

L Peter Galusky, Jr PE

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April 1, 2022

Bradford Billings

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

Re: **2021 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

Sent via E-mail

Mr. Billings:

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 in 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 13,873 bbls of groundwater and approximately 1,066 kg of chloride have been removed through 2021. The removed groundwater has been hauled to off-site locations for beneficial use.

Groundwater chloride concentrations increased in the near-source monitor well (MW-1) from an average of 236 mg/l in 2020 to 444 mg/l in 2021 (Appendix Figure 3, Table 1). This increase is opposite the multi-year trend of declining chlorides and further monitoring will therefore be necessary.

Chlorides in the up-gradient monitor well (MW-2) remained below 100 mg/l in 2021 as they have in prior years (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.

On January 25th, 2022, NMOCD granted approval to cease sampling of MW-2. ROC will continue to grab samples, as needed, to ensure there are no non-ROC, up-gradient sources contributing to the degradation of groundwater quality. ROC will continue quarterly groundwater sampling and recovery during 2022.

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 Jones at Rice Operating Company or me if you have any questions or need additional information.

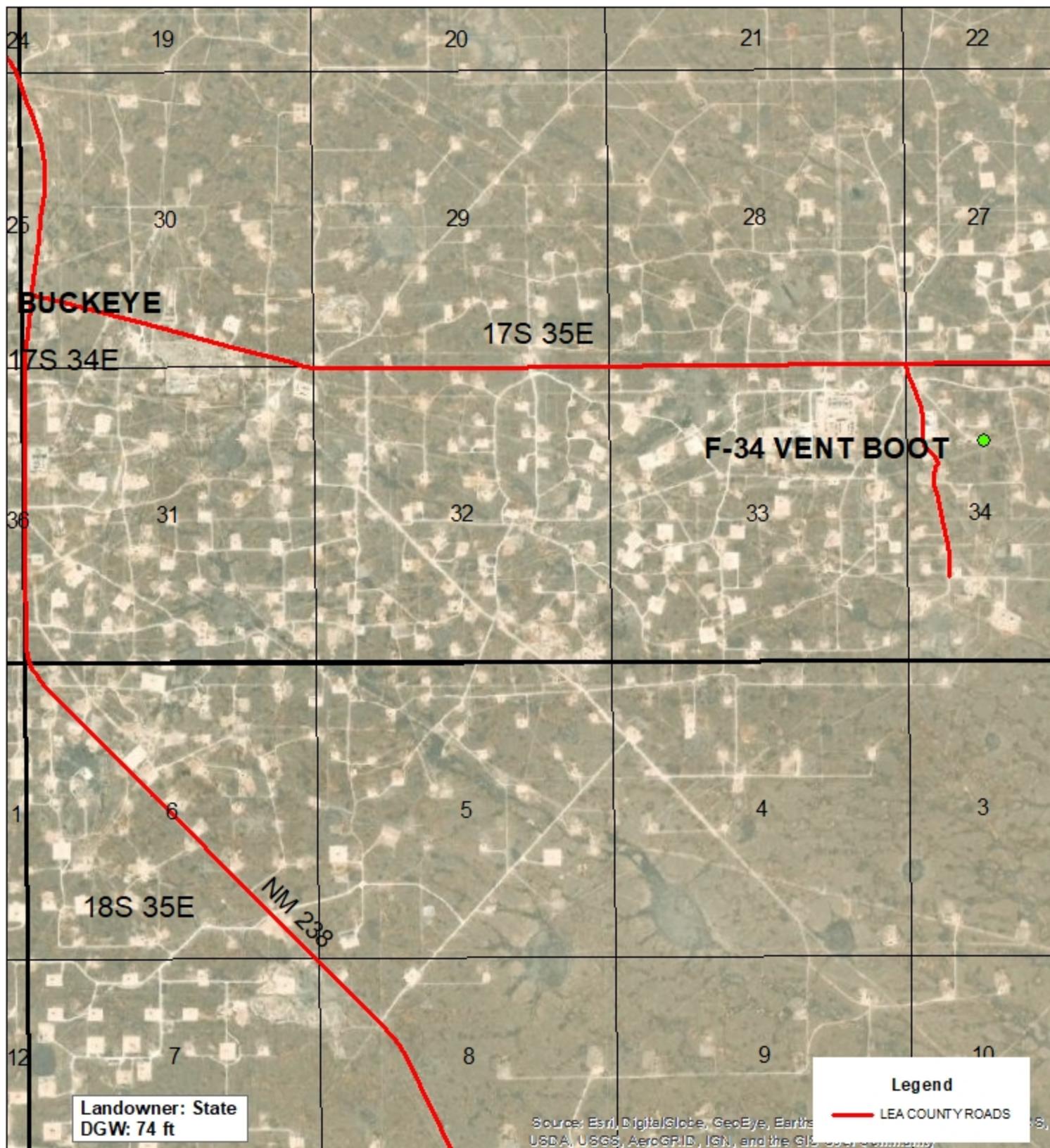
Sincerely,



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

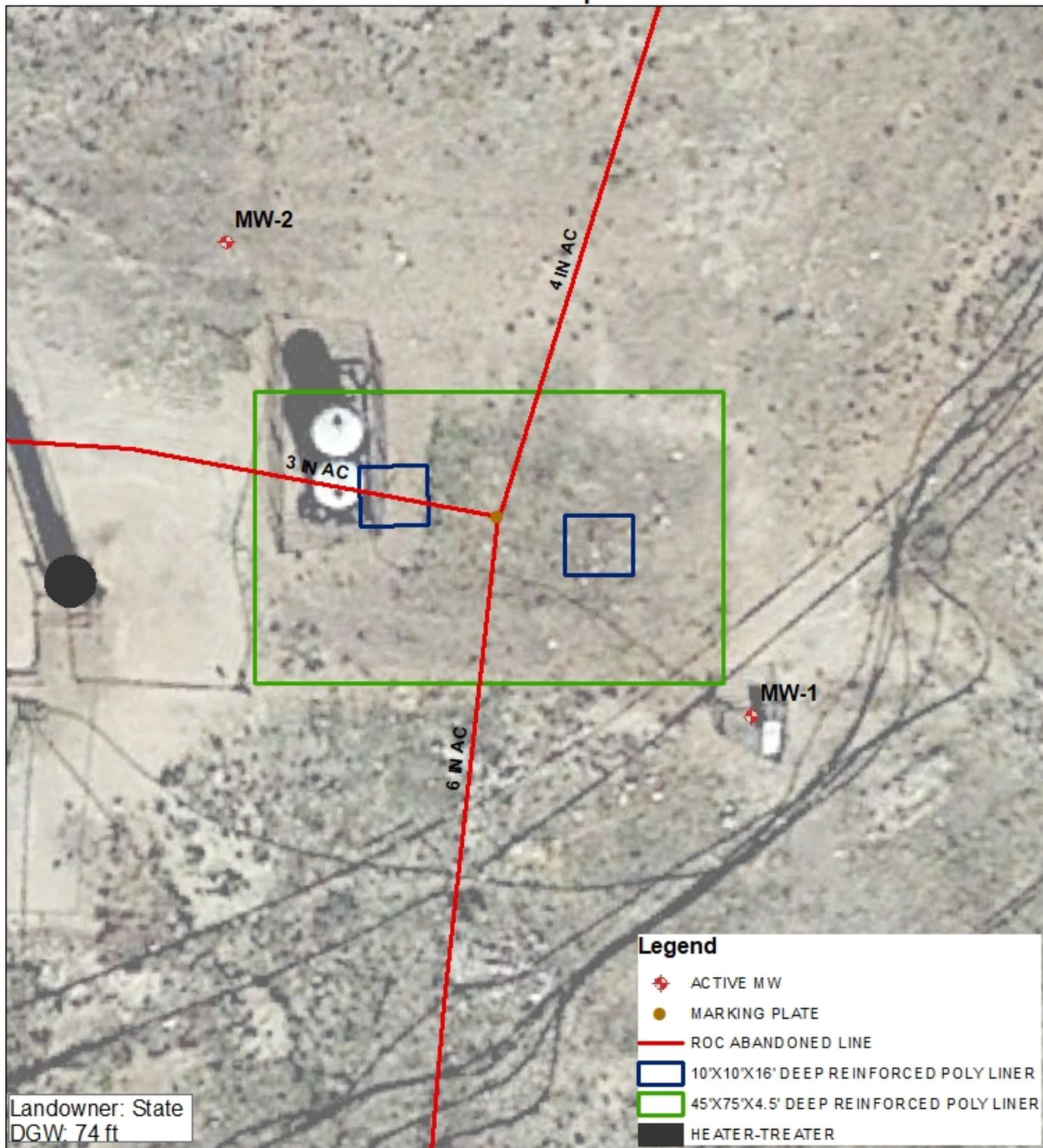
UL F SECTION 34
 T17S R35E
 LEA COUNTY, NM

