RICE *Operating Company*
112 West Taylor • Hobbs, New Mexico 88240
Phone: (575) 393-9174 • Fax: (575) 397-1471

April 1, 2020

Bradford Billings
Environmental Bureau, Oil Conservation Division
New Mexico Energy, Minerals, & Natural Resources Department
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RE: **2019 Annual Groundwater Report**
Rice Operating Company – Vacuum SWD System
Vacuum Jct. A-36 (1R425-83): UL/A, Sec. 36, T17S, R34E

Mr. Billings:

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.

Background and Previous Work

The site is located approximately ¼ mile SSE of Buckeye, New Mexico at UL/A, Sec. 36, T17S, R34E as shown on the Geographical Location Map. Groundwater sampling at the site indicated the depth to groundwater is approximately 130 feet below ground surface (bgs).

In 2009, ROC initiated work on the former Vacuum A-36 junction box as part of the system abandonment. The former junction box and surrounding soil was removed from an excavation of approximately dimensions 10x10x12-ft deep. Soils samples were field analyzed at regular intervals for chloride and hydrocarbon. Representative samples were sent to a commercial laboratory for analysis, resulting in elevated chloride concentrations and hydrocarbon concentrations below detectable limits. The excavated soil was blended and returned to the excavation. A 1-ft thick compacted clay barrier was installed from 4 to 5 ft bgs. Clean, imported soil was installed above the clay barrier and the surface was returned to the natural contour and seeded. NMOCD was notified of potential groundwater impact on March 12th, 2010 and a Junction Box Disclosure Report was submitted with all the 2009 junction box closures and disclosures.

ROC initiated soil sampling and analysis as indicated in our Investigation and Characterization Plan (ICP) of February 15th, 2013. As part of the ICP, personnel were on site to conduct soil bore installations. Three soils bore were installed at the site with soil samples collected at regular intervals. Each bore was plugged with bentonite to ground surface. Three verticals were excavated on March 24th, 2014, and representative samples were sent to a commercial laboratory for analysis.

A Corrective Action Plan (CAP) summarizing the soil sampling was submitted to NMOCD and approved on May 15th, 2015. The CAP proposed installing a modified 70x42-ft, 20-mil reinforced liner at a depth of 3.5 ft bgs due to the presence of hard rock in the area. In June 2015, the area was excavated, and a 20-mil reinforced liner was installed and properly seat at a depth of 3.5 ft bgs. The excavation was backfilled to ground surface and the site was contoured to the surrounding area. The disturbed area was then seeded with a blend of native vegetation.

On December 9th and 10th, 2015, a near-source monitoring well (MW-1) and an up-gradient monitoring well (MW-2) were installed at the site. The wells were developed and have been sampled quarterly since installation. Chloride concentrations in MW-1 and MW-2 have generally remained low with the last four quarters in each well below 76 mg/L. BTEX concentrations have remained below detectable limits since the wells were installed.

Given that BTEX concentrations have been below detectable limits since installation, ROC requests to suspend BTEX sampling in both wells (MW-1 and MW-2). Further, due to the current climate, and in the interest of safety, ROC proposes to reduce groundwater monitoring from quarterly to semi-annually beginning this year. This request is only temporary and regularly scheduled groundwater monitoring will commence as soon as possible.

Attached is the Appendix, which contains:

1. A Geographical Location Map.
2. A map showing well locations.
3. A table presenting all laboratory results and depth to groundwater for each well at the site, and a graph showing recent laboratory results.
4. The laboratory analytical results for 2019.

Rice Operating Company appreciates the opportunity to work with you on this project. Please contact me at (575) 393-9174 or Edward Hansen at (505) 920-4965 if you have any questions or wish to further discuss this site. Thank you for your time and consideration.

