L Peter Galusky, Jr PE

5935 Exeter Cir Norcross, GA 30071 | 470 955-5335 | peter@bluerock.pro

APPROVED

Review of 2020 Annual Report: **Content satisfactory**
1. At a minimum, continue sampling on a semi-annual schedule
2. OCD pre-approves eliminating MW #2 from further sampling
3. Submit summarized activities completed and their results in a 2021 Annual Report. Submittal to OCD expected no later than March 31,2022.

April 1, 2021

Bradford Billings
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

Re: **2020 Annual Report**
Rice Operating Company – Vacuum SWD System
Vacuum F-33 Boot (1R425-37): UL/F, Sec. 33, T17S, R35E

Sent via E-mail

Mr. Billings:

This letter summarizes progress made over the past calendar year pursuant to remedial actions approved for this site in 2015, which is operated by Rice Operating Company (ROC). The site is located approximately 2.5 miles east of Buckeye, New Mexico at UL/F, Sec. 33, T17S, R35E as shown on the Site Location Map (Figure 1). The depth to the water table is approximately 82 ft bgs.

Background and Previous Work

In 2007, ROC initiated work on the former Vacuum F-33 boot junction box and a junction box disclosure report was submitted to NMOCD. An NMOCD approved Investigation and Characterization Plan (ICP) was implemented in 2009 to delineate residual soil chlorides and hydrocarbons and to evaluate groundwater quality beneath the site. The results of this work were reported to NMOCD in July 2013, along with a Corrective Action Plan (CAP), which proposed the installation of a 20-mil reinforced synthetic liner and an up-gradient groundwater monitor well. The CAP was approved by NMOCD on August 14th, 2013.

ROC completed the installation of the liner and restored the ground surface as specified in the CAP in early 2014. The results of this work were summarized and reported to NMOCD as an "Initial CAP Report and Soil Closure Request" on February 10th, 2014 and this was approved on March 28th, 2014. Following continued groundwater monitoring through 2014 ROC submitted a summary report "Proposed Groundwater Recover and Project Update" to NMOCD which proposed limited groundwater removal from the near-source monitor well (MW-1) to reduce groundwater chloride mass. NMOCD approved this work on April 2nd, 2015. ROC subsequently began groundwater recovery in May 2015.

Rice Operating Company Vacuum F-33 Boot Annual Report

Groundwater Chlorides & BTEX

Results of groundwater sampling from March 2009 through December 2020 are given in the Appendix Figure 3, Table 1 (annual averages) and Tables 2a & 2b (full dataset). Groundwater chloride concentrations in the near-source monitor well (MW-1) have varied widely since sampling began in 2009. Groundwater chloride concentrations averaged 580 mg/l over measurements taken in 2020, which is substantially less than the 2019 average of 885 mg/l. Groundwater chloride concentrations in the up-gradient monitor well (MW-2) averaged 64 mg/l in 2020, essentially unchanged since 2019 when it averaged 57 mg/l. Water-soluble petroleum hydrocarbons (BTEX) were not detected in any of the groundwater samples taken in 2020 nor in any prior years. NMOCD granted approval to cease BTEX sampling in 2020.

A total of approximately 8,985 bbls of high-chloride groundwater were pumped from the near-source monitor well (MW-1) from May 2015 through November 2019, resulting in the removal of an estimated 1,172 kg of chlorides. The removed groundwater was hauled to an off-site location and utilized for a beneficial use.

In 2020, NMOCD granted approval to temporarily cease groundwater recovery and reduce the sampling interval to semi-annual. ROC will continue groundwater recovery and quarterly monitoring well sampling in 2021.

ROC is the service provider (agent) for the Vacuum SWD System and has no ownership of any portion of the pipeline, well, or facility. The system is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis. The Vacuum system is now abandoned. We thus submit this report for your review and consideration. Please call Rice Operating Company or me if you have any questions or need additional information.

Thank you.

