

L Peter Galusky, Jr PE

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

March 31, 2023

REVIEWED
By Mike Buchanan at 4:24 pm, Jun 21, 2023

Nelson Velez

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

Re: **2022 Annual Report**
Rice Operating Company – Vacuum SWD System
Vacuum F-34 Vent Boot UL F, Section 34, Township 17S, Range 35E
NMOCD Case Number 1R425-67

Review of the 2022 Annual Report for Vacuum F-34 Vent Boot on behalf of RICE:
Content Satisfactory
1. Continue to groundwater monitor quarterly for sampling and recovery.
2. Submit the 2023 Annual Report no later than April 1, 2024.

Sent via E-mail

Mr. Velez:

This Annual Report is submitted to NMOCD for Rice Operating Company’s (ROC) Vacuum F-34 Vent Boot project in Lea County, New Mexico.

Background and Brief Project History

The site is located approximately 2.5 miles east-southeast of Buckeye, New Mexico (Appendix Figure 1). The regional topography slopes gently toward the southeast. Groundwater is encountered at a depth of approximately 74+/- ft below ground surface in the Ogallala Formation.

The junction box at this location was removed during the Vacuum SWD system abandonment and conducted an initial soils evaluation in 2008. The results of an NMOCD approved Investigation and Characterization Plan (ICP) indicated elevated levels of soil and groundwater chlorides, and a Notification of Groundwater Impact was submitted to NMOCD on October 26th, 2010. ROC installed a double synthetic subsurface soil liner and completed surface restoration in May 2011 and NMOCD granted vadose zone remediation termination status, or ‘soil closure,’ on September 15th, 2011. A Project Update was submitted to NMOCD on August 8th, 2013 which proposed continued groundwater monitoring and limited groundwater withdrawal from the

Rice Operating Company – Vacuum F-34 Vent Boot Annual Report

near-source well (MW-1) to determine if this would effectively reduce groundwater chloride mass. NMOCD approved this work on August 13th, 2013. Monitor well locations are shown in the Appendix Figure 2.

Past Year and Current Status

ROC began groundwater recovery from MW-1 in April of 2014. A total of 15,644 bbls of groundwater and approximately 1,161 kg of chloride have been removed through 2022. The removed groundwater has been hauled to off-site locations for beneficial use.

Groundwater chloride concentrations in the near-source, down-gradient monitor well (MW-1) dropped from 444 mg/l in 2021 to 354 mg/l in 2022 (Appendix Figure 3, Table 1). This decrease restores the multi-year trend of declining groundwater chlorides in this well.

Chlorides in the up-gradient monitor well (MW-2) remained below 75 mg/l in 2022 as they have since groundwater sampling in this well began in 2010 (Appendix Figure 3, Table 1).

BTEX has not been sampled since March, 2020 per NMOCD granted approval, due to the consistent absence of BTEX in groundwater samples taken during prior years.

The full dataset of groundwater results is given in Table 2 of the Appendix.

ROC will continue quarterly groundwater sampling and recovery during 2023.

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.

Rice Operating Company – Vacuum F-34 Vent Boot Annual Report

Please contact either Katie Davis at Rice Operating Company or me if you have any questions or need additional information.

Thank you.