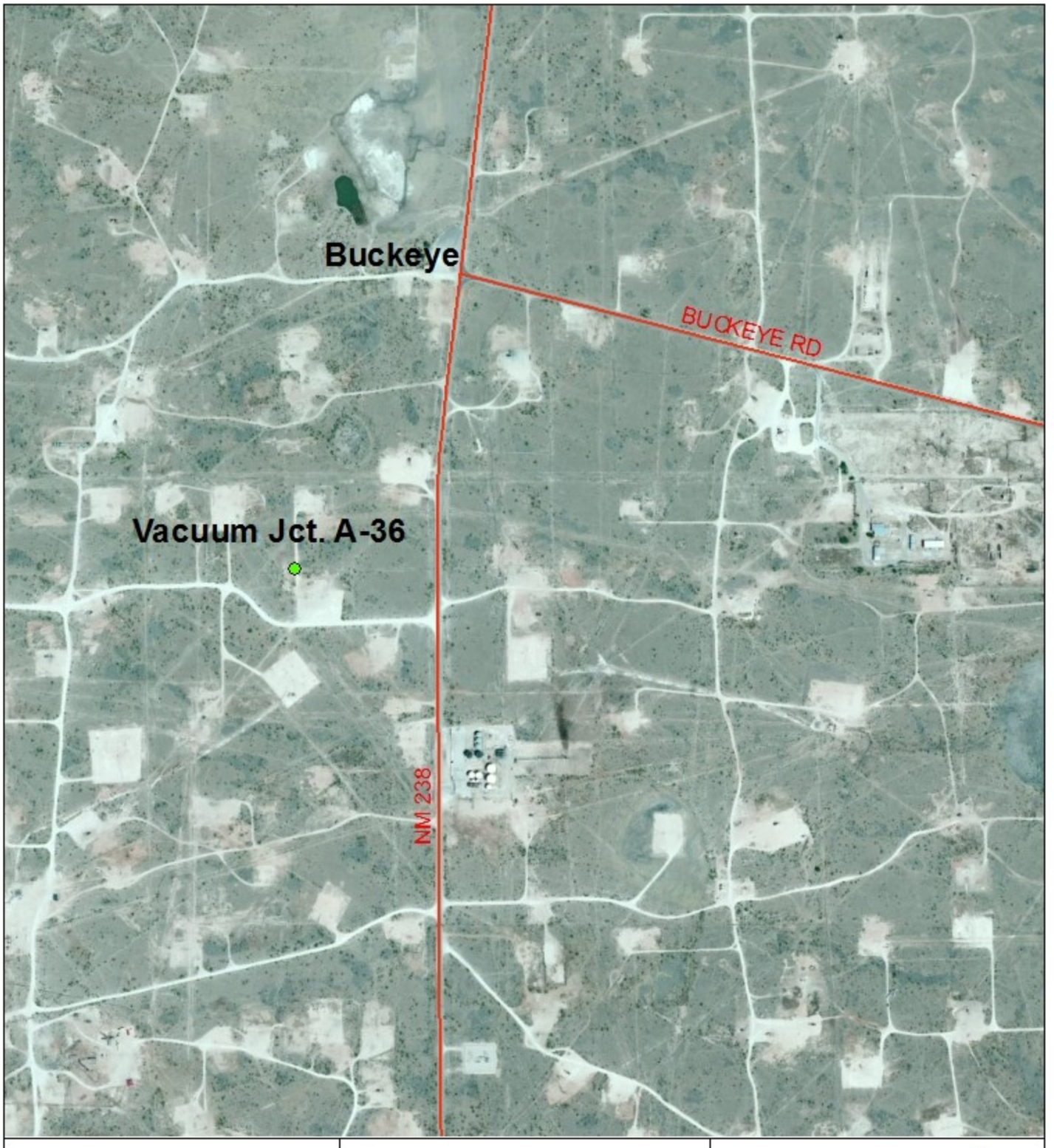
Sincerely,

Katie Davis

Katie Davis
Environmental Manager
RICE Operating Company (ROC)

Cc – Edward J. Hansen (ROC)

