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

April 1, 2021

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: 2020 Annual Groundwater Report Rice Operating Company – BD SWD System BD L-36 EOL (1R426-278): UL/L, Sec. 36, T21S, R37E

Mr. Billings:

ROC is the service provider (agent) for the BD 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.

Background and Previous Work

The site is located approximately 2 miles east of Eunice, New Mexico at UL/L, Sec. 36, T21S, R37E as shown on the Geographical Location Map. Groundwater sampling at the site indicated the depth to groundwater is approximately 47 feet below ground surface (bgs).

An Investigation and Characterization Plan (ICP) was submitted to NMOCD on April 24th, 2015 and approved May 7th, 2015. The site was investigated through soil bore installation resulting in elevated chloride concentrations that decreased with depth.

A Corrective Action Plan (CAP) and Addendum was submitted and approved by NMOCD on October 30th, 2017. According to the NMOCD approved CAP, a 91x31-ft 20-mil reinforced liner was installed and properly seated at 4.5 ft bgs which covered the previously installed 20x20 ft clay liner. The site was backfilled and seeded with a blend of native vegetation. A CAP Report and Soil Closure Request detailing this work was submitted to the NMOCD on May 17th, 2018. The report also requested three monitoring wells be installed near the source, up-gradient and down-gradient of the site. NMOCD approved this report and granted 'Soil Closure' on June 20th, 2018.

On June 27th, 2019, a near-source well (MW-1) was installed approximately 40 ft southeast of the source, and lithology soil samples were collected at regular intervals. The well was developed and sampled regularly. On November 13th, 2019, an up-gradient well (MW-2) and a down-gradient well (MW-3) were installed.

The most recent sampling event resulted in a chloride concentration of 530 mg/L in MW-1, 400 mg/L in MW-2, and 520 mg/L in MW-3. BTEX concentrations have remained below detectable limit in each well since installation. The samples collected from the up-gradient well (MW-2) suggests a non-ROC, up-gradient source has contributed to the degradation of groundwater quality. In 2020, ROC received NMOCD approval to temporarily reduce the sampling interval to semi-annual. ROC will continue quarterly sampling in 2021.

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 2020.

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

Environmental Manager

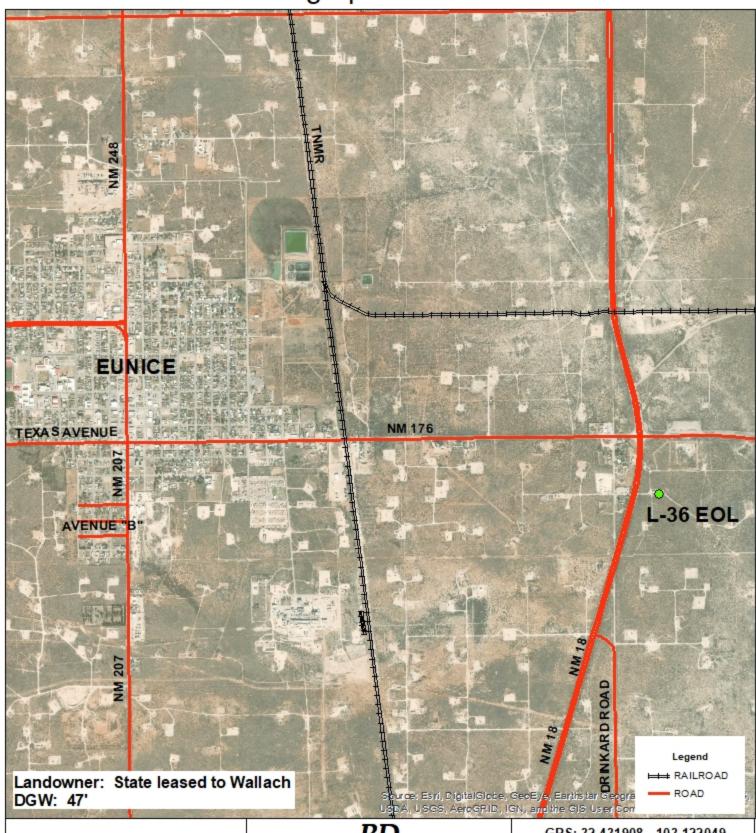
Katy Davis

RICE Operating Company (ROC)

