analyzed: 05/12/21

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.120		"	0.120		99.9	80-120			
Surrogate: 4-Bromofluorobenzene	0.118		"	0.120		98.1	80-120			

LCS (P1E1213-BS1)

Prepared & Analyzed: 05/12/21

Benzene	0.100	0.00100	mg/kg wet	0.100		100	70-130			
Toluene	0.0986	0.00100	"	0.100		98.6	70-130			
Ethylbenzene	0.0934	0.00100	"	0.100		93.4	70-130			
Xylene (p/m)	0.205	0.00200	"	0.200		103	70-130			
Xylene (o)	0.0944	0.00100	"	0.100		94.4	70-130			
Surrogate: 1,4-Difluorobenzene	0.123		"	0.120		102	80-120			
Surrogate: 4-Bromofluorobenzene	0.123		"	0.120		102	80-120			

LCS Dup (P1E1213-BSD1)

Prepared & Analyzed: 05/12/21

Benzene	0.104	0.00100	mg/kg wet	0.100		104	70-130	3.27	20	
Toluene	0.102	0.00100	"	0.100		102	70-130	3.31	20	
Ethylbenzene	0.0956	0.00100	"	0.100		95.6	70-130	2.34	20	
Xylene (p/m)	0.210	0.00200	"	0.200		105	70-130	2.53	20	
Xylene (o)	0.0968	0.00100	"	0.100		96.8	70-130	2.54	20	
Surrogate: 1,4-Difluorobenzene	0.125		"	0.120		104	80-120			
Surrogate: 4-Bromofluorobenzene	0.125		"	0.120		104	80-120			

Calibration Blank (P1E1213-CCB2)

Prepared: 05/12/21 Analyzed: 05/13/21

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	0.125		"	0.120		104	80-120			
Surrogate: 4-Bromofluorobenzene	0.121		"	0.120		101	80-120			

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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

BTEX by 8021B - 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 P1E1213 - * DEFAULT PREP *****

Calibration Check (P1E1213-CCV2)

Prepared: 05/12/21 Analyzed: 05/13/21

Benzene	0.0890	0.00100	mg/kg wet	0.100		89.0	80-120			
Toluene	0.0820	0.00100	"	0.100		82.0	80-120			
Ethylbenzene	0.0810	0.00100	"	0.100		81.0	80-120			
Xylene (p/m)	0.163	0.00200	"	0.200		81.6	80-120			
Xylene (o)	0.0805	0.00100	"	0.100		80.5	80-120			
Surrogate: 1,4-Difluorobenzene	0.126		"	0.120		105	75-125			
Surrogate: 4-Bromofluorobenzene	0.122		"	0.120		102	75-125			

Calibration Check (P1E1213-CCV3)

Prepared: 05/12/21 Analyzed: 05/13/21

Benzene	0.0958	0.00100	mg/kg wet	0.100		95.8	80-120			
Toluene	0.0911	0.00100	"	0.100		91.1	80-120			
Ethylbenzene	0.0872	0.00100	"	0.100		87.2	80-120			
Xylene (p/m)	0.184	0.00200	"	0.200		91.9	80-120			
Xylene (o)	0.0902	0.00100	"	0.100		90.2	80-120			
Surrogate: 1,4-Difluorobenzene	0.128		"	0.120		106	75-125			
Surrogate: 4-Bromofluorobenzene	0.128		"	0.120		106	75-125			

Matrix Spike (P1E1213-MS1)

Source: 1E06004-01

Prepared: 05/12/21 Analyzed: 05/13/21

Benzene	0.0805	0.00108	mg/kg dry	0.108	ND	74.8	80-120			QM-07
Toluene	0.0722	0.00108	"	0.108	ND	67.2	80-120			QM-07
Ethylbenzene	0.0631	0.00108	"	0.108	ND	58.7	80-120			QM-07
Xylene (p/m)	0.134	0.00215	"	0.215	ND	62.3	80-120			QM-07
Xylene (o)	0.0667	0.00108	"	0.108	ND	62.0	80-120			QM-07
Surrogate: 1,4-Difluorobenzene	0.139		"	0.129		108	80-120			
Surrogate: 4-Bromofluorobenzene	0.140		"	0.129		109	80-120			