Sincerely,

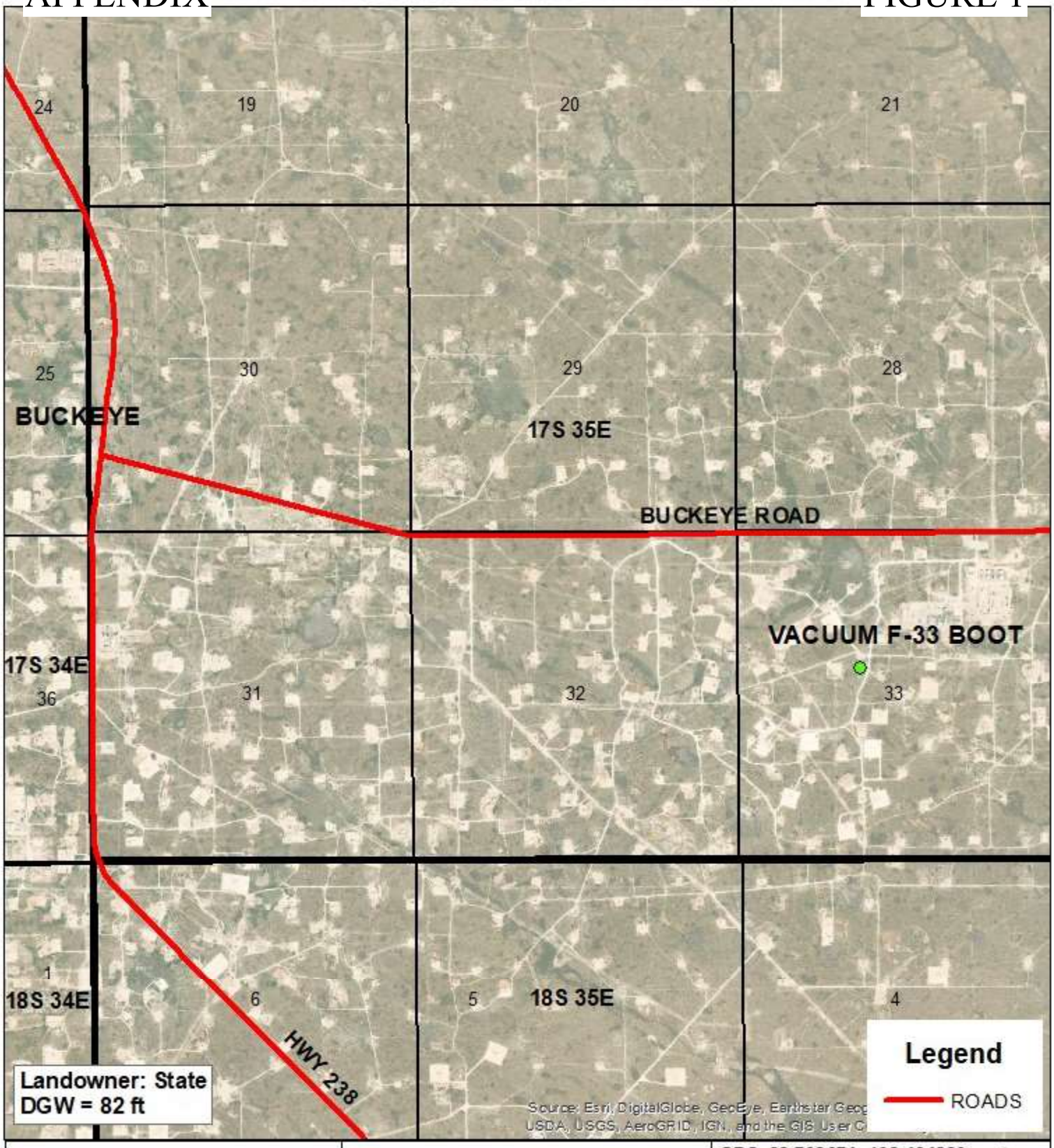
L. Peter Galusky, Jr. P.E.
NM Prof. Engineer No. 22561

Copy: Rice Operating Company
Attachments: … as noted, above.