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

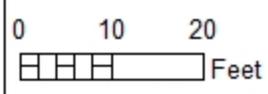


VACUUM F-34 VENT BOOT

1R425-67

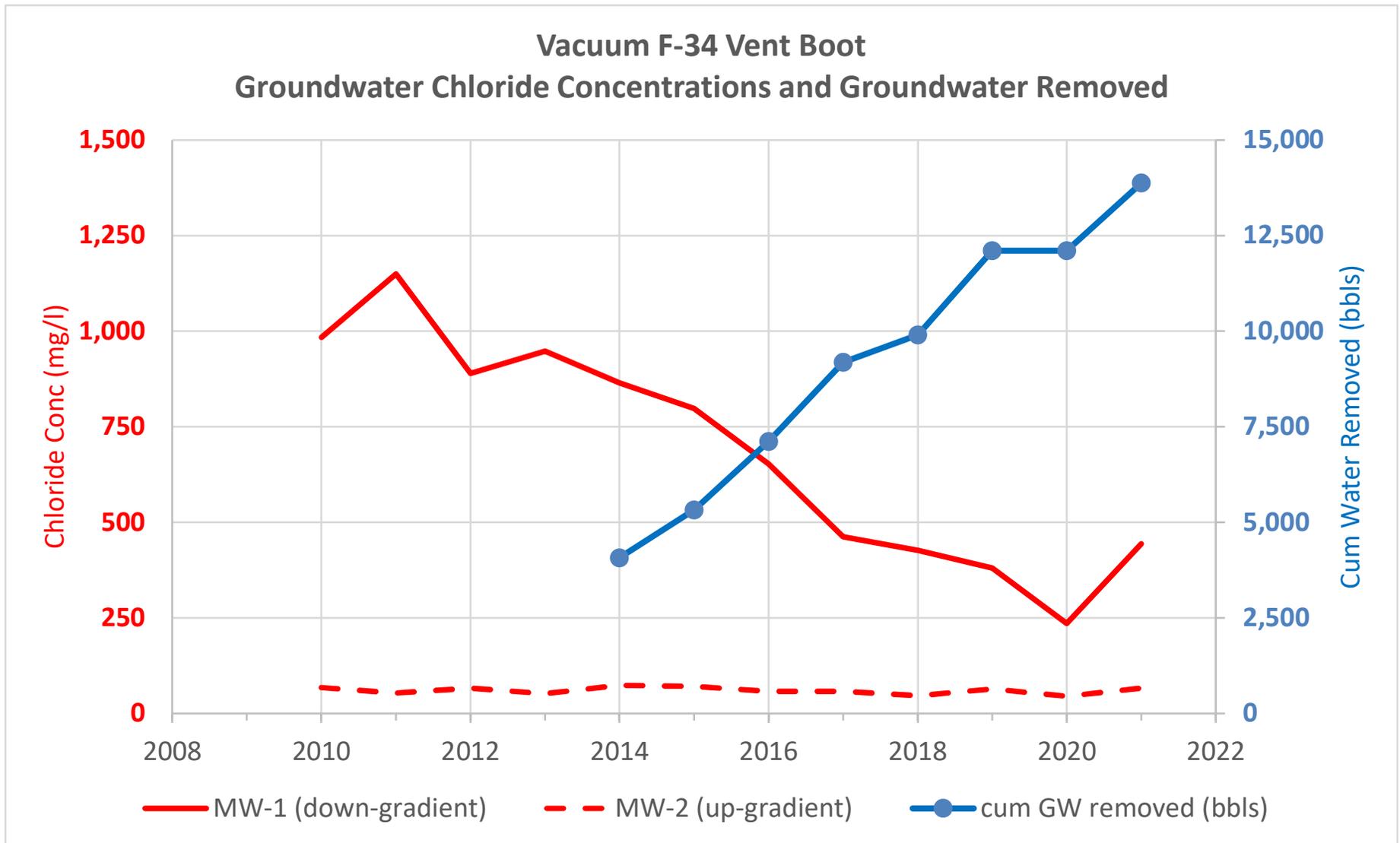
UL F SECTION 34
T17S R35E
LEA COUNTY, NM