Matrix Spike Dup (P1E1213-MSD1)

Source: 1E06004-01

Prepared: 05/12/21 Analyzed: 05/13/21

Benzene	0.0782	0.00108	mg/kg dry	0.108	ND	72.7	80-120	2.87	20	
Toluene	0.0706	0.00108	"	0.108	ND	65.7	80-120	2.24	20	
Ethylbenzene	0.0618	0.00108	"	0.108	ND	57.5	80-120	2.10	20	
Xylene (p/m)	0.132	0.00215	"	0.215	ND	61.4	80-120	1.48	20	
Xylene (o)	0.0655	0.00108	"	0.108	ND	60.9	80-120	1.85	20	
Surrogate: 1,4-Difluorobenzene	0.141		"	0.129		110	80-120			
Surrogate: 4-Bromofluorobenzene	0.143		"	0.129		111	80-120			

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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P1E1201 - *** DEFAULT PREP ***										
Blank (P1E1201-BLK1)	Prepared & Analyzed: 05/12/21									
% Moisture	ND	0.1	%							
Blank (P1E1201-BLK2)	Prepared & Analyzed: 05/12/21									
% Moisture	ND	0.1	%							
Duplicate (P1E1201-DUP1)	Source: 1E10001-10		Prepared & Analyzed: 05/12/21							
% Moisture	8.0	0.1	%		9.0			11.8	20	
Duplicate (P1E1201-DUP2)	Source: 1E10001-20		Prepared & Analyzed: 05/12/21							
% Moisture	14.0	0.1	%		15.0			6.90	20	
Duplicate (P1E1201-DUP3)	Source: 1E10001-35		Prepared & Analyzed: 05/12/21							
% Moisture	9.0	0.1	%		9.0			0.00	20	
Duplicate (P1E1201-DUP4)	Source: 1E10001-45		Prepared & Analyzed: 05/12/21							
% Moisture	13.0	0.1	%		13.0			0.00	20	
Duplicate (P1E1201-DUP5)	Source: 1E10001-60		Prepared & Analyzed: 05/12/21							
% Moisture	4.0	0.1	%		4.0			0.00	20	
Duplicate (P1E1201-DUP6)	Source: 1E10004-09		Prepared & Analyzed: 05/12/21							
% Moisture	9.0	0.1	%		9.0			0.00	20	
Duplicate (P1E1201-DUP7)	Source: 1E10006-03		Prepared & Analyzed: 05/12/21							
% Moisture	12.0	0.1	%		12.0			0.00	20	
Duplicate (P1E1201-DUP8)	Source: 1E10006-13		Prepared & Analyzed: 05/12/21							
% Moisture	11.0	0.1	%		11.0			0.00	20	

Permian Basin Environmental Lab, L.P.

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

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P1E1201 - *** DEFAULT PREP ***										
Duplicate (P1E1201-DUP9)		Source: 1E10009-02			Prepared & Analyzed: 05/12/21					
% Moisture	5.0	0.1	%		4.0			22.2	20	R3
Duplicate (P1E1201-DUPA)		Source: 1E11002-06			Prepared & Analyzed: 05/12/21					
% Moisture	8.0	0.1	%		7.0			13.3	20	
Batch P1E1410 - *** DEFAULT PREP ***										
Blank (P1E1410-BLK1)					Prepared: 05/14/21 Analyzed: 05/17/21					
Chloride	ND	1.00	mg/kg wet							
LCS (P1E1410-BS1)					Prepared: 05/14/21 Analyzed: 05/17/21					
Chloride	412	1.00	mg/kg wet	400		103	90-110			
LCS Dup (P1E1410-BSD1)					Prepared: 05/14/21 Analyzed: 05/17/21					
Chloride	427	1.00	mg/kg wet	400		107	90-110	3.61	20	
Calibration Check (P1E1410-CCV1)					Prepared: 05/14/21 Analyzed: 05/17/21					
Chloride	21.5		mg/kg	20.0		108	90-110			
Calibration Check (P1E1410-CCV2)					Prepared: 05/14/21 Analyzed: 05/17/21					
Chloride	20.8		mg/kg	20.0		104	90-110			
Calibration Check (P1E1410-CCV3)					Prepared: 05/14/21 Analyzed: 05/18/21					
Chloride	20.7		mg/kg	20.0		104	90-110			
Matrix Spike (P1E1410-MS1)		Source: 1E10007-05			Prepared: 05/14/21 Analyzed: 05/17/21					
Chloride	10100	27.2	mg/kg dry	2720	7330	102	80-120			