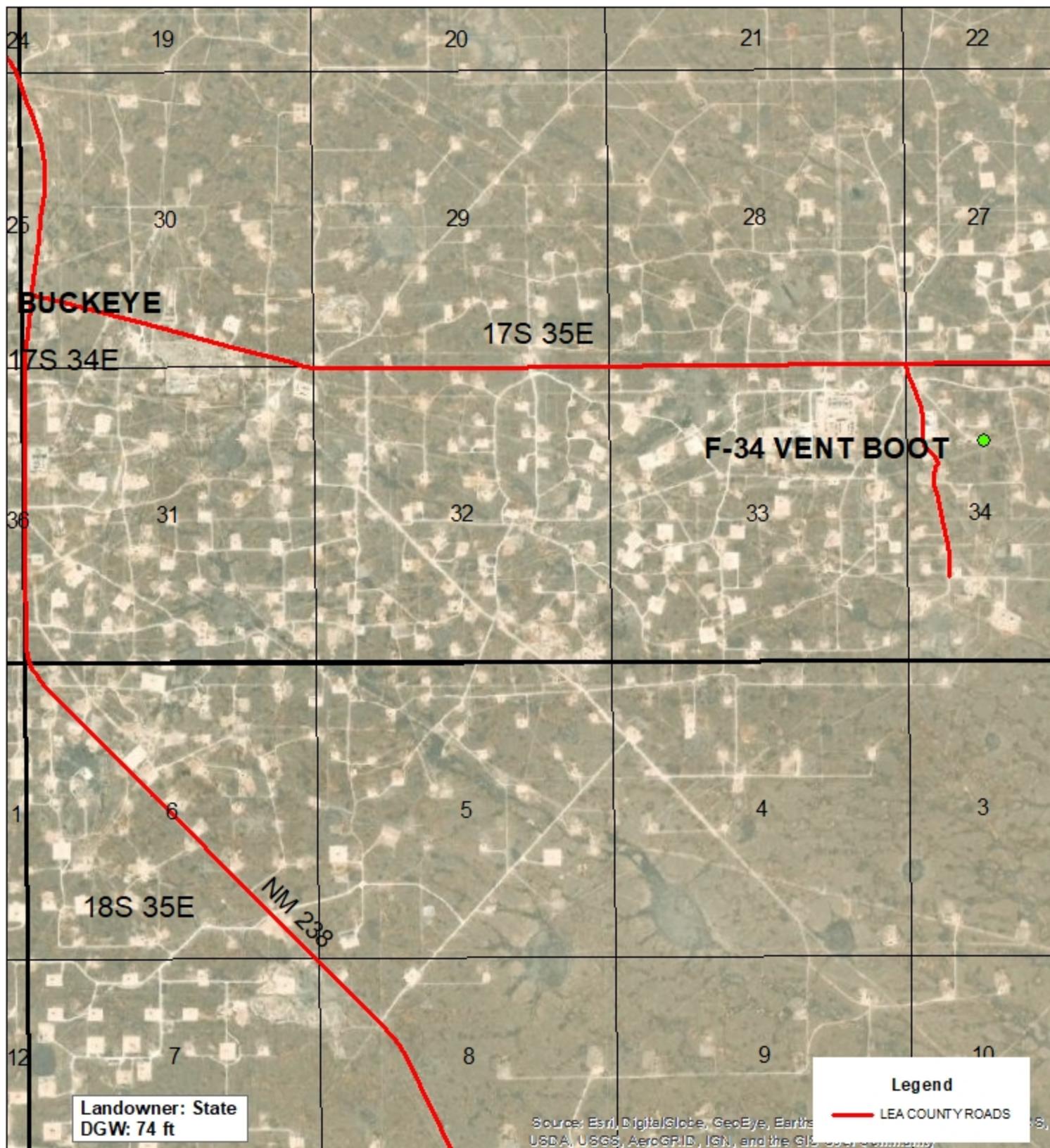
Sincerely,



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

Copy: Rice Operating Company
Attachments: ... as noted in text

Geographic Location



VACUUM
F-34 VENT BOOT
 1R425-67
 UL F SECTION 34
 T17S R35E
 LEA COUNTY, NM

GPS: 32.794820 -103.449485
 NAD83 STATE PLANE PROJ
 NM EAST ZONE

0 1,000 2,000
 Feet

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

Site Map



Legend

- ACTIVE MW
- MARKING PLATE
- ROC ABANDONED LINE
- 10'X10'X16' DEEP REINFORCED POLY LINER
- 45'X75'X4.5' DEEP REINFORCED POLY LINER
- HEATER-TREATER