appendix



RICE OPERATING COMPANY
ROC
SINCE 1955

Vacuum Jct. A-36

Unit A, Section 36, T17S, R34E

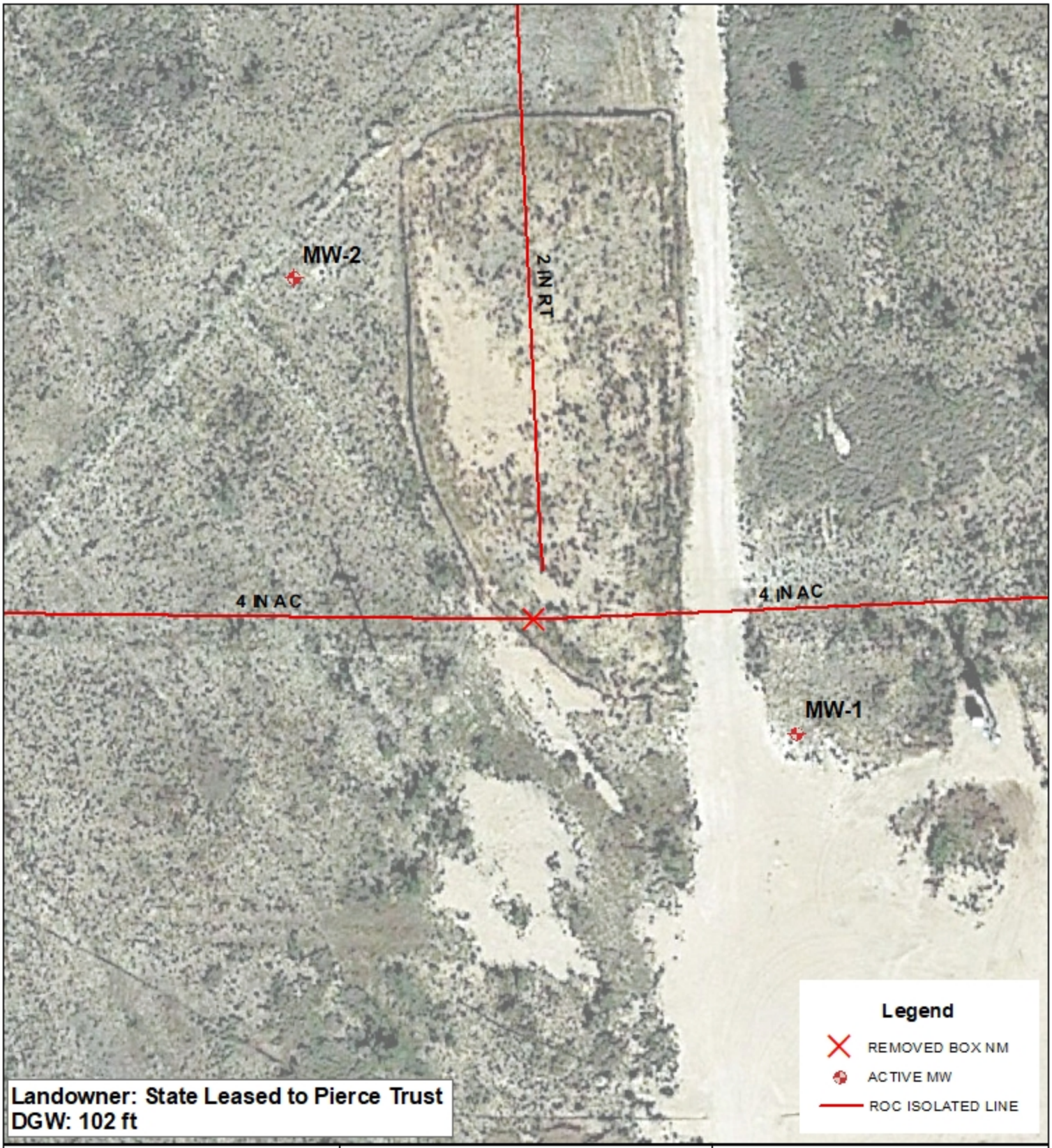
NMOCD Case #: 1R425-83

N
W E
S

0 300 600 1,200
Feet

Drawing date: 2-8-13

Installed Monitor Wells



RICE OPERATING COMPANY
ROC
SINCE 1955

VACUUM A-36 JCT