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: Raley A Well No. 1
 Project Number: 21-0107-02
 Project Manager: Mark Larson

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P1E1410 - * DEFAULT PREP *****

Matrix Spike (P1E1410-MS2)		Source: 1E11002-02		Prepared: 05/14/21 Analyzed: 05/17/21						
Chloride	3110	10.5	mg/kg dry	1050	1890	116	80-120			
Matrix Spike Dup (P1E1410-MSD1)		Source: 1E10007-05		Prepared: 05/14/21 Analyzed: 05/17/21						
Chloride	10200	27.2	mg/kg dry	2720	7330	104	80-120	0.349	20	
Matrix Spike Dup (P1E1410-MSD2)		Source: 1E11002-02		Prepared: 05/14/21 Analyzed: 05/17/21						
Chloride	3140	10.5	mg/kg dry	1050	1890	119	80-120	1.16	20	

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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P1E1107 - TX 1005

Blank (P1E1107-BLK1)

Prepared: 05/11/21 Analyzed: 05/12/21

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	79.8		"	100		79.8	70-130			
Surrogate: o-Terphenyl	41.2		"	50.0		82.5	70-130			

LCS (P1E1107-BS1)

Prepared: 05/11/21 Analyzed: 05/12/21

C6-C12	823	25.0	mg/kg wet	1000		82.3	75-125			
>C12-C28	769	25.0	"	1000		76.9	75-125			
Surrogate: 1-Chlorooctane	103		"	100		103	70-130			
Surrogate: o-Terphenyl	46.0		"	50.0		91.9	70-130			

LCS Dup (P1E1107-BSD1)

Prepared: 05/11/21 Analyzed: 05/12/21

C6-C12	797	25.0	mg/kg wet	1000		79.7	75-125	3.27	20	
>C12-C28	877	25.0	"	1000		87.7	75-125	13.1	20	
Surrogate: 1-Chlorooctane	101		"	100		101	70-130			
Surrogate: o-Terphenyl	41.6		"	50.0		83.3	70-130			

Calibration Check (P1E1107-CCV1)

Prepared: 05/11/21 Analyzed: 05/12/21

C6-C12	452	25.0	mg/kg wet	500		90.4	85-115			
>C12-C28	450	25.0	"	500		90.0	85-115			
Surrogate: 1-Chlorooctane	91.3		"	100		91.3	70-130			
Surrogate: o-Terphenyl	40.9		"	50.0		81.9	70-130			

Calibration Check (P1E1107-CCV2)

Prepared: 05/11/21 Analyzed: 05/12/21

C6-C12	459	25.0	mg/kg wet	500		91.9	85-115			
>C12-C28	460	25.0	"	500		92.1	85-115			
Surrogate: 1-Chlorooctane	108		"	100		108	70-130			
Surrogate: o-Terphenyl	48.5		"	50.0		97.1	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: Raley A Well No. 1
 Project Number: 21-0107-02
 Project Manager: Mark Larson

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P1E1107 - TX 1005

Calibration Check (P1E1107-CCV3)

Prepared: 05/11/21 Analyzed: 05/12/21

C6-C12	495	25.0	mg/kg wet	500		98.9	85-115			
>C12-C28	458	25.0	"	500		91.7	85-115			
Surrogate: 1-Chlorooctane	105		"	100		105	70-130			
Surrogate: o-Terphenyl	46.0		"	50.0		91.9	70-130			

Matrix Spike (P1E1107-MS1)

Source: 1E10009-01

Prepared: 05/11/21 Analyzed: 05/12/21

C6-C12	923	26.0	mg/kg dry	1040	ND	88.6	75-125			
>C12-C28	905	26.0	"	1040	10.2	85.9	75-125			
Surrogate: 1-Chlorooctane	126		"	104		121	70-130			
Surrogate: o-Terphenyl	48.6		"	52.1		93.3	70-130			

Matrix Spike Dup (P1E1107-MSD1)

Source: 1E10009-01

Prepared: 05/11/21 Analyzed: 05/12/21

C6-C12	931	26.0	mg/kg dry	1040	ND	89.4	75-125	0.850	20	
>C12-C28	917	26.0	"	1040	10.2	87.1	75-125	1.37	20	
Surrogate: 1-Chlorooctane	121		"	104		116	70-130			
Surrogate: o-Terphenyl	42.4		"	52.1		81.5	70-130			

Permian Basin Environmental Lab, L.P.