Landowner: State
DGW: 74 ft

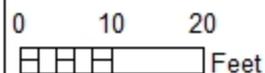


VACUUM F-34 VENT BOOT

1R425-67

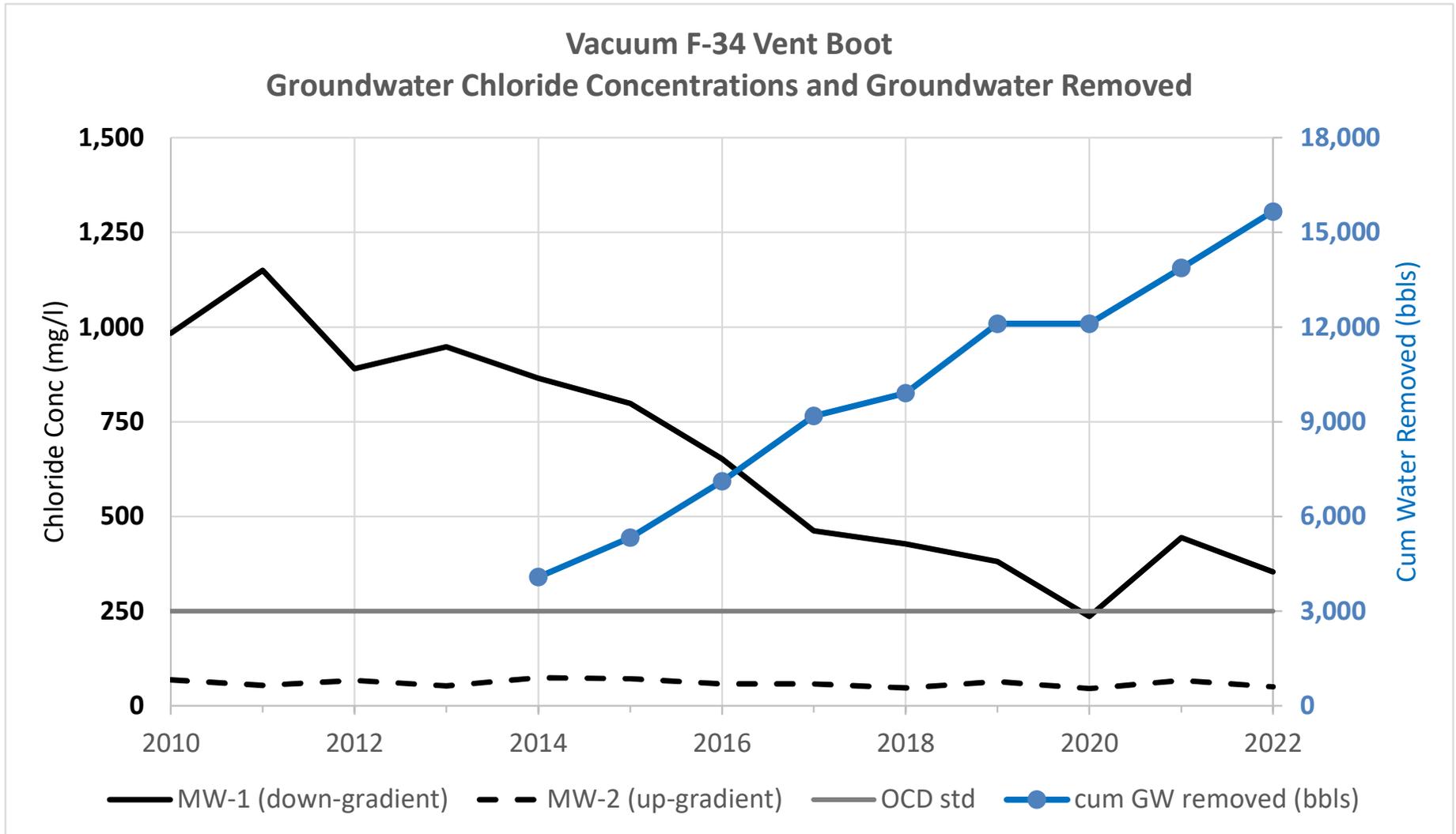
UL F SECTION 34
T17S R35E
LEA COUNTY, NM