APPENDIX

Geographic Location

FIGURE 1



RICE OPERATING COMPANY
ROC
SINCE 1955

VACUUM F-33 BOOT

1R425-37

UL/F SECTION 33
T-17-S R-35-E
LEA COUNTY, NM

GPS: 32.792674 -103.464829
NAD 83 STATE PLANE PROJ
NM EAST ZONE

N
W E
S

0 0.25 0.5
Miles

Drawing date: 2/4/20
Drafted by: T. Grieco

Site Map

APPENDIX FIGURE 2

RICE OPERATING COMPANY
ROC
SINCE 1955

VACUUM F-33 BOOT

1R425-37

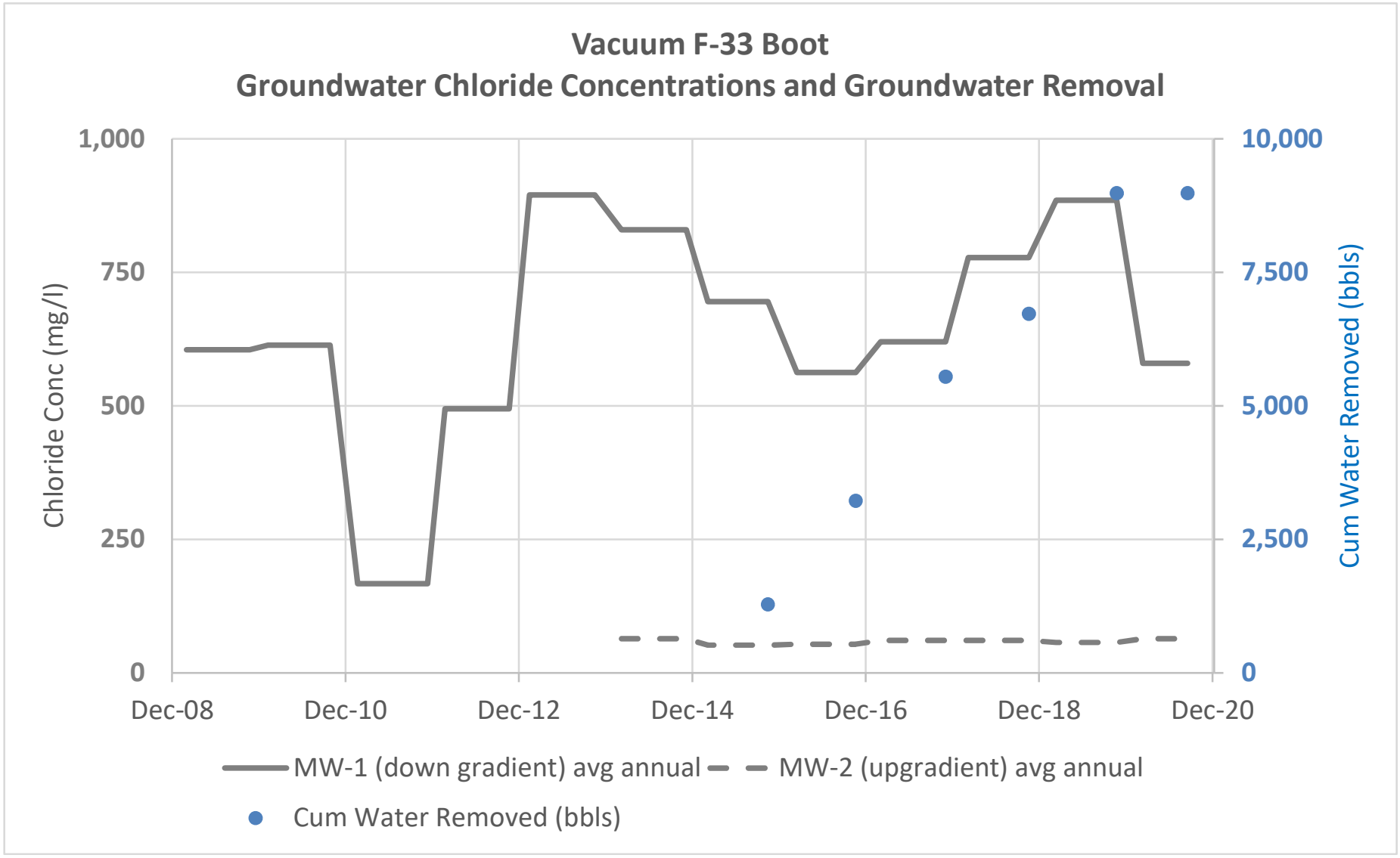
UL F SECTION 33
T-17-S R-35-E
LEA COUNTY, NM

