



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

October 20, 2020

HAYDEN HOLUB

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: N-7

Enclosed are the results of analyses for samples received by the laboratory on 10/13/20 9:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. 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/ga/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, 88240Project: N-7
Project Number: SWD N-7
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471Reported:
20-Oct-20 09:33

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
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WATER SAMPLE - N7 FORMATION V	H002710-01	Water	13-Oct-20 08:15	13-Oct-20 09:30
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Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: N-7
Project Number: SWD N-7
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
20-Oct-20 09:33

WATER SAMPLE - N7 FORMATION WATER H002710-01 (Water)

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

Inorganic Compounds

Alkalinity, Bicarbonate	1100		5.00	mg/L	1	0100210	AC	13-Oct-20	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	0100210	AC	13-Oct-20	310.1	
Chloride*	60000		4.00	mg/L	1	0100504	AC	13-Oct-20	4500-Cl-B	
Conductivity*	106000		1.00	umhos/cm @ 25°C	1	0101303	AC	13-Oct-20	120.1	
pH*	7.18		0.100	pH Units	1	0101303	AC	13-Oct-20	150.1	
Temperature °C	21.7			pH Units	1	0101303	AC	13-Oct-20	150.1	
Sulfate*	2340		500	mg/L	50	0101402	GM	14-Oct-20	375.4	
TDS*	100000		5.00	mg/L	1	0100903	GM	14-Oct-20	160.1	
Alkalinity, Total*	900		4.00	mg/L	1	0100210	AC	13-Oct-20	310.1	

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	11.2		1.00	mg/L	0.1	0101305	MS	13-Oct-20	8015B	
DRO >C10-C28*	50.5		1.00	mg/L	0.1	0101305	MS	13-Oct-20	8015B	
EXT DRO >C28-C36	8.61		1.00	mg/L	0.1	0101305	MS	13-Oct-20	8015B	
Surrogate: 1-Chlorooctane			86.4 %	34.5-148		0101305	MS	13-Oct-20	8015B	
Surrogate: 1-Chlorooctadecane			87.0 %	46.4-149		0101305	MS	13-Oct-20	8015B	

Green Analytical Laboratories

Total Recoverable Metals by ICP (E200.7)

Calcium*	2930		10.0	mg/L	100	B202185	AES	19-Oct-20	EPA200.7	
Magnesium*	841		10.0	mg/L	100	B202185	AES	19-Oct-20	EPA200.7	
Potassium*	851		100	mg/L	100	B202185	AES	19-Oct-20	EPA200.7	
Sodium*	36100		100	mg/L	100	B202185	AES	19-Oct-20	EPA200.7	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: N-7
Project Number: SWD N-7
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
20-Oct-20 09:33

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 0100210 - General Prep - Wet Chem

Blank (0100210-BLK1)

Prepared & Analyzed: 02-Oct-20

Alkalinity, Carbonate	ND	1.00	mg/L
Alkalinity, Bicarbonate	5.00	5.00	mg/L
Alkalinity, Total	4.00	4.00	mg/L

LCS (0100210-BS1)

Prepared & Analyzed: 02-Oct-20

Alkalinity, Carbonate	ND	2.50	mg/L			80-120
Alkalinity, Bicarbonate	292	12.5	mg/L			80-120
Alkalinity, Total	240	10.0	mg/L	250	96.0	80-120

LCS Dup (0100210-BSD1)

Prepared & Analyzed: 02-Oct-20

Alkalinity, Carbonate	ND	2.50	mg/L			80-120		20
Alkalinity, Bicarbonate	318	12.5	mg/L			80-120	8.20	20
Alkalinity, Total	260	10.0	mg/L	250	104	80-120	8.00	20

Batch 0100504 - General Prep - Wet Chem

Blank (0100504-BLK1)

Prepared & Analyzed: 05-Oct-20

Chloride	ND	4.00	mg/L
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LCS (0100504-BS1)

Prepared & Analyzed: 05-Oct-20

Chloride	100	4.00	mg/L	100	100	80-120
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LCS Dup (0100504-BSD1)

Prepared & Analyzed: 05-Oct-20

Chloride	100	4.00	mg/L	100	100	80-120	0.00	20
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Batch 0100903 - Filtration

Blank (0100903-BLK1)

Prepared: 09-Oct-20 Analyzed: 13-Oct-20

TDS	ND	5.00	mg/L
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Hobbs NM, 88240

