RICE Operating Company

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April 1, 2020

Bradford Billings New Mexico Oil Conservation Division 1220 So. St. Francis Drive Santa Fe, New Mexico 87505

RE: 2019 Annual Groundwater Report Rice Operating Company – BD SWD System BD K-4 Release (1R0459): Unit K, Section 4, T22S, R37E

Mr. Billings:

ROC is the service provider (agent) for the BD Saltwater Disposal System and has no ownership of any portion of the pipelines, wells or facilities. The BD System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

The site is located approximately 1 mile southwest of Eunice, New Mexico at UL/K, Sec. 4, T22S, R37E as shown on the Geographical Location Map. Groundwater sampling at the site indicated the depth to groundwater is approximately 83 ft below ground surface (bgs).

ROC completed the Corrective Action Plan (CAP) dated April 23, 2007, which was granted verbal approval by the New Mexico Oil Conservation Division (NMOCD) on December 16, 2009. The CAP was implemented in February 2010. A site Termination Request was submitted to the NMOCD on September 23, 2010 and denied by the NMOCD on October 13, 2010, requiring ROC to continue removing chloride impacted groundwater from MW-1 and to continue monitoring MW-1, MW-2 and MW-3 on a quarterly basis. Based on the completed CAP work, NMOCD granted 'Soil Closure' on October 11, 2012.

All wells were sampled quarterly per NMOCD guidelines. The attached tables summarize the analytical results from groundwater samples collected from the monitor wells at the site.

During 2019, approximately 3,520 gallons of chloride impacted groundwater were removed from MW-1 and quarterly sampling of the three monitor wells was completed. Since the removal of liquids that began on September 3, 2009, a total of 40,179.4 gallons of chloride impacted groundwater have been removed at the site. Results indicate the site chloride and TDS concentrations have overall decreased in MW-1 and have remained below 250 mg/L since 2018. Chloride concentrations remain stable and below 250 mg/L in MW-2 and MW-3. BTEX concentration have remained below detectable limits since the wells were installed. This indicates

the removal of chloride impacted groundwater from MW-1 is decreasing the chloride plume. Removed groundwater was utilized for a beneficial use.

Given that BTEX concentrations have been below detectable limits since installation, ROC requests to suspend BTEX sampling in all three wells (MW-1, MW-2 and MW-3). 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. In addition, ROC is proposing to suspend groundwater recovery for this year. These proposals are only temporary and regularly scheduled groundwater monitoring and recovery will commence as soon as possible.