GPS: 32.792674 -103.464829
NAD 83 STATE PLANE PROJ
NM EAST ZONE

0 25 50
Feet

N
W E
S

Drawing date: 2/4/20
Drafted by: T. Grieco


Vacuum F-33 Boot
Groundwater Chloride Concentrations and Groundwater Removal
Chloride Conc (mg/l)
1,000
750
500
250
0
10,000
7,500
5,000
2,500
0
Cum Water Removed (bbls)
Dec-08
Dec-10
Dec-12
Dec-14
Dec-16
Dec-18
Dec-20
MW-1 (down gradient) avg annual
MW-2 (upgradient) avg annual
Cum Water Removed (bbls)

Rice Operating Company
Vacuum F-33 Boot
Groundwater Data Summary

	Groundwater Cl- conc (mg/l)					
Date	MW-1 (down gradient)	MW-1 (down gradient) Avg Annual Avg	MW-2 (up gradient)	MW-2 (up gradient) Avg Annual	Cum Water Removed (bbls)	Cum Cl- removed (kg)
3/2/2009	432	605				
4/28/2009	600	605				
8/5/2009	308	605				
11/23/2009	1,080	605				
2/9/2010	1,160	614				
5/28/2010	510	614				
7/27/2010	710	614				
10/27/2010	76	614				
2/20/2011	68	167				
6/3/2011	240	167				
9/1/2011	308	167				
12/12/2011	52	167				
2/23/2012	188	495				
5/30/2012	730	495				
8/23/2012	580	495				
11/19/2012	480	495				
2/13/2013	870	895				
5/29/2013	860	895				
9/6/2013	840	895				
11/14/2013	1,010	895				
3/7/2014	550	830	60	64		
6/4/2014	980	830	64	64		
8/20/2014	910	830	64	64		
12/5/2014	880	830	68	64		
3/5/2015	940	695	36	52		
6/4/2015	540	695	64	52		
8/21/2015	670	695	40	52		
11/13/2015	630	695	68	52	1,285	113
3/14/2016	590	563	68	54		
5/25/2016	620	563	32	54		
9/13/2016	460	563	56	54		
11/17/2016	580	563	60	54	3,225	299
3/2/2017	380	620	60	61		
6/1/2017	440	620	84	61		
9/11/2017	820	620	68	61		
12/1/2017	840	620	32	61	5,545	666
3/5/2018	870	778	56	61		
6/4/2018	480	778	64	61		
9/10/2018	1,180	778	60	61		
11/16/2018	580	778	64	61	6,725	884
3/11/2019	770	885	60	57		
5/31/2019	990	885	56	57		
8/30/2019	720	885	56	57		
11/21/2019	1,060	885	56	57	8,985	1,172
3/9/2020	500	580	60	64		
9/14/2020	660	580	68	64	8,985	