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)
Data Summary: Annual Averages

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

Table 2

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	983	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	983	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	1,150	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	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	1,150	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	890	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	890	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	890	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	948	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	948	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	948	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	865	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	865	1,490	<0.001	<0.001	<0.001	<0.003	82	Clear No odor
1	XXX	118.36	XXX	running	8/23/2014	630	865	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	798	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	798	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	798	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	653	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	653	1,530	<0.001	<0.001	<0.001	<0.003	64	Clear No odor
1	XXX	118.36	XXX	running	9/13/2016	710	653	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	463	1,470	<0.001	<0.001	<0.001	<0.003	193	Clear No odor
1	XXX	118.36	XXX	Running	5/26/2017	400	463	1,060	<0.001	<0.001	<0.001	<0.003	66	Clear No odor

Table 2

**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	XXX	118.36	XXX	Running	9/11/2017	490	463	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	427	1,260	<0.001	<0.001	<0.001	<0.003	110	Clear No odor
1	XXX	118.36	XXX	100	6/1/2018	470	427	1,100	<0.001	<0.001	<0.001	<0.003	39	Clear No odor
1	XXX	118.36	XXX	100	9/7/2018	400	427	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	381	1,160	<0.001	<0.001	<0.001	<0.003	74	Clear No odor
1	XXX	118.36	XXX	Running	5/30/2019	336	381	881	<0.001	<0.001	<0.001	<0.003	61	Clear No odor
1	XXX	118.36	XXX	Running	8/30/2019	380	381	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	236	592	<0.001	<0.001	<0.001	<0.003	52.7	Clear No odor
1	XXX	118.36	XXX	100	9/11/2020	204	236	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	444	1,550	XXX	XXX	XXX	XXX	69.4	Clear No odor
1	XXX	118.36	XXX	100	6/11/2021	356	444	912	XXX	XXX	XXX	XXX	63.4	Clear No odor
1	XXX	118.36	XXX	100	9/8/2021	360	444	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

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	54	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	54	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	54	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	67	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	67	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	67	399	<0.001	<0.001	<0.001	<0.003	50.8	Clear No odor

Table 2

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
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	52	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	52	595	<0.001	<0.001	<0.001	<0.003	43	Clear No odor
2	71.88	84.32	2	10	9/5/2013	56	52	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	74	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	74	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	74	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	71	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	71	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	71	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	58	436	<0.001	<0.001	<0.001	<0.003	63	Clear No odor
2	71.84	84.32	2	10	5/20/2016	40	58	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	58	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	58	424	<0.001	<0.001	<0.001	<0.003	60	Clear No odor
2	71.1	84.32	2	10	5/26/2017	92	58	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	58	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	47	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	47	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	47	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	64	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	64	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	64	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

Table 2**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
2	73.18	84.32	1.8	8	3/6/2020	60	45	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	45	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	67	362	XXX	XXX	XXX	XXX	48.5	Clear No odor
2	73.55	84.32	1.7	10	6/11/2021	40	67	588	XXX	XXX	XXX	XXX	54.8	Clear No odor
2	73.59	84.32	1.7	10	9/8/2021	140	67	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



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

March 22, 2021

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 03/16/21 13:00.

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 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:	03/16/2021	Sampling Date:	03/11/2021
Reported:	03/22/2021	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 (H210659-01)

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	03/17/2021	ND	104	104	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*	69.4	10.0	03/17/2021	ND	19.2	96.0	20.0	14.2		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1550	5.00	03/19/2021	ND	546	109	500	2.49		

Sample ID: MONITOR WELL #2 (H210659-02)

Chloride, SM4500Cl-B		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	52.0	4.00	03/17/2021	ND	104	104	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*	48.5	10.0	03/17/2021	ND	19.2	96.0	20.0	14.2		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	362	5.00	03/19/2021	ND	546	109	500	2.49		

Cardinal Laboratories

*=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

- 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, Lab Director/Quality Manager



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

June 21, 2021

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 06/15/21 13:31.

