

July 19, 2019

HAYDEN HOLUB

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: ALICE PADDOCK RE ENTRY

Enclosed are the results of analyses for samples received by the laboratory on 07/15/19 8:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

Rice Operating Company 112 W. Taylor Hobbs NM, 88240	Project: ALICE PADDOCK RE ENTRY Project Number: SWM Project Manager: HAYDEN HOLUB Fax To: (575) 397-1471	Reported: 19-Jul-19 16:37
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Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WATER SAMPLE	H902412-01	Water	14-Jul-19 12:00	15-Jul-19 08:50

Cardinal Laboratories

\* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

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**WATER SAMPLE**  
**H902412-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**Inorganic Compounds**

Alkalinity, Bicarbonate	1090		5.00	mg/L	1	9071104	AC	15-Jul-19	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	9071104	AC	15-Jul-19	310.1	
Chloride*	29300		4.00	mg/L	1	9071201	AC	19-Jul-19	4500-Cl-B	
Conductivity*	64100		1.00	uS/cm	1	9071508	AC	15-Jul-19	120.1	
pH*	6.94		0.100	pH Units	1	9071508	AC	15-Jul-19	150.1	
Sulfate*	1100		250	mg/L	25	9071602	AC	16-Jul-19	375.4	
TDS*	48900		5.00	mg/L	1	9070908	AC	16-Jul-19	160.1	
Alkalinity, Total*	890		4.00	mg/L	1	9071104	AC	15-Jul-19	310.1	

**Green Analytical Laboratories**
**Total Recoverable Metals by ICP (E200.7)**

Calcium*	1610		20.0	mg/L	200	B907175	AES	18-Jul-19	EPA200.7	
Magnesium*	525		20.0	mg/L	200	B907175	AES	18-Jul-19	EPA200.7	
Potassium*	427		200	mg/L	200	B907175	AES	18-Jul-19	EPA200.7	
Sodium*	13900		200	mg/L	200	B907175	AES	18-Jul-19	EPA200.7	

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**Inorganic Compounds - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9070908 - Filtration**

<b>Blank (9070908-BLK1)</b>				Prepared: 09-Jul-19 Analyzed: 10-Jul-19						
TDS	ND	5.00	mg/L							
<b>LCS (9070908-BS1)</b>				Prepared: 09-Jul-19 Analyzed: 10-Jul-19						
TDS	499		mg/L	527		94.7	80-120			
<b>Duplicate (9070908-DUP1)</b>				Source: H902316-01 Prepared: 09-Jul-19 Analyzed: 10-Jul-19						
TDS	2080	5.00	mg/L		2150			3.41	20	

**Batch 9071104 - General Prep - Wet Chem**

<b>Blank (9071104-BLK1)</b>				Prepared & Analyzed: 15-Jul-19						
Alkalinity, Carbonate	ND	1.00	mg/L							
Alkalinity, Bicarbonate	5.00	5.00	mg/L							
Alkalinity, Total	4.00	4.00	mg/L							
<b>LCS (9071104-BS1)</b>				Prepared & Analyzed: 15-Jul-19						
Alkalinity, Carbonate	ND	2.50	mg/L				80-120			
Alkalinity, Bicarbonate	330	12.5	mg/L				80-120			
Alkalinity, Total	270	10.0	mg/L	250		108	80-120			
<b>LCS Dup (9071104-BSD1)</b>				Prepared & Analyzed: 15-Jul-19						
Alkalinity, Carbonate	ND	2.50	mg/L				80-120		20	
Alkalinity, Bicarbonate	330	12.5	mg/L				80-120	0.00	20	
Alkalinity, Total	270	10.0	mg/L	250		108	80-120	0.00	20	

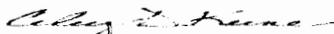
**Batch 9071201 - General Prep - Wet Chem**

<b>Blank (9071201-BLK1)</b>				Prepared & Analyzed: 12-Jul-19						
Chloride	ND	4.00	mg/L							

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**Inorganic Compounds - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9071201 - General Prep - Wet Chem**

<b>LCS (9071201-BS1)</b>		Prepared & Analyzed: 12-Jul-19								
Chloride	104	4.00	mg/L	100		104	80-120			
<b>LCS Dup (9071201-BSD1)</b>		Prepared & Analyzed: 12-Jul-19								
Chloride	100	4.00	mg/L	100		100	80-120	3.92	20	

**Batch 9071508 - General Prep - Wet Chem**

<b>LCS (9071508-BS1)</b>		Prepared & Analyzed: 15-Jul-19								
Conductivity	45000		uS/cm	50000		90.0	80-120			
pH	7.14		pH Units	7.00		102	90-110			
<b>Duplicate (9071508-DUP1)</b>		<b>Source: H902406-01</b>		Prepared & Analyzed: 15-Jul-19						
pH	6.77	0.100	pH Units		6.75			0.296	20	
Conductivity	91400	1.00	uS/cm		91200			0.219	20	

**Batch 9071602 - General Prep - Wet Chem**

<b>Blank (9071602-BLK1)</b>		Prepared & Analyzed: 16-Jul-19								
Sulfate	ND	10.0	mg/L							
<b>LCS (9071602-BS1)</b>		Prepared & Analyzed: 16-Jul-19								
Sulfate	21.6	10.0	mg/L	20.0		108	80-120			
<b>LCS Dup (9071602-BSD1)</b>		Prepared & Analyzed: 16-Jul-19								
Sulfate	23.1	10.0	mg/L	20.0		116	80-120	6.94	20	