ROC - Vacuum F-33 boot (1R425-37)
Groundwater Sampling - Full Dataset

MW	Depth to Water	Total Depth (ft)	Well Volume (gal)	Volume Purged (gal)	Sample Date	Cl (mg/l)	TDS (mg/l)	Benzene (mg/l)	Toluene (mg/l)	Ethyl Benzene (mg/l)	Total Xylenes (mg/l)	Sulfate (mg/l)	Comments
1	80.6	126.5	29.8	300.0	3/2/2009	432	1,070	<0.001	<0.001	<0.001	<0.003	56.0	Clear No Odor
1	80.7	126.5	29.8	150.0	4/28/2009	600	1,330	<0.001	<0.001	<0.001	<0.003	38.3	Clear No Odor
1	80.9	126.5	29.7	150.0	8/5/2009	308	845	<0.001	<0.001	<0.001	<0.003	25.2	Clear No Odor
1	81.0	126.5	29.6	150.0	11/23/2009	1,080	2,340	<0.001	<0.001	<0.001	<0.003	34.2	Clear No Odor
1	81.1	126.5	29.5	150.0	2/9/2010	1,160	2,240	<0.001	<0.001	<0.001	<0.003	54.6	Clear No Odor
1	81.3	126.5	29.4	150.0	5/28/2010	510	1,190	<0.001	<0.001	<0.001	<0.003	29.0	Clear No Odor
1	81.3	126.5	29.4	150.0	7/27/2010	710	1,500	<0.001	<0.001	<0.001	<0.003	40.8	Clear No Odor
1	81.4	126.5	29.3	250.0	10/27/2010	76	454	<0.001	<0.001	<0.001	<0.003	17.6	Clear No Odor
1	81.5	126.5	29.2	250.0	2/20/2011	68	365	<0.001	<0.001	<0.001	<0.003	17.2	Clear No Odor
1	81.7	126.5	29.2	400.0	6/3/2011	240	707	<0.001	<0.001	<0.001	<0.003	45.9	Clear No Odor
1	81.7	126.5	29.1	400.0	9/1/2011	308	825	<0.001	<0.001	<0.001	<0.003	56.6	Clear No Odor
1	81.8	126.5	29.1	400.0	12/12/2011	52	395	<0.001	<0.001	<0.001	<0.003	28.6	Clear No Odor
1	81.9	126.5	29.0	500.0	2/23/2012	188	605	<0.001	<0.001	<0.001	<0.003	45.2	Clear No Odor
1	81.8	126.5	29.0	500.0	5/30/2012	730	1,740	<0.001	<0.001	<0.001	<0.003	84.9	Clear No Odor
1	81.9	126.5	29.0	500.0	8/23/2012	580	1,280	<0.001	<0.001	<0.001	<0.003	81.2	Clear No Odor
1	81.9	126.5	29.0	500.0	11/19/2012	480	1,170	<0.001	<0.001	<0.001	<0.003	50.4	Clear No Odor
1	82.0	126.5	29.0	500.0	2/13/2013	870	1,680	<0.001	<0.001	<0.001	<0.003	59.7	Clear No Odor

1	82.0	126.5	28.9	500.0	5/29/2013	860	1,940	<0.001	<0.001	<0.001	<0.003	79.3	Clear No Odor
1	82.1	126.5	28.9	500.0	9/6/2013	840	2,000	<0.001	<0.001	<0.001	<0.003	227.0	Clear No Odor
1	82.2	126.5	28.8	500.0	11/14/2013	1,010	2,080	<0.001	<0.001	<0.001	<0.003	61.5	Clear No Odor
1	82.3	126.5	28.7	500.0	3/7/2014	550	1,390	<0.001	<0.001	<0.001	<0.003	63.4	Clear No Odor
1	82.3	126.5	28.7	500.0	6/4/2014	980	2,170	<0.001	<0.001	<0.001	<0.003	53.8	Clear No Odor
1	82.5	126.5	28.6	500.0	8/20/2014	910	2,220	<0.001	<0.001	<0.001	<0.003	50.9	Clear No Odor
1	82.2	126.5	28.8	250.0	12/5/2014	880	2,050	<0.001	<0.001	<0.001	<0.003	53.6	Clear No Odor
1	82.3	126.5	28.7	250.0	3/5/2015	940	2,010	<0.001	<0.001	<0.001	<0.003	50.3	Clear No Odor
1	XXX	126.5	XXX	Running	6/4/2015	540	1,360	<0.001	<0.001	<0.001	<0.003	55.5	Clear No Odor
1	XXX	126.5	XXX	Running	8/21/2015	670	1,480	<0.001	<0.001	<0.001	<0.003	51.0	Clear No Odor
1	XXX	126.5	0.0	200.0	11/13/2015	630	1,500	<0.001	<0.001	<0.001	<0.003	71.4	Clear No Odor
1	XXX	126.5	XXX	200.0	3/14/2016	590	1,370	<0.001	<0.001	<0.001	<0.003	65.3	Clear No odor
1	XXX	126.5	XXX	200.0	5/25/2016	620	1,730	<0.001	<0.001	<0.001	<0.003	68.1	Clear No odor
1	XXX	126.5	XXX	Running	9/13/2016	460	1,140	<0.001	<0.001	<0.001	<0.003	71.0	Clear No odor
1	XXX	126.5	XXX	200.0	11/17/2016	580	1,370	<0.001	<0.001	<0.001	<0.003	63.0	Clear No odor
1	XXX	126.5	XXX	200.0	3/2/2017	380	1,230	<0.001	<0.001	<0.001	<0.003	143.0	Clear No odor
1	XXX	126.5	XXX	Running	6/1/2017	440	1,180	<0.001	<0.001	<0.001	<0.003	68.0	Clear No odor
1	XXX	126.5	XXX	Running	9/11/2017	820	2,110	<0.001	<0.001	<0.001	<0.003	97.0	Clear No odor
1	XXX	126.5	XXX	100.0	12/1/2017	840	1,740	<0.001	<0.001	<0.001	<0.003	81.0	Clear No odor
1	XXX	126.5	XXX	200.0	3/5/2018	870	1,870	<0.001	<0.001	<0.001	<0.003	96.0	Clear No odor