1R425-83

UL A SECTION 36
T-17-S R-34-E
LEA COUNTY, NM

GPS: 32.797418 -103.508247
NAD 83 STATE PLANE PROJECTION
NM EAST ZONE

N
W E
S

0 25 50
Feet

Drawing date:8/7/19
Drafted by: T. Grieco

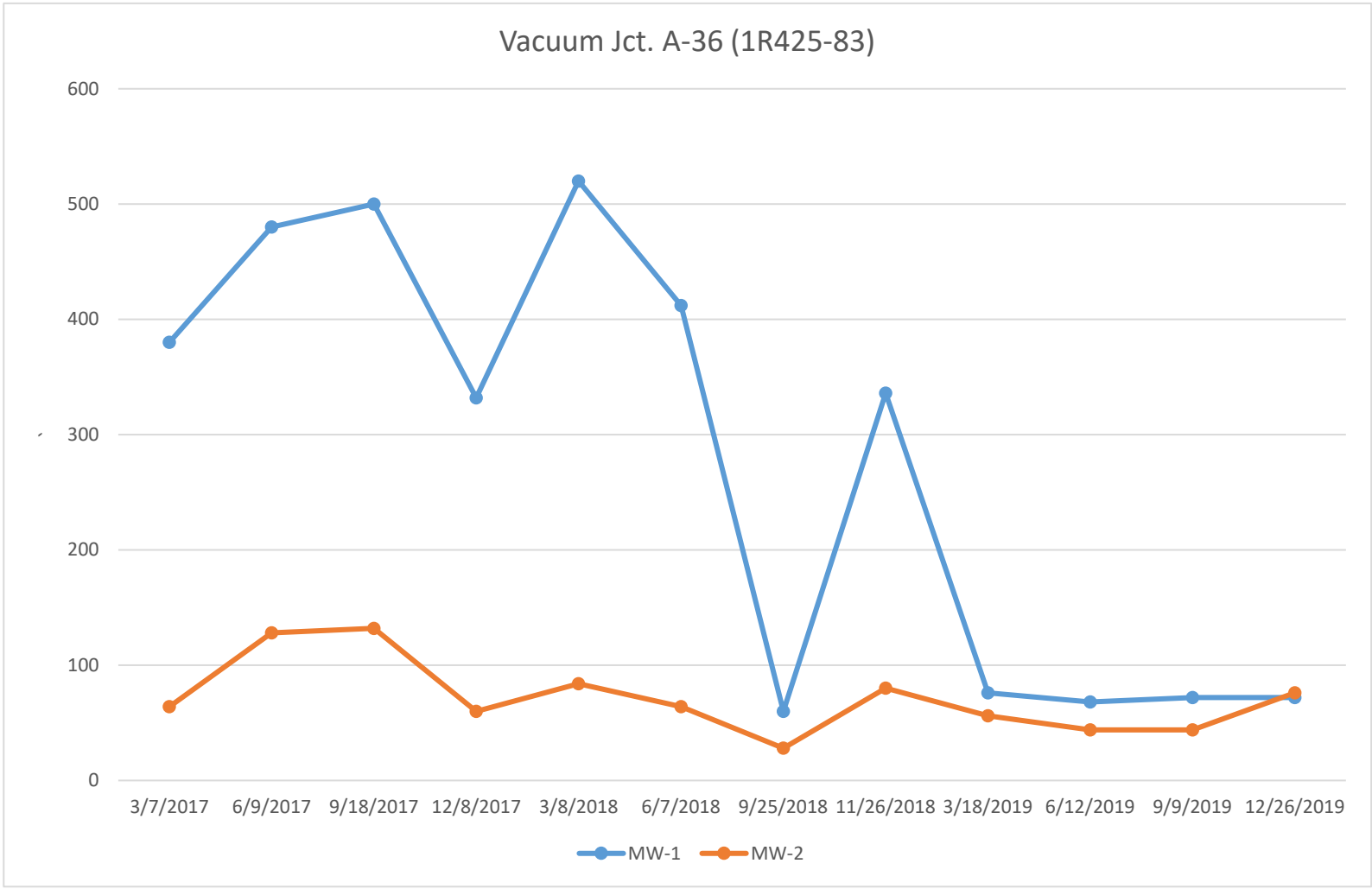
ROC - Vacuum Jct. A-36 (1R425-83)
Unit Letter A, Section 36, T17S, R34E

