L Peter Galusky, Jr PE

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

April 1st, 2020

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

Re: **2019 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 14, 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 extraction from the near-source monitor well (MW-1) to reduce groundwater chloride mass.
NMOCD approved this work on April 2, 2015. ROC subsequently began groundwater pumping in May 2015.

Groundwater Chlorides & BTEX

Results of groundwater sampling from March 2009 through December 2019 are given in the Appendix Figure 3, Table 1 (annual averages) and Tables 2a & 2b (full dataset). Groundwater chloride concentrations in the down-gradient monitor well (MW-1) have varied widely since sampling began in 2009. Groundwater chloride concentrations averaged 885 mg/l over four quarterly measurements taken in 2019, which is up slightly compared to an average of 778 mg/l over four quarterly measurements taken in 2018. Groundwater chloride concentrations in the up-gradient monitor well (MW-2) averaged 57 mg/l over the four quarters of 2019, essentially unchanged since 2018 when it averaged 61 mg/l. Water-soluble petroleum hydrocarbons (BTEX) were not detected in any of the groundwater samples taken in 2019 nor in any prior years. **Given BTEX concentrations have been below detectable limits since installation, ROC requests to suspend BTEX sampling in both wells (MW-1 and MW-2) 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 chloride. The removed groundwater was hauled to an off-site location and utilized for a beneficial use.

Due to the current climate, and in the interest of safety, ROC proposes to reduce groundwater monitoring from quarterly to semi-annually for the remainder of this year. In addition, ROC is proposing to suspend groundwater recovery for this year. These proposals are only temporary and regularly scheduled groundwater monitoring and recovery will commence as soon as possible.

ROC is the service provider (agent) for the Vacuum Saltwater Disposal (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,

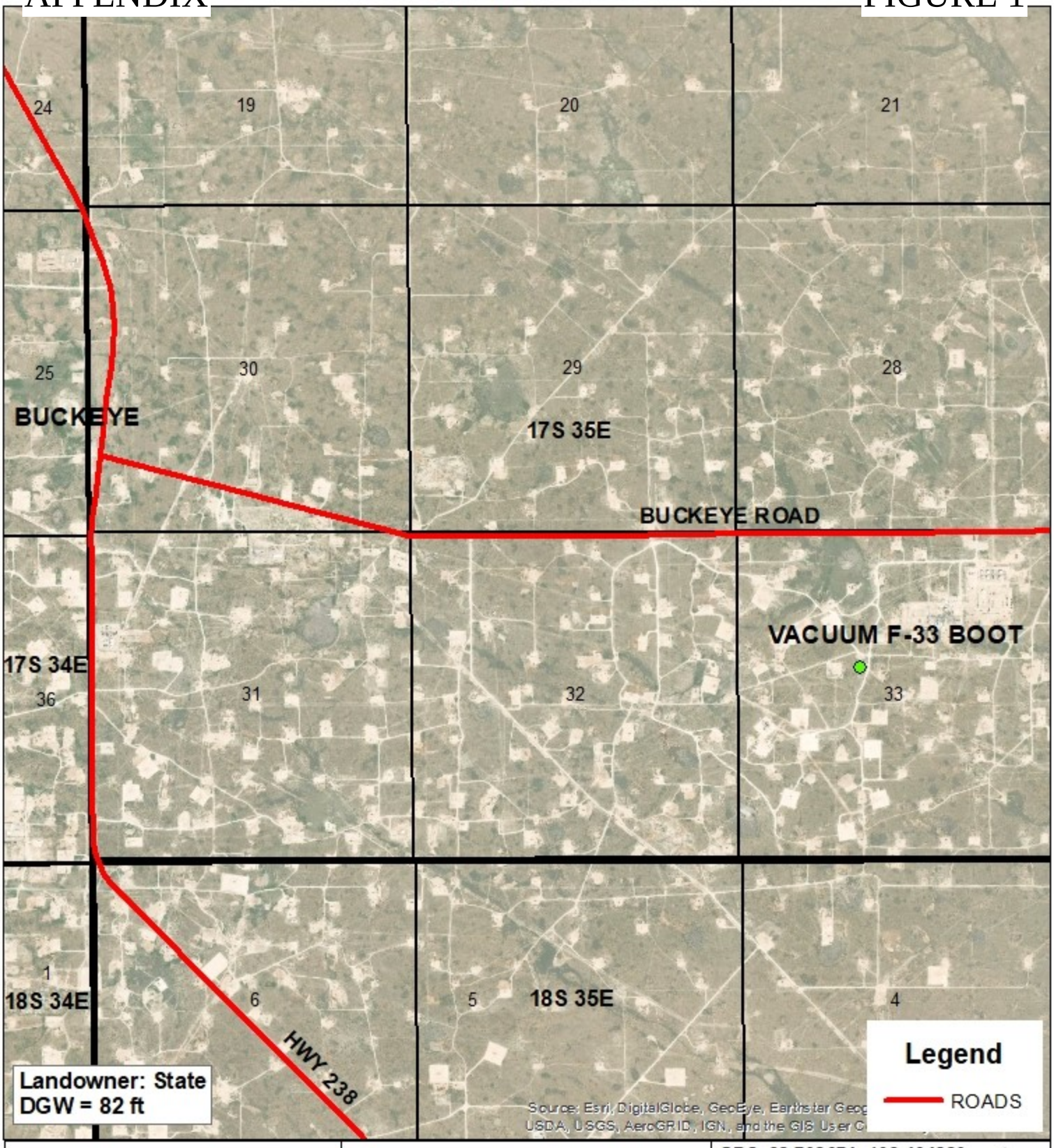
L. Peter Galusky, Jr. P.E.
NM Prof. Engineer No. 22561