1	XXX	126.5	XXX	200.0	6/4/2018	480	1,200	<0.001	<0.001	<0.001	<0.003	69.4	Clear No odor
1	XXX	126.5	XXX	200.0	9/10/2018	1,180	2,310	<0.001	<0.001	<0.001	<0.003	82.7	Clear No odor
1	XXX	126.5	XXX	200.0	11/16/2018	580	1,120	<0.001	<0.001	<0.001	<0.003	57.2	Clear No odor
1	XXX	126.5	XXX	100.0	3/11/2019	770	1,610	<0.001	<0.001	<0.001	<0.003	57.0	Clear No odor
1	XXX	126.5	XXX	Running	5/31/2019	990	1,940	<0.001	<0.001	<0.001	<0.003	66.0	Clear No odor
1	XXX	126.5	XXX	Running	8/30/2019	720	1,740	<0.001	<0.001	<0.001	<0.003	66.0	Clear No odor
1	XXX	126.5	XXX	100.0	11/21/2019	1,060	1,900	<0.001	<0.001	<0.001	<0.003	66.0	Clear No odor
1	XXX	126.5	XXX	Running	3/9/2020	500	1,160	<0.001	<0.001	<0.001	<0.003	52.7	Clear No odor
1	XXX	126.5	XXX	Running	9/14/2020	660	1,770	XXX	XXX	XXX	XXX	51.1	Clear No odor

ROC - Vacuum F-33 boot (1R425-37)
Groundwater Sampling - Full Dataset

MW	Depth to Water	Total Depth (ft)	Well Volume (gal)	Volume Purged (gal)	Sample Date	Cl (mg/l)	TDS (mg/l)	Benzene (mg/l)	Toluene (mg/l)	Ethyl Benzene (mg/l)	Total Xylenes (mg/l)	Sulfate (mg/l)	Comments
2	82.0	95.1	2.1	10.0	3/7/2014	60	412	<0.001	<0.001	<0.001	<0.003	37.4	Clear No odor
2	82.0	95.1	2.1	10.0	6/4/2014	64	378	<0.001	<0.001	<0.001	<0.003	39.6	Clear No odor
2	82.1	95.1	2.1	10.0	8/20/2014	64	400	<0.001	<0.001	<0.001	<0.003	37.7	Clear No odor
2	81.7	95.1	2.1	10.0	12/5/2014	68	370	<0.001	<0.001	<0.001	<0.003	30.7	Clear No odor
2	81.9	95.1	2.1	10.0	3/5/2015	36	400	<0.001	<0.001	<0.001	<0.003	59.8	Clear No odor
2	82.1	95.1	2.1	10.0	6/4/2015	64	422	<0.001	<0.001	<0.001	<0.003	31.3	Clear No odor
2	82.3	95.1	2.0	10.0	8/21/2015	40	398	<0.001	<0.001	<0.001	<0.003	45.1	Clear No odor
2	82.3	95.1	2.0	10.0	11/13/2015	68	440	<0.001	<0.001	<0.001	<0.003	34.6	Clear No odor
2	82.4	95.1	2.0	10.0	3/14/2016	68	436	<0.001	<0.001	<0.001	<0.003	45.7	Clear No odor
2	82.4	95.1	2.0	10.0	5/25/2016	32	406	<0.001	<0.001	<0.001	<0.003	58.8	Clear No odor
2	82.4	95.1	2.0	10.0	9/13/2016	56	402	<0.001	<0.001	<0.001	<0.003	77.0	Clear No odor
2	82.5	95.1	2.0	10.0	11/17/2016	60	202	<0.001	<0.001	<0.001	<0.003	64.0	Clear No odor
2	82.6	95.1	2.0	10.0	3/2/2017	60	446	<0.001	<0.001	<0.001	<0.003	76.0	Clear No odor
2	82.7	95.1	2.0	10.0	6/1/2017	84	486	<0.001	<0.001	<0.001	<0.003	57.0	Clear No odor
2	82.9	95.1	1.9	10.0	9/11/2017	68	424	<0.001	<0.001	<0.001	<0.003	80.0	Clear No odor
2	82.8	95.1	2.0	10.0	12/1/2017	32	396	<0.001	<0.001	<0.001	<0.003	59.0	Clear No odor
2	82.9	95.1	1.9	10.0	3/5/2018	56	424	<0.001	<0.001	<0.001	<0.003	67.2	Clear No odor