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**Total Recoverable Metals by ICP (E200.7) - Quality Control**

**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B907175 - Total Rec. 200.7/200.8/200.2**

**Blank (B907175-BLK1)**

Prepared: 17-Jul-19 Analyzed: 18-Jul-19

Calcium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Sodium	ND	1.00	mg/L							
Magnesium	ND	0.100	mg/L							

**LCS (B907175-BS1)**

Prepared: 17-Jul-19 Analyzed: 18-Jul-19

Sodium	3.42	1.00	mg/L	3.24		105	85-115			
Potassium	8.07	1.00	mg/L	8.00		101	85-115			
Magnesium	19.3	0.100	mg/L	20.0		96.3	85-115			
Calcium	3.97	0.100	mg/L	4.00		99.3	85-115			

**LCS Dup (B907175-BSD1)**

Prepared: 17-Jul-19 Analyzed: 18-Jul-19

Potassium	8.04	1.00	mg/L	8.00		101	85-115	0.312	20	
Sodium	3.34	1.00	mg/L	3.24		103	85-115	2.40	20	
Calcium	3.95	0.100	mg/L	4.00		98.9	85-115	0.465	20	
Magnesium	19.3	0.100	mg/L	20.0		96.3	85-115	0.0458	20	

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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Cardinal Laboratories

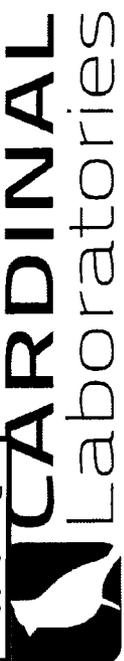
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Celey D. Keene, Lab Director/Quality Manager



**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

101 East Marland, Hobbs, NM 88240  
 (575) 393-2326 FAX (575) 393-2476

<b>Company Name:</b> Rice Operating Company		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>															
<b>Project Manager:</b> Hayler Holob		<b>P.O. #:</b>																	
<b>Address:</b> 112 W Taylor		<b>Company:</b>																	
<b>City:</b> Hobbs		<b>Attn:</b>																	
<b>Phone #:</b> 393-9174		<b>Address:</b>																	
<b>Project #:</b> SWM		<b>City:</b>																	
<b>Project Name:</b> Alice Padbock re entry		<b>State:</b> NM																	
<b>Project Location:</b> SE Eunice		<b>Zip:</b> 88240																	
<b>Sampler Name:</b> Hydr-Holob		<b>Phone #:</b>																	
<b>FOR LAB USE ONLY</b>		<b>Fax #:</b>																	
<b>Lab I.D.</b>		<b>MATRIX</b>		<b>PRESERV</b>		<b>SAMPLING</b>													
H902412		GROUNDWATER		OTHER: Reduced		DATE													
1 Water Sample		WASTEWATER		ICE / COOL		TIME													
		# CONTAINERS		ACID/BASE		7-14-19													
		(G)RAB OR (C)OMP		OTHER:		12:00													

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<b>Relinquished By:</b> [Signature]	<b>Received By:</b> [Signature]	<b>Phone Result:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Add'l Phone #:</b>
<b>Relinquished By:</b>	<b>Received By:</b>	<b>Fax Result:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Add'l Fax #:</b>
<b>Delivered By:</b> (Circle One) Sampler - UPS - Bus - Other:	<b>Sample Condition:</b> Cool <input type="checkbox"/> Intact <input type="checkbox"/>	<b>REMARKS:</b> Hobbesrice sud.com Rush!! added 7/15/19	



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

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July 24, 2019

HAYDEN HOLUB

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: ALICE PADDOCK RE ENTRY

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Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Rice Operating Company  
 HAYDEN HOLUB  
 112 W. Taylor  
 Hobbs NM, 88240  
 Fax To: (575) 397-1471

Received:	07/15/2019	Sampling Date:	07/15/2019
Reported:	07/24/2019	Sampling Type:	Water
Project Name:	ALICE PADDOCK RE ENTRY	Sampling Condition:	** (See Notes)
Project Number:	SWM	Sample Received By:	Tamara Oldaker
Project Location:	SWM - SE EUNICE		

**Sample ID: WATER SAMPLE (H902417-01)**

TPH 8015M	mg/L		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10*</b>	<b>29.4</b>	1.00	07/24/2019	ND	48.3	96.7	50.0	1.41	QM-07
<b>DRO &gt;C10-C28*</b>	<b>62.2</b>	1.00	07/24/2019	ND	51.8	104	50.0	3.30	QM-07
<b>EXT DRO &gt;C28-C36</b>	<b>8.10</b>	1.00	07/24/2019	ND					
<hr/>									
<i>Surrogate: 1-Chlorooctane</i>	<i>93.3 %</i>	<i>37.1-138</i>							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>91.4 %</i>	<i>44.6-151</i>							

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**Notes and Definitions**

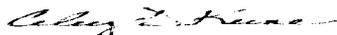
- S-04            The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QM-07        The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND            Analyte NOT DETECTED at or above the reporting limit
- RPD          Relative Percent Difference
- \*\*            Samples not received at proper temperature of 6°C or below.
- \*\*\*          Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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