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 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:	06/15/2021	Sampling Date:	06/11/2021
Reported:	06/21/2021	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 (H211524-01)

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	356	4.00	06/16/2021	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*	63.4	10.0	06/16/2021	ND	21.4	107	20.0	12.4		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	912	5.00	06/17/2021	ND	532	106	500	2.99		

Sample ID: MONITOR WELL #2 (H211524-02)

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	40.0	4.00	06/16/2021	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*	54.8	10.0	06/16/2021	ND	21.4	107	20.0	12.4		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	588	5.00	06/17/2021	ND	532	106	500	2.99		

Cardinal Laboratories

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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

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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

September 15, 2021

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 09/10/21 15:55.

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:	09/10/2021	Sampling Date:	09/08/2021
Reported:	09/15/2021	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 (H212520-01)

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	360	4.00	09/13/2021	ND	104	104	100	3.92		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	78.3	10.0	09/14/2021	ND	20.5	103	20.0	7.55		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	926	5.00	09/14/2021	ND	275	91.7	300	5.59		

Sample ID: MONITOR WELL #2 (H212520-02)

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	140	4.00	09/13/2021	ND	104	104	100	3.92		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	75.8	10.0	09/14/2021	ND	20.5	103	20.0	7.55		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	552	5.00	09/14/2021	ND	275	91.7	300	5.59		

Cardinal Laboratories

*=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

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Celey D. Keene, Lab Director/Quality Manager



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

November 18, 2021

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 11/15/21 14:20.

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.

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Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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Sincerely,

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

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:	11/15/2021	Sampling Date:	11/10/2021
Reported:	11/18/2021	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 (H213250-01)

Chloride, SM4500Cl-B		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	340	4.00	11/16/2021	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*	83.1	25.0	11/18/2021	ND	22.1	110	20.0	7.07		
TDS 160.1		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	866	5.00	11/17/2021	ND	512	102	500	1.51		

Sample ID: MONITOR WELL #2 (H213250-02)

Chloride, SM4500Cl-B		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	36.0	4.00	11/16/2021	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*	60.7	10.0	11/18/2021	ND	22.1	110	20.0	7.07		
TDS 160.1		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	615	5.00	11/17/2021	ND	512	102	500	1.51		

Cardinal Laboratories

*=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

- 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, Lab Director/Quality Manager

Page 27 of 28

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

Project Manager:
Katie Jones

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

Phone #: **(575) 393-9174**
Fax #: **(575) 397-1471**

BILL TO Company: **RICE Operating Company** PO# _____

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

Phone#: **(575) 393-9174** Fax#: **(575)397-1471**

ANALYSIS REQUEST (Circle or Specify Method No.)

Project #: _____ Project Name: **Vacuum F-34 Vent**

Project Location: **T17S-R35E-Sec34 F ~ Lea County New Mexico**

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

H213250

LAB #
(LAB USE ONLY)

LAB #	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX				PRESERVATIVE METHOD					SAMPLING		DATE (2021)	TIME	
				WATER	SOIL	AIR	SLUDGE	HCL (4-40ml VOA)	HNO ₃	NaHSO ₄	H ₂ SO ₄	ICE (1-1 Liter HDPE)	NONE				
1	Monitor Well #1	G	1	X													
2	Monitor Well #2	G	1	X									1	11/10	11:35		
													1	11/10	12:50		

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	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours	

Relinquished by: *Rozanne Johnson*
Date: **11/15/2022** Time: **14:20**

Received by: *Amara Shaker*
Date: **11-15-21** Time: **1420**

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

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

Sample Condition
Cool Intact
Yes No

CHECKED BY:
(Initials)
T.O.

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

Received by OGD: 3/15/2022 3:00 PM

Released to Imaging: 7/28/2023 4:28:57 PM

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 90578

CONDITIONS

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID: 19174
	Action Number: 90578
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the 2021 Annual Report for Vacuum F-34 Vent Boot, ROC: Content Satisfactory 1. Continue to grab samples as needed and continue quarterly groundwater sampling. 2. Continue recovery for during 2022 and 2023. 3. Submit Annual Report for 2023 by April 1, 2024.	7/28/2023