GPS: 32.794820 -103.449485
NAD83 STATE PLANE PROJ
NM EAST ZONE



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





ROC - Vacuum F-34 vent boot (1R425-67)**Annual Average Groundwater Chloride Concentrations (mg/l)
and Groundwater Volume (bbls) and Chloride Mass (kg) Removal**

year	MW-1 (down-gradient)	MW-2 (up-gradient)	OCD std (mg/l)	cum GW removed (bbls)	cum Cl- removed (kg)
2010	983	68	250		
2011	1,150	54	250		
2012	890	67	250		
2013	948	52	250		
2014	865	74	250	4,077	396
2015	798	71	250	5,327	486
2016	653	58	250	7,117	642
2017	463	58	250	9,187	800
2018	427	47	250	9,907	850
2019	381	64	250	12,107	965
2020	236	45	250	12,107	965
2021	444	67	250	13,873	1,066
2022	354	50	250	15,664	1,161

ROC - Vacuum F-34 vent boot (1R425-67)
Unit Letter F, Section 34, T17S, R35E

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	ann. avg Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	69.91	118.36	31.5	100	5/28/2010	940		2,030	<0.001	<0.001	<0.001	<0.003	91	Clear No odor
1	69.74	118.36	31.6	100	7/27/2010	1,040		2,130	<0.001	<0.001	<0.001	<0.003	99.1	Clear No odor
1	69.75	118.36	31.6	100	10/27/2010	970	983	2,300	<0.001	<0.001	<0.001	<0.003	94.9	Clear No odor
1	69.87	118.36	31.5	100	2/18/2011	1,030		2,010	<0.001	<0.001	<0.001	<0.003	85.6	Clear No odor
1	70.06	118.36	31.4	100	6/3/2011	1,150		2,160	<0.001	<0.001	<0.001	<0.003	89.7	Clear No odor
1	70.08	118.36	31.4	100	9/1/2011	1,160		2,380	<0.001	<0.001	<0.001	<0.003	87.3	Clear No odor
1	70.09	118.36	31.4	100	12/3/2011	1,260	1,150	2,470	<0.001	<0.001	<0.001	<0.003	86.6	Clear No odor
1	70.22	118.36	31.3	100	2/23/2012	1,060		2,360	<0.001	<0.001	<0.001	<0.003	98.4	Clear No odor
1	70.26	118.36	31.3	100	5/31/2012	930		2,130	<0.001	<0.001	<0.001	<0.003	81.2	Clear No odor
1	70.02	118.36	31.4	100	8/24/2012	980		2,060	<0.001	<0.001	<0.001	<0.003	80.8	Clear No odor
1	70.06	118.36	31.4	100	11/19/2012	590	890	1,320	<0.001	<0.001	<0.001	<0.003	77.7	Clear No odor
1	70.24	118.36	31.3	100	2/13/2013	960		1,990	<0.001	<0.001	<0.001	<0.003	76	Clear No odor
1	70.56	118.36	31.1	100	5/29/2013	1,020		2,320	<0.001	<0.001	<0.001	<0.003	71	Clear No odor
1	70.83	118.36	30.9	100	9/5/2013	920		2,150	<0.001	<0.001	<0.001	<0.003	289	Clear No odor
1	XXX	118.36	XXX	100	11/14/2013	890	948	2,040	<0.001	<0.001	<0.001	<0.003	59.7	Clear No odor
1	XXX	118.36	XXX	100	3/6/2014	1,040		2,080	<0.001	<0.001	<0.001	<0.003	55.2	Clear No odor
1	XXX	118.36	XXX	running	6/4/2014	769		1,490	<0.001	<0.001	<0.001	<0.003	82	Clear No odor
1	XXX	118.36	XXX	running	8/23/2014	630		1,570	<0.001	<0.001	<0.001	<0.003	80	Clear No odor
1	XXX	118.36	XXX	100	12/4/2014	1,020	865	2,170	<0.001	<0.001	<0.001	<0.003	78.3	Clear No odor
1	XXX	118.36	XXX	100	3/5/2015	810		1,850	<0.001	<0.001	<0.001	<0.003	53.4	Clear No odor
1	XXX	118.36	XXX	running	6/4/2015	432		1,140	<0.001	<0.001	<0.001	<0.003	65.5	Clear No odor
1	70.64	118.36	31	100	8/24/2015	1,060		1,950	<0.001	<0.001	<0.001	<0.003	34.8	Clear No odor
1	XXX	118.36	0	200	11/13/2015	890	798	1,770	<0.001	<0.001	<0.001	<0.003	32.4	Clear No odor
1	XXX	118.36	XXX	200	2/29/2016	810		1,700	<0.001	<0.001	<0.001	<0.003	68.4	Clear No odor
1	XXX	118.36	XXX	200	5/20/2016	620		1,530	<0.001	<0.001	<0.001	<0.003	64	Clear No odor
1	XXX	118.36	XXX	running	9/13/2016	710		1,930	<0.001	<0.001	<0.001	<0.003	73	Clear No odor
1	XXX	118.36	XXX	100	11/16/2016	470	653	1,110	<0.001	<0.001	<0.001	<0.003	79	Clear No odor
1	XXX	118.36	XXX	100	2/23/2017	400		1,470	<0.001	<0.001	<0.001	<0.003	193	Clear No odor
1	XXX	118.36	XXX	Running	5/26/2017	400		1,060	<0.001	<0.001	<0.001	<0.003	66	Clear No odor