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P.O. Box 50685
Midland TX, 79710

Project: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

Notes and Definitions

- ROI Received on Ice
- R3 The RPD exceeded the acceptance limit due to sample matrix effects.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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: 5/20/2021

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.

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: Raley A Well No. 1
Project Number: 21-0107-02
Project Manager: Mark Larson

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

Appendix B
Karst Risk Potential

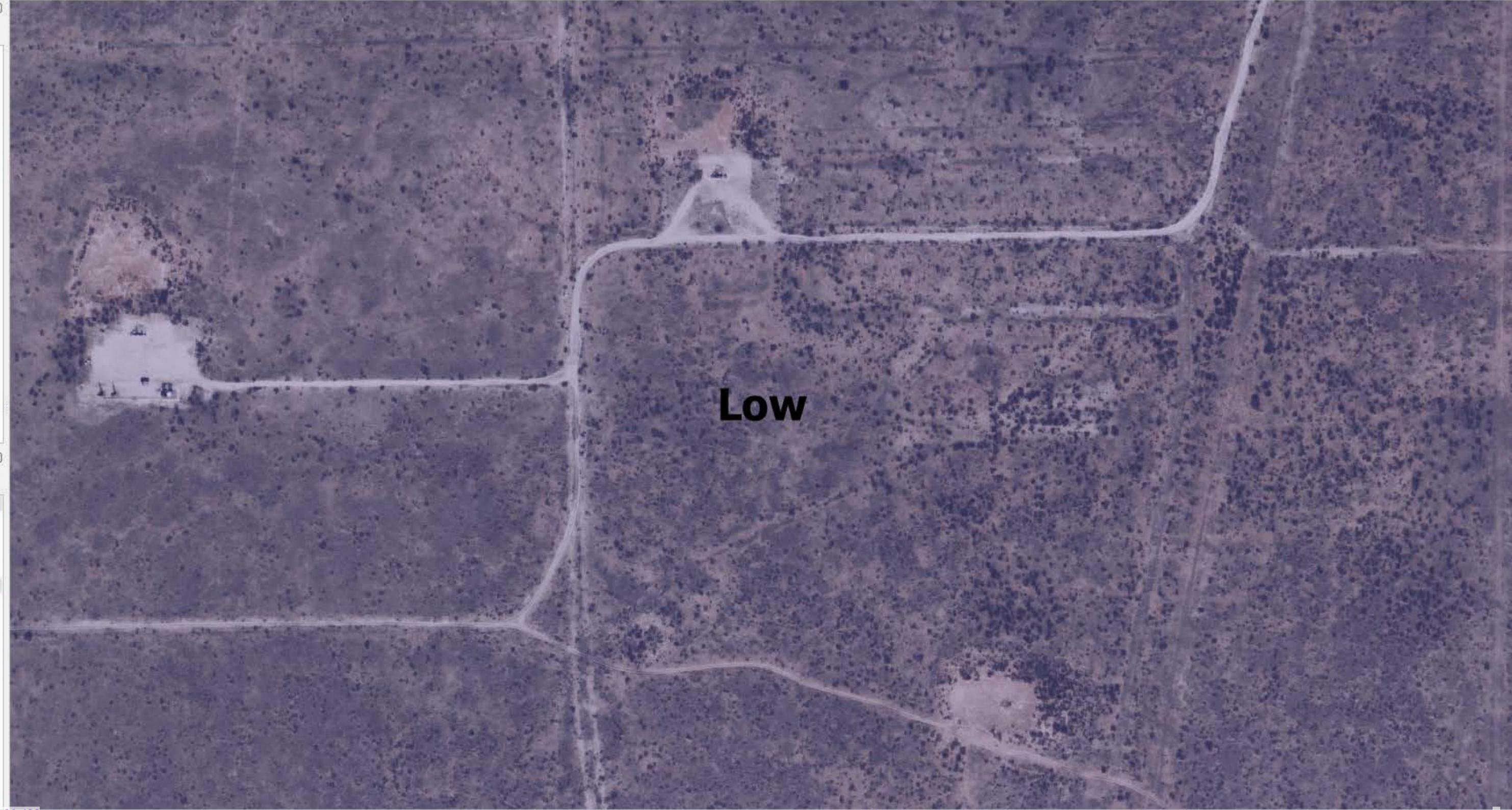


Browser

- ★ Favorites
- Spatial Bookmarks
- Project Home
- Home
- C:\
- D:\
- L:\
- Z:\
- GeoPackage
- Spatialite
- PostGIS
- MSSQL
- Oracle
- DB2
- WMS/WMTS
- XYZ Tiles
- WCS
- WFS / OGC API - Features
- OWS
- ArcGisMapServer
- ArcGisFeatureServer
- GeoNode

Layers

- Karst or No Karst
 - High
 - Low
 - Medium
 -
- Bing Satellite



Appendix C
GWB-1 Boring Log

BORING RECORD

GEOLOGIC UNIT	DEPTH	Start: 10:12 Finish: 11:19 DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING										SAMPLE			REMARKS									
					PPM X _____										NUMBER	PID READING	RECOVERY DEPTH	BACKGROUND PID READING									
					2	4	6	8	10	12	14	16	18	SOIL: _____ PPM				SOIL: _____ PPM									
	0	Sand, 10YR 8/5, Very Pale Brown, Fine Grained Quartz Sand, Moderately Sorted with 0.5-1mm Clasts	SW																								
	5				Caliche, 7.5YR 7/3, Pink, Moderately Sorted with 1-2mm Clasts	Caliche																					
	10																										
	15																										
	20																										
	25																										
	30																										