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,

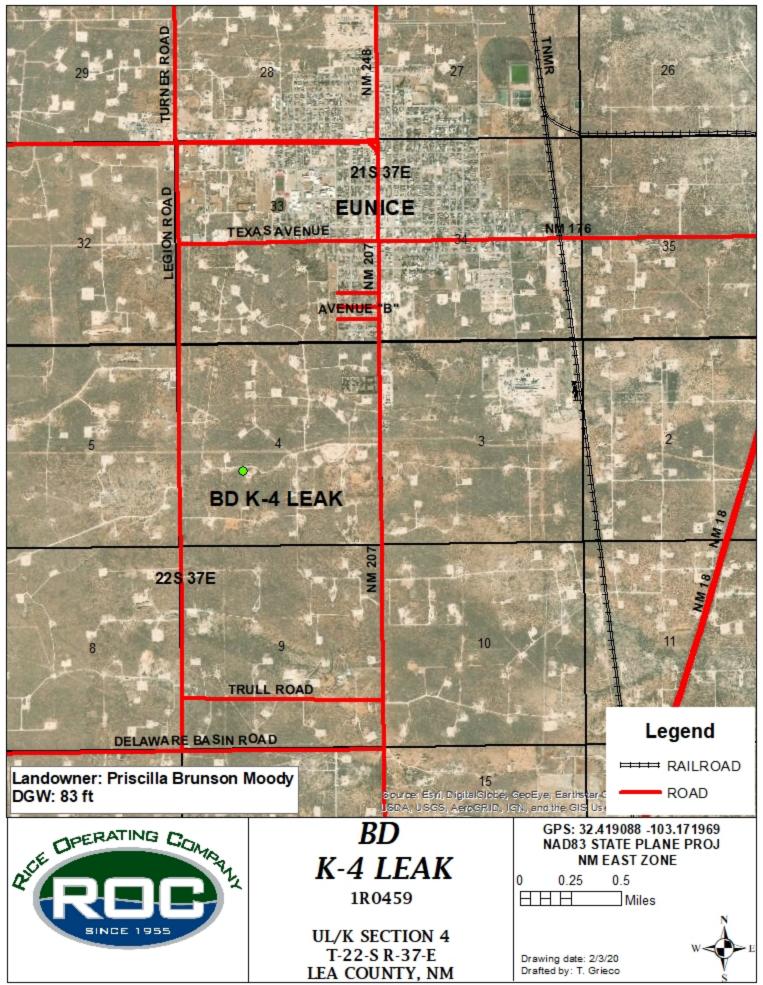
Katil Davis

Katie Davis Environmental Manager RICE Operating Company (ROC)

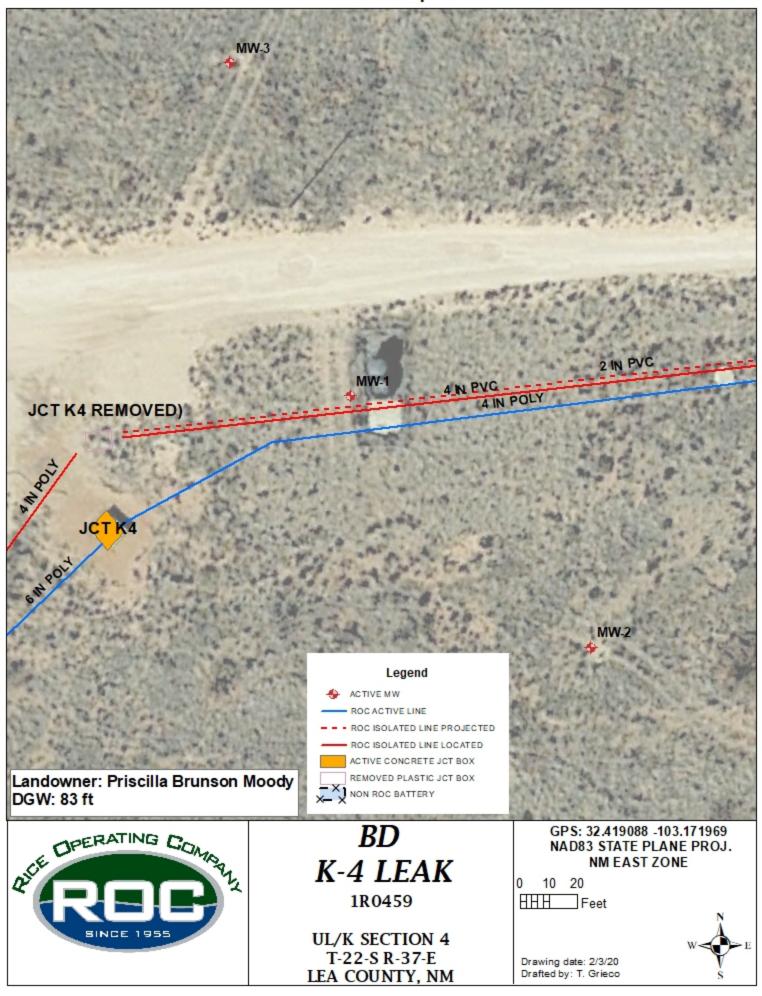
Cc – Edward J. Hansen (ROC)