Cc – Edward J. Hansen (ROC)

appendix

Geographic Location





BD L-36 EOL 1R426-278

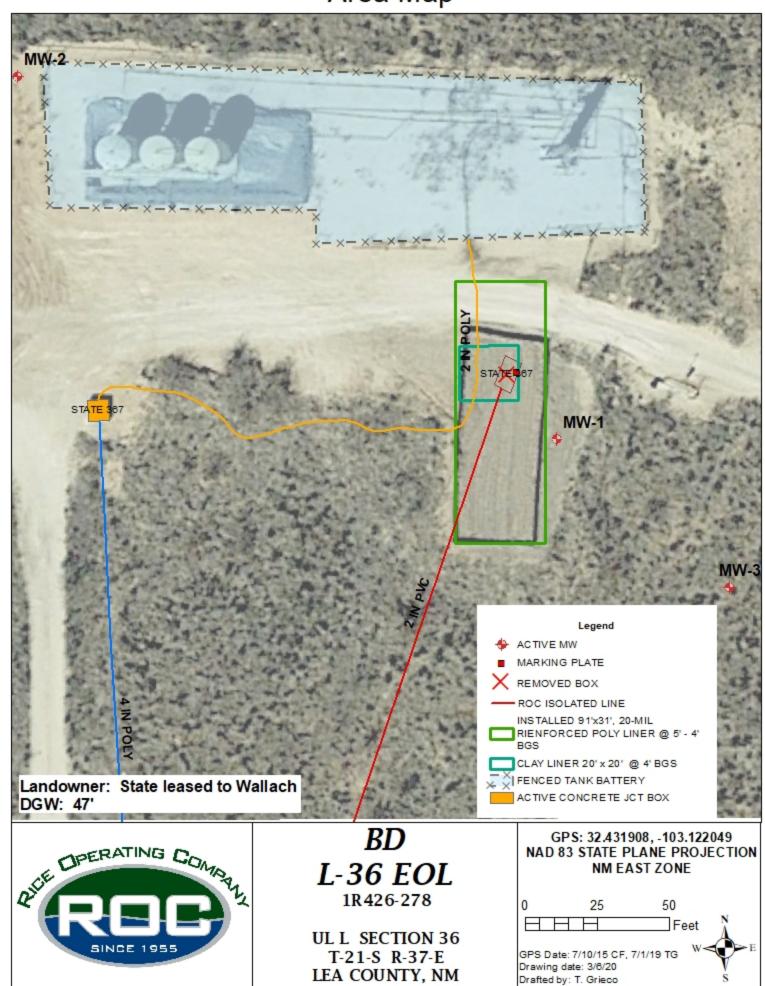
UL L SECTION 36 T-21-S R-37-E LEA COUNTY, NM GPS: 32.431908, -103.122049 NAD 83 STATE PLANE PROJECTION NM EAST ZONE

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GPS Date: 7/10/15 CF, 7/1/19 TG