	35	Sand, 7.5YR 7/3, Pink, Fine Grained Quartz Sand, Moderately Sorted, 0.5-1mm Clasts	SW																								
	40																										
	45																										
	50																										
	55																										
	60	Increase in Sorting to Well Sorted @ 60' and Change in Color to 7.5YR 6/3, Light Brown																									
		TD: 60' Dry After 72 Hours																									

- ONE CONTINUOUS AUGER SAMPLER
- STANDARD PENETRATION TEST
- UNDISTURBED SAMPLE
- WATER TABLE (24 HRS)
- WATER TABLE (TIME OF BORING)
- LABORATORY TEST LOCATION
- PENETROMETER (TONS/ SQ. FT)
- NO RECOVERY

JOB NUMBER : Raw Oil & Gas/ 21-0107-01
 HOLE DIAMETER : 5"
 LOCATION : Pewitt No.1/ Raley A No.1
 LAI GEOLOGIST : R. Nelson
 DRILLING CONTRACTOR : SDI
 DRILLING METHOD : Air Rotary



DRILL DATE : 09/13/2021

BORING NUMBER : GWB-1

Appendix D
Photographs

Tracking Number: nAPP2109535887
Closure Report – Raley A No. 1 Crude Oil Release
October 7, 2021



Well Location Sign



Crude Oil Release Viewing Northwest, March 24, 2021

Tracking Number: nAPP2109535887
Closure Report – Raley A No. 1 Crude Oil Release
October 7, 2021



Soil Initial Excavated to a Depth of Approximately 1.5 feet bgs



Soil Initially Excavated to a Depth of Approximately 1.5 feet bgs

Tracking Number: nAPP2109535887
Closure Report – Raley A No. 1 Crude Oil Release
October 7, 2021



Soil Excavated to a Depth of Approximately 5 feet bgs



Viewing the Area Surrounding the Cellar

Tracking Number: nAPP2109535887
Closure Report – Raley A No. 1 Crude Oil Release
October 7, 2021



Backfilled Excavation

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS
 Action 56359

CONDITIONS

Operator: RAW OIL & GAS, INC. 1415 Buddy Holly Ave Lubbock, TX 79401	OGRID: 371846
	Action Number: 56359
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	None	11/18/2021