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

APPENDIX

Site Map

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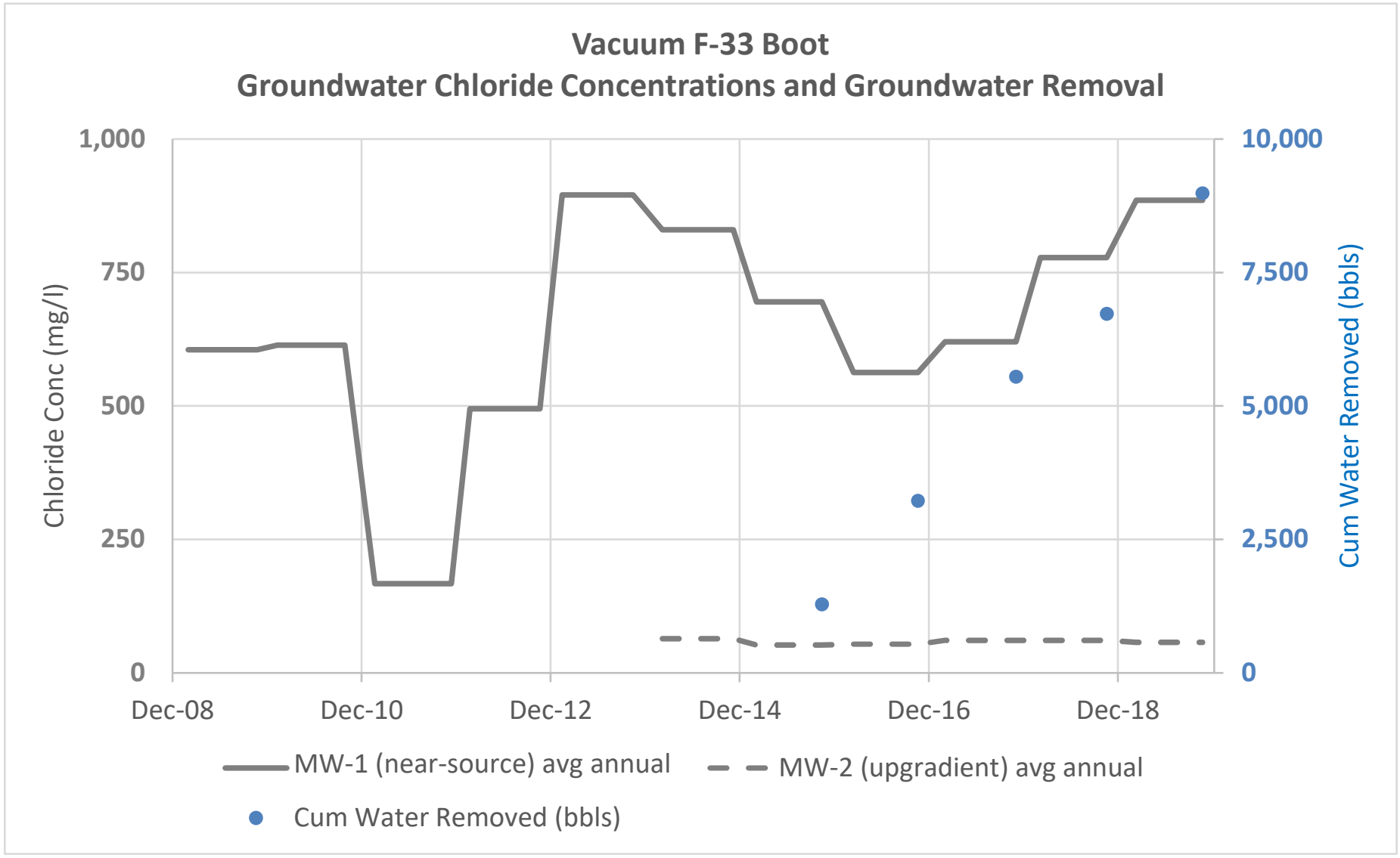
Vacuum F-33 Boot
Groundwater Chloride Concentrations and Groundwater Removal
Chloride Conc (mg/l)
1,000
750
500
250
0
10,000
7,500
5,000
2,500
0
Cum Water Removed (bbls)
Dec-08
Dec-10
Dec-12
Dec-14
Dec-16
Dec-18
MW-1 (near-source) avg annual
MW-2 (upgradient) avg annual
Cum Water Removed (bbls)