appendix

Geographic Location



Site Map



MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	85.02	93.63	1.4	5	11/13/2006	1040	2120	<0.001	<0.001	<0.001	< 0.001	152	Silt to clear No odor
1	84.99	93.62	1.4	6	3/8/2007	916	2100	< 0.001	<0.001	< 0.001	<0.001	148	Silt to clear No odor
1	84.96	93.62	1.4	6	4/23/2007	917	1950	<0.001	<0.001	<0.001	<0.001	339	Silt to clear No odor
1	ххх	xxx	xxx	ххх	8/7/2007	ххх	ххх	ххх	xxx	ххх	xxx	ххх	converted from a 2 in well to a 4 in well
1	86.06	97.7	7.6	6	9/14/2007	760	2,028	<0.001	<0.001	<0.001	<0.003	159	Silt to clear No odor
1	86.06	97.7	7.6	20	10/31/2007	736	1,770	<0.002	<0.002	<0.002	<0.006	124	Silt to clear No odor
1	85.93	98.6	8.2	30	2/15/2008	760	1,880	<0.002	<0.002	<0.002	<0.006	157	Clear No odor
1	85.73	98.6	8.4	30	5/5/2008	720	1,880	<0.002	<0.002	<0.002	<0.006	195	Clear No odor
1	85.81	98.6	8.3	30	8/11/2008	620	1,590	<0.001	<0.001	<0.001	<0.003	106	Clear No odor
1	85.65	98.6	8.4	30	11/13/2008	570	1,470	<0.001	<0.001	<0.001	<0.003	148	Clear No odor
1	85.64	98.4	8.3	30	1/21/2009	630	1,560	<0.001	<0.001	<0.001	<0.003	143	Clear No odor
1	85.61	98.4	8.3	30	4/22/2009	600	1,680	<0.001	<0.001	<0.001	<0.003	123	Clear No odor
1	85.48	98.4	8.4	30	7/20/2009	520	1,380	<0.001	<0.001	<0.001	<0.003	113	Clear No odor
1	85.49	98.4	8.4	30	10/13/2009	700	1,700	<0.001	<0.001	<0.001	<0.003	131	Clear No odor
1	85.32	98.41	8.5	30	1/19/2010	780	1,860	<0.001	<0.001	<0.001	<0.003	173	Clear No odor
1	85.31	98.41	8.5	30	4/15/2010	680	1,610	<0.001	<0.001	<0.001	<0.003	155	Clear No odor
1	85.23	98.41	8.6	30	7/20/2010	610	1,550	<0.001	<0.001	<0.001	<0.003	143	Clear No odor
1	85.15	98.41	8.6	30	10/15/2010	600	1,460	<0.001	<0.001	<0.001	<0.003	125	Clear No odor
1	85.14	98.4	8.6	30	1/26/2011	680	1,580	<0.001	<0.001	<0.001	<0.003	164	Clear No odor
1	84.97	98.4	8.7	30	4/22/2011	740	1,620	<0.001	<0.001	<0.001	<0.003	144	Clear No odor
1	84.96	98.4	8.7	30	7/29/2011	640	1,530	<0.001	<0.001	<0.001	<0.001	108	Clear No odor
1	85.07	98.4	8.7	30	10/24/2011	650	1,510	<0.001	<0.001	<0.001	<0.003	122	Clear No odor
1	84.88	98.4	8.8	30	1/31/2012	660	1,500	<0.001	<0.001	<0.001	<0.003	140	Clear No odor
1	84.82	98.4	8.8	125	5/3/2012	670	1,440	<0.001	<0.001	<0.001	<0.003	143	Clear No odor
1	XXX	98.4	0	Running	7/25/2012	730	1,670	<0.001	<0.001	<0.001	<0.003	165	Clear No odor
1	XXX	98.4	0	Running	10/25/2012	870	1,960	<0.001	<0.001	<0.001	<0.003	182	Clear No odor
1	84.58	98.4	9	80	3/26/2013	520	1,240	<0.001	<0.001	<0.001	<0.003	129	Clear No odor