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	128.05	168	26	100	3/18/2016	332	900	<0.001	<0.001	<0.001	<0.003	62.4	Clear No odor
1	128.41	168	25.7	100	6/2/2016	420	1,080	<0.001	<0.001	<0.001	<0.003	45.4	Clear No odor
1	128.05	168	26	100	3/18/2016	332	900	<0.001	<0.001	<0.001	<0.003	62.4	Clear No odor
1	128.5	168	26	100	9/19/2016	470	1,070	<0.001	<0.001	<0.001	<0.003	33	Clear No odor
1	128.54	168	26	100	11/22/2016	288	1,020	<0.001	<0.001	<0.001	<0.003	53	Clear No odor
1	128.37	168	26	100	3/7/2017	380	860	<0.001	<0.001	<0.001	<0.003	126	Clear No odor
1	128.46	168	26	100	6/9/2017	480	1,110	<0.001	<0.001	<0.001	<0.003	63	Clear No odor
1	128.24	168	26	100	9/18/2017	500	1,320	<0.001	<0.001	<0.001	<0.003	69	Clear No odor
1	127.93	168	26	100	12/8/2017	332	958	<0.001	<0.001	<0.001	<0.003	36	Clear No odor
1	127.94	168	26	100	3/8/2018	520	1,240	<0.001	<0.001	<0.001	<0.003	79	Clear No odor
1	128.37	168	25	100	6/7/2018	412	942	<0.001	<0.001	<0.001	<0.003	78	Clear No odor
1	128.53	168	25	100	9/25/2018	60	292	<0.001	<0.001	<0.001	<0.003	45	Clear No odor
1	128.65	168	25	100	11/26/2018	336	844	<0.001	<0.001	<0.001	<0.003	34	Clear No odor
1	128.52	168	25	100	3/18/2019	76	345	<0.001	<0.001	<0.001	<0.003	10	Clear No odor
1	128.21	168	25	100	6/12/2019	68	425	<0.001	<0.001	<0.001	<0.003	42	Clear No odor
1	129.62	168	25	100	9/9/2019	72	372	<0.001	<0.001	<0.001	<0.003	32	Clear No odor
1	130.2	168	25	100	12/26/2019	72	392	<0.001	<0.001	<0.001	<0.003	54	Clear No odor

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	127.26	140	2	10	3/18/2016	72	452	<0.001	<0.001	<0.001	<0.003	47	Clear No odor
2	127.71	140	2	10	6/2/2016	96	560	<0.001	<0.001	<0.001	<0.003	33.6	Clear No odor
2	127.81	140	2	10	9/19/2016	112	416	<0.001	<0.001	<0.001	<0.003	27	Clear No odor
2	127.85	140	2	10	11/22/2016	60	398	<0.001	<0.001	<0.001	<0.003	79	Clear No odor
2	127.68	140	2	10	3/7/2017	64	404	<0.001	<0.001	<0.001	<0.003	74	Clear No odor
2	127.77	140	2	10	6/9/2017	128	558	<0.001	<0.001	<0.001	<0.003	45	Clear No odor
2	127.53	140	2	10	9/18/2017	132	526	<0.001	<0.001	<0.001	<0.003	48	Clear No odor
2	127.25	140	2	10	12/8/2017	60	330	<0.001	<0.001	<0.001	<0.003	47	Clear No odor

ROC - Vacuum Jct. A-36 (1R425-83)
Unit Letter A, Section 36, T17S, R34E

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	127.57	140	2	10	3/8/2018	84	274	<0.001	<0.001	<0.001	<0.003	46	Clear No odor
2	127.7	140	2	10	6/7/2018	64	428	<0.001	<0.001	<0.001	<0.003	68	Clear No odor
2	127.85	140	1.9	8	9/25/2018	28	218	<0.001	<0.001	<0.001	<0.003	44	Clear No odor
2	127.98	140	1.9	8	11/26/2018	80	338	<0.001	<0.001	<0.001	<0.003	46	Clear No odor
2	127.83	140	2	10	3/18/2019	56	194	<0.001	<0.001	<0.001	<0.003	48	Clear No odor
2	128.52	140	1.8	10	6/12/2019	44	544	<0.001	<0.001	<0.001	<0.003	53	Clear No odor
2	128.71	140	1.8	10	9/10/2019	44	417	<0.001	<0.001	<0.001	<0.003	41	Clear No odor
2	129.67	140	1.7	10	12/26/2019	76	418	<0.001	<0.001	<0.001	<0.003	52	Clear No odor


Vacuum Jct. A-36 (1R425-83)
600
500
400
300
200
100
0
3/7/2017
6/9/2017
9/18/2017
12/8/2017
3/8/2018
6/7/2018
9/25/2018
11/26/2018
3/18/2019
6/12/2019
9/9/2019
12/26/2019
MW-1
MW-2

CARDINAL Laboratories

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

March 26, 2019

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM JUNCTION A-36

Enclosed are the results of analyses for samples received by the laboratory on 03/18/19 15:15.