APPENDIX TABLE 1

Rice Operating Company
Vacuum F-33 Boot
Groundwater Data Summary

	Groundwater Cl- conc (mg/l)					
Date	MW-1 (near source)	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)
Mar-09	432	605				
Apr-09	600	605				
Aug-09	308	605				
Nov-09	1,080	605				
Feb-10	1,160	614				
May-10	510	614				
Jul-10	710	614				
Oct-10	76	614				
Feb-11	68	167				
Jun-11	240	167				
Sep-11	308	167				
Dec-11	52	167				
Feb-12	188	495				
May-12	730	495				
Aug-12	580	495				
Nov-12	480	495				
Feb-13	870	895				
May-13	860	895				
Sep-13	840	895				
Nov-13	1,010	895				
Mar-14	550	830	60	64		
Jun-14	980	830	64	64		
Aug-14	910	830	64	64		
Dec-14	880	830	68	64		
Mar-15	940	695	36	52		
Jun-15	540	695	64	52		
Aug-15	670	695	40	52		
Nov-15	630	695	68	52	1,285	113
Mar-16	590	563	68	54		
May-16	620	563	32	54		
Sep-16	460	563	56	54		
Nov-16	580	563	60	54	3,225	299
Mar-17	380	620	60	61		
Jun-17	440	620	84	61		
Sep-17	820	620	68	61		
Dec-17	840	620	32	61	5,545	666
Mar-18	870	778	56	61		
Jun-18	480	778	64	61		
Sep-18	1,180	778	60	61		
Nov-18	580	778	64	61	6,725	884
Mar-19	770	885	60	57		
May-19	990	885	56	57		
Aug-19	720	885	56	57		
Nov-19	1,060	885	56	57	8,985	1,172

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

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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

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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

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

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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

CARDINAL Laboratories

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

March 20, 2019

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 03/15/19 15:00.

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.

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:	03/15/2019	Sampling Date:	03/11/2019
Reported:	03/20/2019	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 (H901022-01)

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	03/20/2019	ND	0.020	102	0.0200	2.30	
Toluene*	<0.001	0.001	03/20/2019	ND	0.020	98.8	0.0200	2.51	
Ethylbenzene*	<0.001	0.001	03/20/2019	ND	0.020	97.5	0.0200	0.470	
Total Xylenes*	<0.003	0.003	03/20/2019	ND	0.063	105	0.0600	1.28	
Total BTEX	<0.006	0.006	03/20/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *93.7 %* *81.3-128*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**770**	4.00	03/18/2019	ND	100	100	100	0.00	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**57.1**	10.0	03/19/2019	ND	22.7	113	20.0	1.31	

TDS 160.1 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1610**	5.00	03/18/2019	5.00	514	97.5	527	2.27	

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

Analytical Results For:

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

Received:	03/15/2019	Sampling Date:	03/11/2019
Reported:	03/20/2019	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 (H901022-02)