1	85.65	98.4	8.3	80	4/24/2013	524	1,290	<0.001	<0.001	<0.001	<0.003	143	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
1	84.61	98.4	9	80	7/30/2013	500	1,300	<0.001	<0.001	<0.001	<0.003	129	Clear No odor
1	84.5	98.4	9	80	10/23/2013	500	1,320	<0.001	<0.001	<0.001	<0.003	131	Clear No odor
1	84.39	98.4	9.1	80	2/7/2014	470	1,160	<0.001	<0.001	< 0.001	<0.003	122	Clear No odor
1	84.53	98.4	9	80	4/10/2014	510	1,210	<0.001	<0.001	<0.001	<0.003	131	Clear No odor
1	84.36	98.4	9.1	80	7/28/2014	424	1,170	<0.001	<0.001	<0.001	<0.003	116	Clear No odor
1	84.34	98.4	9.1	100	10/30/2014	770	1,900	<0.001	<0.001	<0.001	<0.003	136	Clear No odor
1	84.28	98.4	9.2	100	2/9/2015	780	1,780	<0.001	<0.001	<0.001	<0.003	131	Clear No odor
1	84.34	98.4	9.1	100	4/23/2015	529	1,450	<0.001	<0.001	<0.001	<0.003	95.7	Clear No odor
1	84.24	98.4	9.2	100	7/31/2015	220	788	<0.001	<0.001	<0.001	<0.003	80	Clear No odor
1	84.21	98.4	9.22	100	10/26/2015	570	1,690	<0.001	<0.001	<0.001	<0.003	119	Clear No odor
1	84.05	98.4	9.3	100	1/29/2016	750	1,680	<0.001	<0.001	<0.001	<0.003	203	Clear No odor
1	84.06	98.4	9.3	100	4/22/2016	660	1,490	<0.001	<0.001	<0.001	<0.003	170	Clear No odor
1	84.07	98.4	9.3	100	7/22/2016	560	1,590	<0.001	<0.001	<0.001	<0.003	130	Clear No odor
1	83.98	98.4	9.4	100	10/26/2016	690	1,720	<0.001	<0.001	<0.001	<0.003	99	Clear No odor
1	84.04	98.4	9.3	100	2/6/2017	630	1,370	<0.001	<0.001	<0.001	<0.003	192	Clear No odor
1	83.96	98.4	9.4	100	4/12/2017	500	1,400	<0.001	<0.001	<0.001	<0.003	228	Clear No odor
1	83.9	98.4	9.4	100	7/27/2017	510	1,510	<0.001	<0.001	<0.001	<0.003	291	Clear No odor
1	83.93	98.4	9.4	100	10/23/2017	470	1,360	<0.001	<0.001	<0.001	<0.003	212	Clear No odor
1	83.72	98.4	9.5	100	1/17/2018	332	1,050	<0.001	<0.001	<0.001	<0.003	140	Clear No odor
1	83.76	98.4	9.5	100	4/27/2018	272	846	<0.001	<0.001	<0.001	<0.003	136	Clear No odor
1	83.64	98.4	9.6	100	8/3/2018	200	780	<0.001	<0.001	<0.001	<0.003	113	Clear No odor
1	83.72	98.4	9.5	100	1/17/2018	332	1,050	<0.001	<0.001	<0.001	<0.003	140	Clear No odor
1	83.76	98.4	9.5	100	4/27/2018	272	846	<0.001	<0.001	<0.001	<0.003	136	Clear No odor
1	83.64	98.4	9.6	100	8/3/2018	200	780	<0.001	<0.001	<0.001	<0.003	113	Clear No odor
1	83.65	98.4	9.6	100	11/2/2018	156	562	<0.001	<0.001	<0.001	<0.003	113	Clear No odor
1	83.6	98.4	9.6	100	2/5/2019	156	620	<0.001	<0.001	<0.001	<0.003	123	Clear No odor
1	83.12	98.4	9.6	100	4/23/2019	156	562	<0.001	<0.001	<0.001	<0.003	119	Clear No odor