1	XXX	118.36	XXX	Running	9/11/2017	490		1,120	<0.001	<0.001	<0.001	<0.003	79	Clear No odor
1	XXX	118.36	XXX	100	11/30/2017	560	463	1,310	<0.001	<0.001	<0.001	<0.003	75	Clear No odor
1	XXX	118.36	XXX	100	3/1/2018	550		1,260	<0.001	<0.001	<0.001	<0.003	110	Clear No odor
1	XXX	118.36	XXX	100	6/1/2018	470		1,100	<0.001	<0.001	<0.001	<0.003	39	Clear No odor
1	XXX	118.36	XXX	100	9/7/2018	400		840	<0.001	<0.001	<0.001	<0.003	65.6	Clear No odor
1	XXX	118.36	XXX	100	11/15/2018	288	427	452	<0.001	<0.001	<0.001	<0.003	129	Clear No odor
1	XXX	118.36	XXX	100	3/7/2019	530		1,160	<0.001	<0.001	<0.001	<0.003	74	Clear No odor
1	XXX	118.36	XXX	Running	5/30/2019	336		881	<0.001	<0.001	<0.001	<0.003	61	Clear No odor
1	XXX	118.36	XXX	Running	8/30/2019	380		932	<0.001	<0.001	<0.001	<0.003	61	Clear No odor
1	XXX	118.36	XXX	100	11/20/2019	276	381	737	<0.001	<0.001	<0.001	<0.003	56	Clear No odor
1	XXX	118.36	XXX	100	3/6/2020	228		592	<0.001	<0.001	<0.001	<0.003	52.7	Clear No odor
1	XXX	118.36	XXX	100	9/11/2020	204		740	XXX	XXX	XXX	XXX	71.9	Clear No odor
1	XXX	118.36	XXX	100	11/9/2020	276	236	977	XXX	XXX	XXX	XXX	69.3	Clear No odor
1	XXX	118.36	XXX	100	3/11/2021	720		1,550	XXX	XXX	XXX	XXX	69.4	Clear No odor
1	XXX	118.36	XXX	100	6/11/2021	356		912	XXX	XXX	XXX	XXX	63.4	Clear No odor
1	XXX	118.36	XXX	100	9/8/2021	360		926	XXX	XXX	XXX	XXX	78.3	Clear No odor
1	XXX	118.36	XXX	100	11/10/2021	340	444	866	XXX	XXX	XXX	XXX	83.1	Clear No odor
1	XXX	118.36	XXX	100	3/2/2022	344		1,160	XXX	XXX	XXX	XXX	68.7	Clear No odor
1	XXX	118.36	XXX	Running	6/13/2022	332		836	XXX	XXX	XXX	XXX	63.8	Clear No odor
1	XXX	118.36	XXX	Running	9/7/2022	444		1,070	XXX	XXX	XXX	XXX	65.4	Clear No odor
1	XXX	118.36	XXX	100	12/1/2022	296	354	1,040	XXX	XXX	XXX	XXX	53.3	Clear No odor