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	03/20/2019	ND	0.020	102	0.0200	2.30	
Toluene*	<0.001	0.001	03/20/2019	ND	0.020	98.8	0.0200	2.51	
Ethylbenzene*	<0.001	0.001	03/20/2019	ND	0.020	97.5	0.0200	0.470	
Total Xylenes*	<0.003	0.003	03/20/2019	ND	0.063	105	0.0600	1.28	
Total BTEX	<0.006	0.006	03/20/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *81.3-128*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**60.0**	4.00	03/18/2019	ND	100	100	100	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**66.2**	10.0	03/19/2019	ND	22.7	113	20.0	1.31	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**368**	5.00	03/18/2019	5.00	514	97.5	527	2.27	

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

H901022

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 (2019)	TIME
1	Monitor Well #1	G	3	X				2				1		3/11	13:50
2	Monitor Well #2	G	3	X				2				1		3/11	10:45

ANALYSIS REQUEST
(Circle or Specify Method No.)

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	X	X	

Relinquished by: Rozanne Johnson	Date: 3/15/2019	Time: 15:00	Received by: Tamara Oldaker
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)

Date: 3-15-19 Time: 15:00

Date: Time:

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

REMARKS:

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

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

CARDINAL Laboratories

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

June 06, 2019

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 06/03/19 10:12.

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.

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:	06/03/2019	Sampling Date:	05/31/2019
Reported:	06/06/2019	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 (H901930-01)

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	06/04/2019	ND	0.021	106	0.0200	2.52	
Toluene*	<0.001	0.001	06/04/2019	ND	0.022	110	0.0200	1.67	
Ethylbenzene*	<0.001	0.001	06/04/2019	ND	0.020	101	0.0200	2.26	
Total Xylenes*	<0.003	0.003	06/04/2019	ND	0.063	105	0.0600	2.19	
Total BTEX	<0.006	0.006	06/04/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *81.3-128*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**990**	4.00	06/04/2019	ND	100	100	100	0.00	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**66.5**	10.0	06/04/2019	ND	21.1	105	20.0	4.96	

TDS 160.1 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1940**	5.00	06/06/2019	ND	520	98.7	527	2.05	

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

Analytical Results For:

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

Received:	06/03/2019	Sampling Date:	05/31/2019
Reported:	06/06/2019	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 (H901930-02)

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	06/04/2019	ND	0.021	106	0.0200	2.52	
Toluene*	<0.001	0.001	06/04/2019	ND	0.022	110	0.0200	1.67	
Ethylbenzene*	<0.001	0.001	06/04/2019	ND	0.020	101	0.0200	2.26	
Total Xylenes*	<0.003	0.003	06/04/2019	ND	0.063	105	0.0600	2.19	
Total BTEX	<0.006	0.006	06/04/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *81.3-128*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**56.0**	4.00	06/04/2019	ND	100	100	100	0.00	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**62.9**	10.0	06/04/2019	ND	21.1	105	20.0	4.96	

TDS 160.1 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**413**	5.00	06/06/2019	ND	520	98.7	527	2.05	

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

H901930

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 (2019)	TIME
1	Monitor Well #1	G	3	X				2				1		5/31	11:30
2	Monitor Well #2	G	3	X				2				1		5/31	10:05

ANALYSIS REQUEST
(Circle or Specify Method No.)

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	X	X		

Relinquished by: Rozanne Johnson	Date: 6/3/2019	Time: 8:00	Received by:	Date: 6/3/2019	Time: 8:01
Relinquished by:	Date: 6/3/2019	Time: 12:02	Received By: (Laboratory Staff) Tamara Oldaker	Date: 6-3-19	Time: 10:12
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool: Yes / Intact: Yes; No / No		CHECKED BY: (Initials) TO		

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 12, 2019

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 09/04/19 14:25.

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.

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:	09/04/2019	Sampling Date:	08/30/2019
Reported:	09/12/2019	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 (H903058-01)

BTEX 8021B mg/L Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	09/12/2019	ND	0.021	104	0.0200	1.81	
Toluene*	<0.001	0.001	09/12/2019	ND	0.021	104	0.0200	0.145	
Ethylbenzene*	<0.001	0.001	09/12/2019	ND	0.021	107	0.0200	0.975	
Total Xylenes*	<0.003	0.003	09/12/2019	ND	0.065	108	0.0600	1.24	
Total BTEX	<0.006	0.006	09/12/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.8 %* *81.3-128*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**720**	4.00	09/06/2019	ND	100	100	100	0.00	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**66.2**	10.0	09/06/2019	ND	18.3	91.6	20.0	9.85	