Project: N-7
Project Number: SWD N-7
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
20-Oct-20 09:33

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 0100903 - Filtration

LCS (0100903-BS1)

Prepared: 09-Oct-20 Analyzed: 13-Oct-20

TDS	497		mg/L	500		99.4	80-120			
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Duplicate (0100903-DUP1)

Source: H002664-01

Prepared: 09-Oct-20 Analyzed: 13-Oct-20

TDS	5410	5.00	mg/L		5470			1.12	20	
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Batch 0101303 - General Prep - Wet Chem

LCS (0101303-BS1)

Prepared & Analyzed: 13-Oct-20

Conductivity	100000		uS/cm	100000		100	80-120			
pH	7.07		pH Units	7.00		101	90-110			

Duplicate (0101303-DUP1)

Source: H002710-01

Prepared & Analyzed: 13-Oct-20

pH	7.23	0.100	pH Units		7.18			0.694	20	
Conductivity	104000	1.00	umhos/cm @ 25°C		106000			1.90	20	
Temperature °C	21.6		pH Units		21.7			0.462	200	

Batch 0101402 - General Prep - Wet Chem

Blank (0101402-BLK1)

Prepared & Analyzed: 14-Oct-20

Sulfate	ND	10.0	mg/L							
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LCS (0101402-BS1)

Prepared & Analyzed: 14-Oct-20

Sulfate	18.4	10.0	mg/L	20.0		92.0	80-120			
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LCS Dup (0101402-BSD1)

Prepared & Analyzed: 14-Oct-20

Sulfate	18.9	10.0	mg/L	20.0		94.3	80-120	2.41	20	
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Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
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Petroleum Hydrocarbons by GC FID - 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 0101305 - General Prep - Organics

Blank (0101305-BLK1)

Prepared & Analyzed: 13-Oct-20

GRO C6-C10	ND	1.00	mg/L							
DRO >C10-C28	ND	1.00	mg/L							
EXT DRO >C28-C36	ND	1.00	mg/L							
Surrogate: 1-Chlorooctane	3.26		mg/L	5.00		65.3	34.5-148			
Surrogate: 1-Chlorooctadecane	3.22		mg/L	5.00		64.4	46.4-149			

LCS (0101305-BS1)

Prepared & Analyzed: 13-Oct-20

GRO C6-C10	48.9	1.00	mg/L	50.0		97.8	73.2-116			
DRO >C10-C28	48.3	1.00	mg/L	50.0		96.6	81.3-121			
Surrogate: 1-Chlorooctane	4.00		mg/L	5.00		80.0	34.5-148			
Surrogate: 1-Chlorooctadecane	3.83		mg/L	5.00		76.6	46.4-149			

LCS Dup (0101305-BS1)

Prepared & Analyzed: 13-Oct-20

GRO C6-C10	50.3	1.00	mg/L	50.0		101	73.2-116	2.91	4.68	
DRO >C10-C28	49.7	1.00	mg/L	50.0		99.5	81.3-121	2.92	9.19	
Surrogate: 1-Chlorooctane	4.37		mg/L	5.00		87.5	34.5-148			
Surrogate: 1-Chlorooctadecane	4.35		mg/L	5.00		87.0	46.4-149			

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Project Manager: HAYDEN HOLUB
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Reported:
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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 B202185 - Total Rec. 200.7/200.8/200.2

Blank (B202185-BLK1)

Prepared: 15-Oct-20 Analyzed: 19-Oct-20

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

LCS (B202185-BS1)

Prepared: 15-Oct-20 Analyzed: 19-Oct-20

Magnesium	19.9	0.100	mg/L	20.0		99.7	85-115			
Calcium	3.98	0.100	mg/L	4.00		99.4	85-115			
Potassium	7.91	1.00	mg/L	8.00		98.9	85-115			
Sodium	3.25	1.00	mg/L	3.24		100	85-115			

LCS Dup (B202185-BSD1)

Prepared: 15-Oct-20 Analyzed: 19-Oct-20

Calcium	3.95	0.100	mg/L	4.00		98.8	85-115	0.603	20	
Magnesium	19.8	0.100	mg/L	20.0		99.1	85-115	0.654	20	
Sodium	3.27	1.00	mg/L	3.24		101	85-115	0.612	20	
Potassium	7.90	1.00	mg/L	8.00		98.8	85-115	0.0694	20	

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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 cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com