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	ann. avg Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	70.48	84.22	2.2	10	11/22/2010	68	68	340	<0.001	<0.001	<0.001	<0.003	71.7	Clear No odor
2	70.57	84.32	2.2	10	2/18/2011	60		403	<0.001	<0.001	<0.001	<0.003	50.5	Clear No odor
2	70.72	84.32	2.2	10	6/3/2011	56		384	<0.001	<0.001	<0.001	<0.003	56.9	Clear No odor
2	70.73	84.32	2.2	10	9/1/2011	56		407	<0.001	<0.001	<0.001	<0.003	58.6	Clear No odor
2	70.75	84.32	2.2	10	12/3/2011	44	54	350	<0.001	<0.001	<0.001	<0.003	54.1	Clear No odor
2	70.89	84.32	2.1	10	2/23/2012	116		448	<0.001	<0.001	<0.001	<0.003	61.8	Clear No odor
2	70.94	84.32	2.1	10	5/31/2012	40		422	<0.001	<0.001	<0.001	<0.003	64	Clear No odor
2	71.12	84.32	2.1	10	8/24/2012	60		399	<0.001	<0.001	<0.001	<0.003	50.8	Clear No odor
2	71.18	84.32	2.1	10	11/19/2012	52	67	398	<0.001	<0.001	<0.001	<0.003	47.6	Clear No odor
2	71.37	84.32	2.1	10	2/13/2013	60		380	<0.001	<0.001	<0.001	<0.003	54.5	Clear No odor
2	71.71	84.32	2	10	5/29/2013	32		595	<0.001	<0.001	<0.001	<0.003	43	Clear No odor
2	71.88	84.32	2	10	9/5/2013	56		419	<0.001	<0.001	<0.001	<0.003	53.7	Clear No odor
2	71.84	84.32	2	10	11/14/2013	60	52	419	<0.001	<0.001	<0.001	<0.003	56.8	Clear No odor
2	71.92	84.32	2	10	3/6/2014	64		292	<0.001	<0.001	<0.001	<0.003	56.6	Clear No odor
2	71.82	84.32	2	10	6/4/2014	68		406	<0.001	<0.001	<0.001	<0.003	54.4	Clear No odor
2	71.85	84.32	2	10	8/23/2014	72		414	<0.001	<0.001	<0.001	<0.003	49.7	Clear No odor
2	71.11	84.32	2.1	10	12/4/2014	92	74	456	<0.001	<0.001	<0.001	<0.003	41.2	Clear No odor
2	71.05	84.32	2.1	10	3/5/2015	100		500	<0.001	<0.001	<0.001	<0.003	44.2	Clear No odor
2	71.17	84.32	2.1	10	6/4/2015	64		446	<0.001	<0.001	<0.001	<0.003	48.4	Clear No odor
2	71.73	84.32	2	10	8/24/2015	36		470	<0.001	<0.001	<0.001	<0.003	39.2	Clear No odor
2	71.87	84.32	1.99	10	11/13/2015	84	71	346	<0.001	<0.001	<0.001	<0.003	61.7	Clear No odor
2	71.85	84.32	2	10	2/29/2016	40		436	<0.001	<0.001	<0.001	<0.003	63	Clear No odor
2	71.84	84.32	2	10	5/20/2016	40		356	<0.001	<0.001	<0.001	<0.003	65.2	Clear No odor
2	71.89	84.32	2	10	9/13/2016	56		392	<0.001	<0.001	<0.001	<0.003	79	Clear No odor
2	71.98	84.32	2	10	11/16/2016	96	58	466	<0.001	<0.001	<0.001	<0.003	32	Clear No odor
2	72.03	84.32	2	10	2/23/2017	52		424	<0.001	<0.001	<0.001	<0.003	60	Clear No odor
2	71.1	84.32	2	10	5/26/2017	92		522	<0.001	<0.001	<0.001	<0.003	52	Clear No odor
2	72.22	84.32	1.9	10	9/11/2017	40		278	<0.001	<0.001	<0.001	<0.003	64	Clear No odor
2	72.18	84.32	1.9	10	11/30/2017	48	58	444	<0.001	<0.001	<0.001	<0.003	62	Clear No odor
2	72.21	84.32	1.9	10	3/1/2018	40		230	<0.001	<0.001	<0.001	<0.003	64	Clear No odor
2	72.27	84.32	1.9	10	6/1/2018	68		402	<0.001	<0.001	<0.001	<0.003	78.6	Clear No odor
2	72.39	84.32	1.9	8	9/7/2018	40		482	<0.001	<0.001	<0.001	<0.003	58.7	Clear No odor