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,

Mike Snyder For 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:	03/18/2019	Sampling Date:	03/18/2019
Reported:	03/26/2019	Sampling Type:	Water
Project Name:	VACUUM JUNCTION A-36	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T18S-R35E-SEC36 A-LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H901041-01)

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 *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*	**76.0**	4.00	03/19/2019	ND	100	100	100	3.92	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	<10.0	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*	**345**	5.00	03/22/2019	ND	524	99.4	527	24.2	

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For 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:	03/18/2019	Sampling Date:	03/18/2019
Reported:	03/26/2019	Sampling Type:	Water
Project Name:	VACUUM JUNCTION A-36	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T18S-R35E-SEC36 A-LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H901041-02)

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 *103 %* *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	03/19/2019	ND	100	100	100	3.92	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**48.7**	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*	**194**	5.00	03/22/2019	ND	524	99.4	527	24.2	

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For 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

Mike Snyder For 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 Junction A-36
Project Location: T18S-R35E-Sec36 A ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310

LAB # (LAB USE ONLY) H901041	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		3/18	12:50
2	Monitor Well #2	G	3	X				2				1		3/18	9:05

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB #	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		X																	X	X	X	
2		X																	X	X	X	

Relinquished by: Rozanne Johnson	Date: 3/18/2019	Time: 15:15	Received by:	Date: 3-18-19 Time: 15:15
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)	Date: Time:

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

REMARKS:

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

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

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

CHECKED BY: (Initials) T.O.

CARDINAL Laboratories

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

June 20, 2019

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM JUNCTION A-36

Enclosed are the results of analyses for samples received by the laboratory on 06/13/19 15:15.

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:	06/13/2019	Sampling Date:	06/12/2019
Reported:	06/20/2019	Sampling Type:	Water
Project Name:	VACUUM JUNCTION A-36	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T18S-R35E-SEC36 A-LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H902063-01)

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	06/18/2019	ND	0.021	107	0.0200	0.889	
Toluene*	<0.001	0.001	06/18/2019	ND	0.022	109	0.0200	0.536	
Ethylbenzene*	<0.001	0.001	06/18/2019	ND	0.020	99.9	0.0200	1.37	
Total Xylenes*	<0.003	0.003	06/18/2019	ND	0.061	101	0.0600	0.642	
Total BTEX	<0.006	0.006	06/18/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *108 %* *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*	**68.0**	4.00	06/18/2019	ND	100	100	100	4.08	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**42.6**	10.0	06/19/2019	ND	20.8	104	20.0	2.43	

TDS 160.1 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**425**	5.00	06/20/2019	ND	523	99.2	527	11.3	

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:	06/13/2019	Sampling Date:	06/12/2019
Reported:	06/20/2019	Sampling Type:	Water
Project Name:	VACUUM JUNCTION A-36	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T18S-R35E-SEC36 A-LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H902063-02)

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	06/18/2019	ND	0.021	107	0.0200	0.889	
Toluene*	<0.001	0.001	06/18/2019	ND	0.022	109	0.0200	0.536	
Ethylbenzene*	<0.001	0.001	06/18/2019	ND	0.020	99.9	0.0200	1.37	
Total Xylenes*	<0.003	0.003	06/18/2019	ND	0.061	101	0.0600	0.642	
Total BTEX	<0.006	0.006	06/18/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *107 %* *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*	**44.0**	4.00	06/18/2019	ND	100	100	100	4.08	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**53.8**	10.0	06/19/2019	ND	20.8	104	20.0	2.43	

TDS 160.1 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**544**	5.00	06/19/2019	ND	523	99.2	527	11.3	

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

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 Junction A-36
Project Location: T18S-R35E-Sec36 A ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310

H902063

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		6/12	13:15
2	Monitor Well #2	G	3	X				2				1		6/12	9:25

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: 6/13/2019	Time: 15:15	Received by: Tamara Oldaker
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)

Date: 6-13-19 Time: 15:15

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

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

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

CHECKED BY: (Initials) TO.