TDS 160.1 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1740**	5.00	09/09/2019	ND	539	102	527	9.17	

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

Analytical Results For:

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

Received:	09/04/2019	Sampling Date:	08/30/2019
Reported:	09/12/2019	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 (H903058-02)

BTEX 8021B mg/L Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	09/12/2019	ND	0.021	104	0.0200	1.81	
Toluene*	<0.001	0.001	09/12/2019	ND	0.021	104	0.0200	0.145	
Ethylbenzene*	<0.001	0.001	09/12/2019	ND	0.021	107	0.0200	0.975	
Total Xylenes*	<0.003	0.003	09/12/2019	ND	0.065	108	0.0600	1.24	
Total BTEX	<0.006	0.006	09/12/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *89.7 %* *81.3-128*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**56.0**	4.00	09/06/2019	ND	100	100	100	0.00	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**56.5**	10.0	09/06/2019	ND	18.3	91.6	20.0	9.85	

TDS 160.1 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**422**	5.00	09/09/2019	ND	539	102	527	9.17	

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

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 (2019)	TIME
H903058																
1	Monitor Well #1	G	3	X					2				1		8/30	11:30
2	Monitor Well #2	G	3	X					2				1		8/30	13:00

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	X	X	

ANALYSIS REQUEST
(Circle or Specify Method No.)

Relinquished by: Rozanne Johnson	Date: 9/4/2019	Time: 14:15	Received by:	Date: 9-4-19	Time: 14:25	Phone Results	Yes / No
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)	Date:	Time:	Fax Results	Yes / No Additional Fax Number:

REMARKS:

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

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

CARDINAL Laboratories

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

December 04, 2019

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 11/25/19 16:31.

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:	11/25/2019	Sampling Date:	11/21/2019
Reported:	12/04/2019	Sampling Type:	Water
Project Name:	VACUUM F-33 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S-R35E-SEC33 F - LEA CTY, NM		

Sample ID: MONITOR WELL #1 (H904000-01)

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	11/27/2019	ND	0.021	105	0.0200	0.744	
Toluene*	<0.001	0.001	11/27/2019	ND	0.020	101	0.0200	0.637	
Ethylbenzene*	<0.001	0.001	11/27/2019	ND	0.021	104	0.0200	1.69	
Total Xylenes*	<0.003	0.003	11/27/2019	ND	0.064	106	0.0600	2.54	
Total BTEX	<0.006	0.006	11/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.5 %* *58.2-133*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**1060**	4.00	11/26/2019	ND	104	104	100	0.00	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**65.6**	10.0	11/27/2019	ND	18.3	91.6	20.0	18.5	

TDS 160.1 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1900**	5.00	12/03/2019	ND	515	97.7	527	15.3	

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

Analytical Results For:

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

Received:	11/25/2019	Sampling Date:	11/21/2019
Reported:	12/04/2019	Sampling Type:	Water
Project Name:	VACUUM F-33 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S-R35E-SEC33 F - LEA CTY, NM		

Sample ID: MONITOR WELL #2 (H904000-02)

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	11/27/2019	ND	0.021	105	0.0200	0.744	
Toluene*	<0.001	0.001	11/27/2019	ND	0.020	101	0.0200	0.637	
Ethylbenzene*	<0.001	0.001	11/27/2019	ND	0.021	104	0.0200	1.69	
Total Xylenes*	<0.003	0.003	11/27/2019	ND	0.064	106	0.0600	2.54	
Total BTEX	<0.006	0.006	11/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.2 %* *58.2-133*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**56.0**	4.00	11/26/2019	ND	104	104	100	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**59.9**	10.0	11/27/2019	ND	18.3	91.6	20.0	18.5	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**241**	5.00	12/03/2019	ND	515	97.7	527	15.3	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

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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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*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

101 East Marland - Hobbs, NM 88240
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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

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY) H904000	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 (2019)	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		11/21	11:15		X																X	X	X	
2	Monitor Well #2	G	3	X				2				1		11/21	14:20		X																X	X	X	

Relinquished by: Rozanne Johnson	Date: 11/25/19	Time: 16:30	Received by:
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff) Jodi Henson 11/25/19 16:31

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

REMARKS:

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

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Sample Condition: Cool: Yes ✓ / No; Intact: Yes ✓ / No

CHECKED BY: (Initials) JA