2	72.54	84.32	1.9	8	11/15/2018	40	47	196	<0.001	<0.001	<0.001	<0.003	63.9	Clear No odor
2	72.63	84.32	1.9	10	3/7/2019	96		546	<0.001	<0.001	<0.001	<0.003	61	Clear No odor
2	72.74	84.32	1.9	10	5/30/2019	36		445	<0.001	<0.001	<0.001	<0.003	62	Clear No odor
2	72.78	84.32	1.8	10	8/30/2019	60		456	<0.001	<0.001	<0.001	<0.003	57	Clear No odor
2	73.12	84.32	1.8	8	11/20/2019	64	64	407	<0.001	<0.001	<0.001	<0.003	55	Clear No odor
2	73.18	84.32	1.8	8	3/6/2020	60		457	<0.001	<0.001	<0.001	<0.003	63.4	Clear No odor
2	73.33	84.32	1.8	8	9/11/2020	40		338	XXX	XXX	XXX	XXX	46.1	Clear No odor
2	73.4	84.32	1.7	8	11/9/2020	36	45	496	XXX	XXX	XXX	XXX	73	Clear No odor
2	73.52	84.32	1.7	10	3/11/2021	52		362	XXX	XXX	XXX	XXX	48.5	Clear No odor
2	73.55	84.32	1.7	10	6/11/2021	40		588	XXX	XXX	XXX	XXX	54.8	Clear No odor
2	73.59	84.32	1.7	10	9/8/2021	140		552	XXX	XXX	XXX	XXX	75.8	Clear No odor
2	73.66	84.32	1.7	10	11/10/2021	36	67	615	XXX	XXX	XXX	XXX	60.7	Clear No odor
2	74.28	84.32	1.6	10	3/2/2022	44		262	XXX	XXX	XXX	XXX	57.6	Clear No odor
2	74.38	84.32	1.6	10	6/13/2022	56		336	XXX	XXX	XXX	XXX	58.3	Clear No odor
2	74.46	84.32	1.6	10	9/7/2022	44		364	XXX	XXX	XXX	XXX	61.3	Clear No odor
2	74.53	84.32	1.6	10	12/1/2022	56	50	341	XXX	XXX	XXX	XXX	51.4	Clear No odor



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

March 09, 2022

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM F-34 VENT

Enclosed are the results of analyses for samples received by the laboratory on 03/04/22 14:36.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-21-14. 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 accredited 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,

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

Celey D. Keene

Lab Director/Quality Manager



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:	03/04/2022	Sampling Date:	03/02/2022
Reported:	03/09/2022	Sampling Type:	Water
Project Name:	VACUUM F-34 VENT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S-R35E-SEC34 F - LEA CTY, NM		

Sample ID: MONITOR WELL #1 (H220870-01)

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	344	4.00	03/07/2022	ND	100	100	100	0.00		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	68.7	10.0	03/08/2022	ND	19.0	94.9	20.0	5.18		
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	03/09/2022	ND	505	101	500	1.60		

Sample ID: MONITOR WELL #2 (H220870-02)

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	44.0	4.00	03/07/2022	ND	100	100	100	0.00		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	57.6	10.0	03/08/2022	ND	19.0	94.9	20.0	5.18		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	262	5.00	03/09/2022	ND	505	101	500	1.60		

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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

June 20, 2022

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM F-34 VENT

Enclosed are the results of analyses for samples received by the laboratory on 06/15/22 16:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-21-14. 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 accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



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:	06/15/2022	Sampling Date:	06/13/2022
Reported:	06/20/2022	Sampling Type:	Water
Project Name:	VACUUM F-34 VENT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T17S-R35E-SEC34 F - LEA CTY, NM		

Sample ID: MONITOR WELL #1 (H222571-01)

Chloride, SM4500Cl-B		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	332	4.00	06/16/2022	ND	100	100	100	0.00		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	63.8	25.0	06/16/2022	ND	20.2	101	20.0	0.0495		
TDS 160.1		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	836	5.00	06/20/2022	ND	551	110	500	6.71		