Drawing date: 3/6/20 Drafted by: T. Grieco



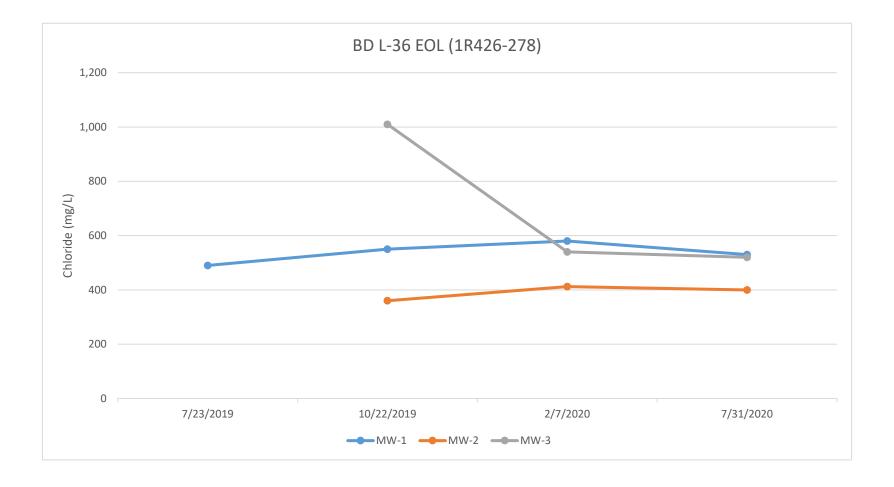


ROC - BD L-36 EOL (1R426-278) Unit Letter L, Section 36, T21S, R37E

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xvlenes	Sulfate	Comments
1	45.58	88.6	28	100	7/23/2019	490	2,010	<0.001	<0.001	<0.001	<0.003	560	Clear No odor
1	45.53	88.6	28	100	10/22/2019	550	1,840	<0.001	<0.001	<0.001	<0.003	602	Clear No odor
1	45.41	88.6	28	90	2/7/2020	580	2,180	<0.001	<0.001	<0.001	<0.003	536	Clear No odor
1	45.35	88.6	28	90	7/31/2020	530	2,080	<0.001	<0.001	<0.001	<0.003	407	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	47.78	63.75	2.6	10	12/16/2019	360	1,690	<0.001	<0.001	<0.001	<0.003	510	Clear No odor
2	47.72	63.75	2.6	10	2/7/2020	412	1,680	<0.001	<0.001	<0.001	<0.003	480	Clear No odor
2	47.69	63.75	2.6	10	7/31/2020	400	1,790	<0.001	<0.001	<0.001	<0.003	319	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
3	43.94	63.93	3.2	10	12/16/2019	1,010	2,940	<0.001	<0.001	<0.001	<0.003	557	Clear No odor
3	43.9	63.93	3.2	10	2/7/2020	540	2,100	<0.001	<0.001	<0.001	<0.003	552	Clear No odor
3	43.88	63.93	3.2	10	7/31/2020	520	2,000	<0.001	<0.001	<0.001	<0.003	324	Clear No odor





February 18, 2020

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD L-36 EOL

Enclosed are the results of analyses for samples received by the laboratory on 02/10/20 14:00.

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/ga/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.

Celey D. Keine

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



Analytical Results For:

Rice Operating Company KATIE JONES 112 W. Taylor Hobbs NM, 88240

Fax To: (575) 397-1471

Received: 02/10/2020 Sampling Date: 02/07/2020 Reported: 02/18/2020 Sampling Type: Water

Project Name: BD L-36 EOL Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Tamara Oldaker

Project Location: T21S R37E SEC 36 L ~ LEA COUNTY NM

Sample ID: MONITOR WELL #1 (H000397-01)

BTEX 8021B	mg/	L	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	02/17/2020	ND	0.022	111	0.0200	9.09	
Toluene*	<0.001	0.001	02/17/2020	ND	0.020	98.3	0.0200	4.80	
Ethylbenzene*	< 0.001	0.001	02/17/2020	ND	0.020	99.7	0.0200	2.87	
Total Xylenes*	<0.003	0.003	02/17/2020	ND	0.062	104	0.0600	4.03	
Total BTEX	<0.006	0.006	02/17/2020	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	58.2-13	3						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	580	4.00	02/11/2020	ND	104	104	100	3.92	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	536	83.3	02/13/2020	ND	19.8	99.2	20.0	4.70	
TDS 160.1	mg/	L	Analyze	d By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	2180	5.00	02/13/2020	ND	297	99.0	300	1.28	

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keene



Analytical Results For:

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

Received: 02/10/2020

Reported: 02/18/2020 Project Name: BD L-36 EOL Project Number: NONE GIVEN

Project Location: T21S R37E SEC 36 L ~ LEA COUNTY NM Sampling Date: 02/07/2020 Sampling Type: Water

Sampling Condition: Cool & Intact Sample Received By:

Tamara Oldaker

Sample ID: MONITOR WELL #2 (H000397-02)