2	83.0	95.1	1.9	10.0	6/4/2018	64	448	<0.001	<0.001	<0.001	<0.003	72.4	Clear No odor
2	83.1	95.1	1.9	8.0	9/10/2018	60	302	<0.001	<0.001	<0.001	<0.003	69.2	Clear No odor
2	83.4	95.1	1.9	10.0	11/16/2018	64	452	<0.001	<0.001	<0.001	<0.003	66.6	Clear No odor
2	83.5	95.1	1.8	10.0	3/11/2019	60	368	<0.001	<0.001	<0.001	<0.003	66.0	Clear No odor
2	83.6	95.1	1.8	10.0	5/31/2019	56	413	<0.001	<0.001	<0.001	<0.003	62.0	Clear No odor
2	83.6	95.1	1.8	10.0	8/30/2019	56	422	<0.001	<0.001	<0.001	<0.003	56.0	Clear No odor
2	83.7	95.1	1.8	10.0	11/21/2019	56	241	<0.001	<0.001	<0.001	<0.003	60.0	Clear No odor
2	83.7	95.1	1.8	10	3/9/2020	60	424	<0.001	<0.001	<0.001	<0.003	61.9	Clear No odor
2	83.8	95.1	1.8	10	9/14/2020	68	353	XXX	XXX	XXX	XXX	55.1	Clear No odor

CARDINAL Laboratories

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

March 16, 2020

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM F-33 BOOT

Enclosed are the results of analyses for samples received by the laboratory on 03/10/20 13:58.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. 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.

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

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

Accreditation applies to public drinking water matrices.

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

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	03/10/2020	Sampling Date:	03/09/2020
Reported:	03/16/2020	Sampling Type:	Water
Project Name:	VACUUM F-33 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T17S-R35E-SEC33 F - LEA CTY, NM		

Sample ID: MONITOR WELL #1 (H000751-01)

BTEX 8021B mg/L Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	03/11/2020	ND	0.020	102	0.0200	0.861	
Toluene*	<0.001	0.001	03/11/2020	ND	0.020	102	0.0200	1.03	
Ethylbenzene*	<0.001	0.001	03/11/2020	ND	0.020	102	0.0200	1.31	
Total Xylenes*	<0.003	0.003	03/11/2020	ND	0.060	99.7	0.0600	1.69	
Total BTEX	<0.006	0.006	03/11/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *58.2-133*

Chloride, SM4500Cl-B mg/L Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**500**	4.00	03/11/2020	ND	100	100	100	3.92	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**52.7**	10.0	03/12/2020	ND	21.5	107	20.0	1.41	

TDS 160.1 mg/L Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1160**	5.00	03/16/2020	ND	548	110	500	0.263	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	03/10/2020	Sampling Date:	03/09/2020
Reported:	03/16/2020	Sampling Type:	Water
Project Name:	VACUUM F-33 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T17S-R35E-SEC33 F - LEA CTY, NM		

Sample ID: MONITOR WELL #2 (H000751-02)