REMARKS:

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

CARDINAL Laboratories

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

September 17, 2019

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM JUNCTION A-36

Enclosed are the results of analyses for samples received by the laboratory on 09/11/19 15:50.

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:	09/11/2019	Sampling Date:	09/10/2019
Reported:	09/17/2019	Sampling Type:	Water
Project Name:	VACUUM JUNCTION A-36	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T18S-R35E-SEC36 A-LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H903145-01)

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 *89.9 %* *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*	**72.0**	4.00	09/13/2019	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*	**32.5**	10.0	09/13/2019	ND	21.2	106	20.0	0.950	

TDS 160.1 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**372**	5.00	09/16/2019	ND	532	101	527	0.269	

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:	09/11/2019	Sampling Date:	09/10/2019
Reported:	09/17/2019	Sampling Type:	Water
Project Name:	VACUUM JUNCTION A-36	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T18S-R35E-SEC36 A-LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H903145-02)

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 *89.2 %* *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*	**44.0**	4.00	09/13/2019	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*	**41.5**	10.0	09/13/2019	ND	21.2	106	20.0	0.950	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**417**	5.00	09/16/2019	ND	532	101	527	0.269	

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 Junction A-36
Project Location: T18S-R35E-Sec36 A ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310

H903145

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		9/10	13:05
2	Monitor Well #2	G	3	X					2				1		9/10	10:15

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: 9/11/2019	Time: 15:30	Received by: Tamara Oldaker
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)

Date: 9-11-19 Time: 15:50

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:
	Cool		Intact		
Sampler - UPS - Bus - Other:	Yes	✓	Yes	✓	(Initials) T.O.
	No		No		

CARDINAL Laboratories

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

January 02, 2020

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM JUNCTION A-36

Enclosed are the results of analyses for samples received by the laboratory on 12/27/19 11:25.

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

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:	12/27/2019	Sampling Date:	12/26/2019
Reported:	01/02/2020	Sampling Type:	Water
Project Name:	VACUUM JUNCTION A-36	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T18S-R35E-SEC36 A-LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H904300-01)

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	12/31/2019	ND	0.019	94.3	0.0200	0.980	
Toluene*	<0.001	0.001	12/31/2019	ND	0.018	92.4	0.0200	1.90	
Ethylbenzene*	<0.001	0.001	12/31/2019	ND	0.018	89.4	0.0200	1.53	
Total Xylenes*	<0.003	0.003	12/31/2019	ND	0.053	88.6	0.0600	1.83	
Total BTEX	<0.006	0.006	12/31/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *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*	**72.0**	4.00	12/27/2019	ND	104	104	100	3.77	

Sulfate 375.4 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**54.5**	10.0	12/30/2019	ND	20.6	103	20.0	2.49	

TDS 160.1 mg/L Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**392**	5.00	12/31/2019	ND	534	101	527	0.611	

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:	12/27/2019	Sampling Date:	12/26/2019
Reported:	01/02/2020	Sampling Type:	Water
Project Name:	VACUUM JUNCTION A-36	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T18S-R35E-SEC36 A-LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H904300-02)

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	12/31/2019	ND	0.019	94.3	0.0200	0.980	
Toluene*	<0.001	0.001	12/31/2019	ND	0.018	92.4	0.0200	1.90	
Ethylbenzene*	<0.001	0.001	12/31/2019	ND	0.018	89.4	0.0200	1.53	
Total Xylenes*	<0.003	0.003	12/31/2019	ND	0.053	88.6	0.0600	1.83	
Total BTEX	<0.006	0.006	12/31/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *80.5 %* *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*	**76.0**	4.00	12/27/2019	ND	104	104	100	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**52.4**	10.0	12/30/2019	ND	20.6	103	20.0	2.49	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**418**	5.00	12/30/2019	ND	534	101	527	0.611	

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 Junction A-36
Project Location: T18S-R35E-Sec36 A ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310

H904300 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		12/26	11:15
2	Monitor Well #2	G	3	X				2				1		12/26	8:20

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
1		X																	X	X	X	
2		X																	X	X	X	

Relinquished by: Rozanne Johnson	Date: 12/27/2019	Time: 11:25	Received by: Date: 12-27-19 Time: 11:25
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff) Date: Time:

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

REMARKS:

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

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