	•	- /							
BTEX 8021B	mg/	L	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	02/12/2020	ND	0.022	111	0.0200	9.09	
Toluene*	<0.001	0.001	02/12/2020	ND	0.020	98.3	0.0200	4.80	
Ethylbenzene*	<0.001	0.001	02/12/2020	ND	0.020	99.7	0.0200	2.87	
Total Xylenes*	<0.003	0.003	02/12/2020	ND	0.062	104	0.0600	4.03	
Total BTEX	<0.006	0.006	02/12/2020	ND					
Surrogate: 4-Bromofluorobenzene (PID	107 %	6 58.2-13	3						
Chloride, SM4500CI-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	412	4.00	02/11/2020	ND	104	104	100	3.92	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	480	83.3	02/13/2020	ND	19.8	99.2	20.0	4.70	
TDS 160.1	mg/	L	Analyze	d By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	1680	5.00	02/14/2020	ND	297	99.0	300	1.28	

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keine



Analytical Results For:

Rice Operating Company KATIE JONES 112 W. Taylor Hobbs NM, 88240

Fax To: (575) 397-1471

Received: 02/10/2020 Sampling Date: 02/07/2020 Reported: 02/18/2020 Sampling Type: Water Project Name: BD L-36 EOL Sampling Condition: Cool & Intact Project Number: Sample Received By: NONE GIVEN Tamara Oldaker

Analyzed By: ms

Project Location: T21S R37E SEC 36 L ~ LEA COUNTY NM

Sample ID: MONITOR WELL #3 (H000397-03)

BTEX 8021B

				<u> </u>					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	02/12/2020	ND	0.022	111	0.0200	9.09	
Toluene*	<0.001	0.001	02/12/2020	ND	0.020	98.3	0.0200	4.80	
Ethylbenzene*	<0.001	0.001	02/12/2020	ND	0.020	99.7	0.0200	2.87	
Total Xylenes*	<0.003	0.003	02/12/2020	ND	0.062	104	0.0600	4.03	
Total BTEX	<0.006	0.006	02/12/2020	ND					
Surrogate: 4-Bromofluorobenzene (PID	107 %	6 58.2-13	3						
Chloride, SM4500CI-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	540	4.00	02/11/2020	ND	104	104	100	3.92	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	552	83.3	02/13/2020	ND	19.8	99.2	20.0	4.70	
TDS 160.1	mg/	L	Analyze	d By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	2100	5.00	02/13/2020	ND	297	99.0	300	1.28	

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Celey D. Keene



Notes and Definitions

QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

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

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Released to Imaging: 4/20/2021 8:37:10 AM



August 10, 2020

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD L-36 EOL

Enclosed are the results of analyses for samples received by the laboratory on 08/04/20 14:45.

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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)

Celey D. Keine

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



Analytical Results For:

Rice Operating Company KATIE JONES 112 W. Taylor Hobbs NM, 88240

Fax To: (575) 397-1471

Received: 08/04/2020 Sampling Date: 07/31/2020
Reported: 08/10/2020 Sampling Type: Water

Project Name: BD L-36 EOL Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Tamara Oldaker

Project Location: T21S R37E SEC 36 L ~ LEA COUNTY NM

Sample ID: MONITOR WELL #1 (H002011-01)

•	•	•							
BTEX 8021B	mg/	L	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	08/07/2020	ND	0.021	103	0.0200	0.511	
Toluene*	<0.001	0.001	08/07/2020	ND	0.021	103	0.0200	0.628	
Ethylbenzene*	< 0.001	0.001	08/07/2020	ND	0.021	106	0.0200	0.367	
Total Xylenes*	<0.003	0.003	08/07/2020	ND	0.063	105	0.0600	0.346	
Total BTEX	<0.006	0.006	08/07/2020	ND					
Surrogate: 4-Bromofluorobenzene (PID	103 %	6 58.2-13	3						
Chloride, SM4500CI-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	530	4.00	08/05/2020	ND	104	104	100	3.92	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	407	83.3	08/06/2020	ND	17.7	88.3	20.0	1.02	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier

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Celey D. Keene



Analytical Results For:

Rice Operating Company KATIE JONES 112 W. Taylor Hobbs NM, 88240

Fax To: (575) 397-1471

Received: 08/04/2020 Sampling Date: 07/31/2020 Reported: 08/10/2020 Sampling Type: Water Project Name: BD L-36 EOL Sampling Condition: Cool & Intact Project Number: Sample Received By: NONE GIVEN Tamara Oldaker

Project Location: T21S R37E SEC 36 L ~ LEA COUNTY NM

Sample ID: MONITOR WELL #2 (H002011-02)

BTEX 8021B	mg/	L	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	08/07/2020	ND	0.021	103	0.0200	0.511	
Toluene*	< 0.001	0.001	08/07/2020	ND	0.021	103	0.0200	0.628	
Ethylbenzene*	< 0.001	0.001	08/07/2020	ND	0.021	106	0.0200	0.367	
Total Xylenes*	< 0.003	0.003	08/07/2020	ND	0.063	105	0.0600	0.346	
Total BTEX	<0.006	0.006	08/07/2020	ND					
Surrogate: 4-Bromofluorobenzene (PID	102 %	6 58.2-13	3						
Chloride, SM4500CI-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	400	4.00	08/05/2020	ND	104	104	100	3.92	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	319	83.3	08/06/2020	ND	17.7	88.3	20.0	1.02	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	1790	5.00	08/06/2020	ND	416	83.2	500	0.431	

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Celey D. Keine



Analytical Results For:

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

 Received:
 08/04/2020
 Samplin

 Reported:
 08/10/2020
 Samplin

Project Name: BD L-36 EOL Project Number: NONE GIVEN

Project Location: T21S R37E SEC 36 L ~ LEA COUNTY NM

Sampling Date: 07/31/2020 Sampling Type: Water Sampling Condition: Cool & Intact

Sample Received By:

Tamara Oldaker

Sample ID: MONITOR WELL #3 (H002011-03)

RTFY 8021R

Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
ND	0.021	103	0.0200	0.511	
ND	0.021	103	0.0200	0.628	
ND	0.021	106	0.0200	0.367	
ND	0.063	105	0.0600	0.346	
ND					
ed By: AC					
ed By: AC Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
-	BS 104	% Recovery	True Value QC	RPD 3.92	Qualifier
Method Blank		•	·		Qualifier
Method Blank		•	·		Qualifier Qualifier
Method Blank ND ed By: AC	104	104	100	3.92	
Method Blank ND ed By: AC Method Blank	104 BS	104 % Recovery	100 True Value QC	3.92 RPD	
Method Blank ND ed By: AC Method Blank ND	104 BS	104 % Recovery	100 True Value QC	3.92 RPD	
	ND ND ND	ND 0.021 ND 0.021 ND 0.063 ND	ND 0.021 103 ND 0.021 106 ND 0.063 105 ND	ND 0.021 103 0.0200 ND 0.021 106 0.0200 ND 0.063 105 0.0600 ND	ND 0.021 103 0.0200 0.628 ND 0.021 106 0.0200 0.367 ND 0.063 105 0.0600 0.346 ND

Analyzed By: MC

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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. Keine

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Released to Imaging: 4/20/2021 8:37:10 AM

<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720

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 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**

COMMENTS

Action 23956

COMMENTS

Operator:			OGRID:	Action Number:	Action Type:
RICE OPERATING COMPANY	122 W Taylor	Hobbs, NM88240	19174	23956	GROUND WATER ABATEMENT

Created By	Comment	Comment Date
bbillings	Consistent CI levels, may look more aggressively at background aspect.	04/20/2021

<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720

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

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 23956

CONDITIONS OF APPROVAL

Operator:			OGRID:	Action Number:	Action Type:
RICE OPERATING COMPANY	122 W Taylor	Hobbs, NM88240	19174	23956	GROUND WATER ABATEMENT

OCD Reviewer	Condition
bbillings	Continue sampling aspects as per most recent report. Consider a more aggressive review of possible background levels.