BTEX 8021B mg/L Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	03/11/2020	ND	0.020	102	0.0200	0.861	
Toluene*	<0.001	0.001	03/11/2020	ND	0.020	102	0.0200	1.03	
Ethylbenzene*	<0.001	0.001	03/11/2020	ND	0.020	102	0.0200	1.31	
Total Xylenes*	<0.003	0.003	03/11/2020	ND	0.060	99.7	0.0600	1.69	
Total BTEX	<0.006	0.006	03/11/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *58.2-133*

Chloride, SM4500Cl-B mg/L Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**60.0**	4.00	03/11/2020	ND	100	100	100	3.92	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**61.9**	10.0	03/12/2020	ND	21.5	107	20.0	1.41	

TDS 160.1 mg/L Analyzed By: GM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**424**	5.00	03/16/2020	ND	548	110	500	0.263	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

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

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company PO#
Project Manager: Katie Jones	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: Vacuum F-33 Boot
Project Location: T17S-R35E-Sec33 F ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310

H000751 LAB # (LAB USE ONLY)

	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2020)	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
1	Monitor Well #1	G	3	X				2				1		3/9	13:00		X																X	X	X	
2	Monitor Well #2	G	3	X				2				1		3/9	10:10		X																X	X	X	

Relinquished by: Rozanne Johnson	Date: 3/10/20	Time: 13:58	Received by: Tamara Oldaker
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool: Yes / No; Intact: Yes / No		CHECKED BY: (Initials)

Date: 3-10-20 Time: 1358

Phone Results		Yes		No
Fax Results		Yes		No Additional Fax Number:

REMARKS:

Email Results: kjones@riceswd.com
rozanne11@windstream.net

CARDINAL Laboratories

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

September 25, 2020

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM F-33 BOOT

Enclosed are the results of analyses for samples received by the laboratory on 09/15/20 16:10.

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/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	09/15/2020	Sampling Date:	09/14/2020
Reported:	09/25/2020	Sampling Type:	Water
Project Name:	VACUUM F-33 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T17S-R35E-SEC33 F - LEA CTY, NM		

Sample ID: MONITOR WELL #1 (H002447-01)

Chloride, SM4500Cl-B mg/L **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**660**	4.00	09/16/2020	ND	96.0	96.0	100	4.08	

Sulfate 375.4 mg/L **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**51.1**	10.0	09/16/2020	ND	20.9	104	20.0	10.1	

TDS 160.1 mg/L **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1770**	5.00	09/18/2020	5.00	830	83.0	1000	1.14	

Sample ID: MONITOR WELL #2 (H002447-02)

Chloride, SM4500Cl-B mg/L **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**68.0**	4.00	09/16/2020	ND	96.0	96.0	100	4.08	

Sulfate 375.4 mg/L **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**55.1**	10.0	09/16/2020	ND	20.9	104	20.0	10.1	

TDS 160.1 mg/L **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**353**	5.00	09/22/2020	ND	827	82.7	1000	23.8	QR-03

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

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

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company PO#
Project Manager: Katie Jones	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: Vacuum F-33 Boot
Project Location: T17S-R35E-Sec33 F ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310

H002447

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCL (4 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2020)	TIME
1	Monitor Well #1	G	1	X									1		9/14	12:45
2	Monitor Well #2	G	1	X									1		9/14	9:15

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
																		X	X	X	
																		X	X	X	

ANALYSIS REQUEST
(Circle or Specify Method No.)

Relinquished by: Rozanne Johnson	Date: 9/15/20	Time: 1610	Received by:	Date: 9-15-20	Time: 1610
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)	Date:	Time:

Phone Results		Yes		No
Fax Results		Yes		No Additional Fax Number:

REMARKS:

Email Results: kjones@riceswd.com
rozanne@sdacres.com

Delivered By: (Circle One)	Sample Condition	Cool	Intact	CHECKED BY:
Sampler - UPS - Bus - Other:	Yes	✓	✓	(Initials) T.O.
	No			

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 24236

CONDITIONS

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID: 19174
	Action Number: 24236
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Review of 2020 Annual Report: Content satisfactory 1. At a minimum, continue sampling on a semi-annual schedule 2. OCD pre-approves eliminating MW #2 from further sampling 3. Submit summarized activities completed and their results in a 2021 Annual Report. Submittal to OCD expected no later than March 31,2022.	1/25/2022