Sample ID: MONITOR WELL #2 (H222571-02)

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	06/16/2022	ND	100	100	100	0.00		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	58.3	10.0	06/16/2022	ND	20.2	101	20.0	0.0495		
TDS 160.1		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	336	5.00	06/20/2022	ND	551	110	500	6.71		

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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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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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

September 15, 2022

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM F-34 VENT

Enclosed are the results of analyses for samples received by the laboratory on 09/12/22 14:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. 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 accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



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:	09/12/2022	Sampling Date:	09/07/2022
Reported:	09/15/2022	Sampling Type:	Water
Project Name:	VACUUM F-34 VENT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T17S-R35E-SEC34 F - LEA CTY, NM		

Sample ID: MONITOR WELL #1 (H224188-01)

Chloride, SM4500CI-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	444	4.00	09/13/2022	ND	104	104	100	0.00		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	65.4	10.0	09/14/2022	ND	19.2	96.2	20.0	12.6		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1070	5.00	09/15/2022	ND	514	103	500	1.32		

Sample ID: MONITOR WELL #2 (H224188-02)

Chloride, SM4500CI-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	44.0	4.00	09/13/2022	ND	104	104	100	0.00		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	61.3	10.0	09/14/2022	ND	19.2	96.2	20.0	12.6		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	364	5.00	09/15/2022	ND	514	103	500	1.32		

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- 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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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Cardinal Laboratories, Inc.

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

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: **122 W Taylor Street ~ Hobbs, New Mexico 88240** (Street, City, Zip)

Address: **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-34 Vent** Sampler Signature: *Rozanne Johnson* (575) 631-9310

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX				PRESERVATIVE METHOD					SAMPLING				
				WATER	SOIL	AIR	SLUDGE	HCL (4-40ml VOA)	HNO ₃	NaHSO ₄	H ₂ SO ₄	ICE (1-1.1 Liter HDPE)	NONE	DATE (2022)	TIME		
H224188																	
1	Monitor Well #1	G	1	X							1	9/7	12:45				
2	Monitor Well #2	G	1	X							1	9/7	10:55				

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, SO ₄ , CO ₃ , HCO ₃)	
Sulfates	X
Total Dissolved Solids	X
Chlorides	X

Relinquished by: *Rozanne Johnson* Date: **9/12/22** Time: **14:00** Received by: *Rozanne Johnson* Date: **9-12-22** Time: **1400**

Relinquished by: _____ Date: _____ Time: _____ Received By: (Laboratory Staff) _____ Date: _____ Time: _____

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

Sample Condition: Cool Yes No Intact Yes No

CHECKED BY: *VO* (Initials)

Phone Results: Yes No

Fax Results: Yes No Additional Fax Number: _____

REMARKS:

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



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

December 12, 2022

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM F-34 VENT

Enclosed are the results of analyses for samples received by the laboratory on 12/02/22 15:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. 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 accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



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:	12/02/2022	Sampling Date:	12/01/2022
Reported:	12/12/2022	Sampling Type:	Water
Project Name:	VACUUM F-34 VENT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T17S-R35E-SEC34 F - LEA CTY, NM		

Sample ID: MONITOR WELL #1 (H225676-01)

Chloride, SM4500Cl-B		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	296	4.00	12/05/2022	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*	53.3	25.0	12/05/2022	ND	18.4	92.0	20.0	5.55		
TDS 160.1		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1040	5.00	12/06/2022	ND	491	98.2	500	3.46		

Sample ID: MONITOR WELL #2 (H225676-02)

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	12/05/2022	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*	51.4	25.0	12/05/2022	ND	18.4	92.0	20.0	5.55		
TDS 160.1		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	341	5.00	12/06/2022	ND	491	98.2	500	3.46		

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- 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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

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 202298

CONDITIONS

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID: 19174
	Action Number: 202298
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the 2022 Annual Report for Vacuum F-34 Vent Boot on behalf of RICE: Content Satisfactory 1. Continue to groundwater monitor quarterly for sampling and recovery. 2. Submit the 2023 Annual Report no later than April 1, 2024.	6/21/2023