мw	Depth to	Total	Well	Volume	Sample Date	CL	TDS	Benzene	Toluene	Ethyl	Total	Sulfato	Comments
	Water	Depth	Volume	Purged	Sample Date	CI	103	Denzene	Toluelle	Benzene	Xylenes	Sunate	comments
1	83.54	98.4	9.6	100	7/25/2019	156	663	<0.001	<0.001	<0.001	<0.003	131	Clear No odor
1	83.49	98.4	9.6	100	10/25/2019	140	647	<0.001	<0.001	<0.001	<0.003	114	Clear No odor

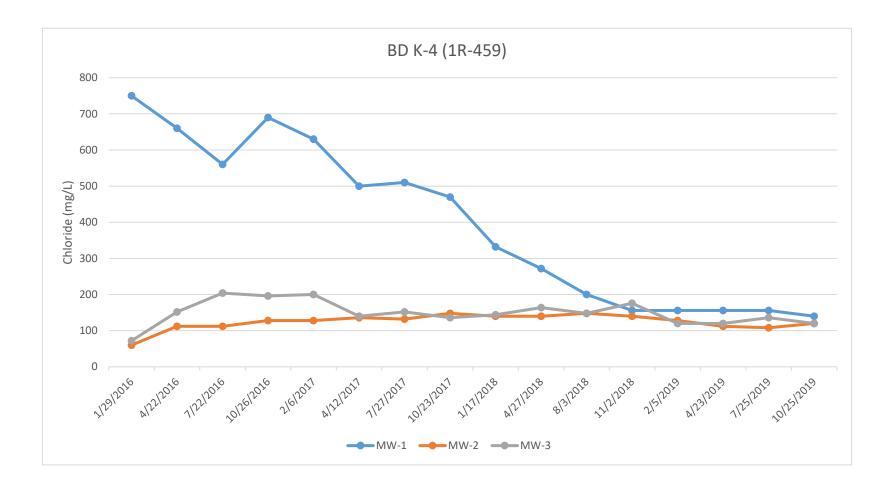
	Depth to	Total	Well	Volume	6 I D I	c	TDC	_	- 1	Ethyl	Total		
MW	Water	Depth	Volume	Purged	Sample Date	Cl	TDS	Benzene	Toluene	Benzene	Xylenes	Sulfate	Comments
2	83.35	94.1	1.7	7	11/13/2006	77	542	<0.001	<0.001	<0.001	<0.001	85	Silt to clear No odor
2	83.28	94.08	1.7	7	3/8/2007	75.3	574	<0.001	<0.001	<0.001	<0.001	80.8	Silt to clear No odor
2	83.25	94.08	1.7	7	4/23/2007	83.5	564	<0.001	<0.001	<0.001	<0.001	83	Silt to clear No odor
2	83.12	94.08	1.8	7	9/14/2007	110	588	<0.001	<0.001	<0.001	<0.003	130	Silt to clear No odor
2	83.11	94.08	1.8	6	10/31/2007	84	596	<0.002	<0.002	<0.002	<0.006	82.7	Silt to clear No odor
2	82.97	94.05	1.8	6	2/15/2008	92	574	<0.002	<0.002	<0.002	<0.006	86.6	Silt to clear No odor
2	82.81	94.05	1.8	6	5/5/2008	100	570	<0.002	<0.002	<0.002	<0.006	117	Silt to clear No odor
2	82.86	94.05	1.8	6	8/11/2008	108	596	<0.001	<0.001	<0.001	<0.003	94	Silt to clear No odor
2	82.75	94.05	1.8	6	11/13/2008	144	578	<0.001	<0.001	<0.001	<0.003	93.7	Silt to clear No odor
2	82.77	93.98	1.8	6	1/21/2009	104	598	<0.001	<0.001	<0.001	<0.003	95.4	Silt to clear No odor
2	82.69	93.98	1.8	6	4/22/2009	108	621	<0.001	<0.001	<0.001	<0.003	89.8	Silt to clear No odor
2	82.61	93.98	1.8	6	7/20/2009	144	628	<0.001	<0.001	<0.001	<0.003	95.4	Silt to clear No odor
2	82.58	93.98	1.8	6	10/13/2009	108	641	<0.001	<0.001	<0.001	<0.003	78.9	Silt to clear No odor
2	82.4	93.67	1.8	6	1/19/2010	116	605	<0.001	<0.001	<0.001	<0.003	105	Silt to clear No odor
2	82.37	93.67	1.8	6	4/15/2010	112	625	<0.001	<0.001	<0.001	<0.003	91.2	Silt to clear No odor
2	82.32	93.67	1.8	6	7/20/2010	116	596	<0.001	<0.001	<0.001	<0.003	74.2	Silt to clear No odor
2	82.23	93.67	1.8	6	10/15/2010	116	609	<0.001	<0.001	<0.001	<0.003	93.9	Silt to clear No odor
2	82.18	93.7	1.8	6	1/26/2011	112	549	<0.001	<0.001	<0.001	<0.003	91.2	Silt to clear No odor
2	82.08	93.7	1.9	6	4/22/2011	112	575	<0.001	<0.001	<0.001	<0.003	89.7	Silt to clear No odor
2	82.05	93.7	1.9	6	7/29/2011	112	601	<0.001	<0.001	<0.001	<0.003	75.5	Silt to clear No odor
2	82.03	93.7	1.9	6	10/24/2011	116	612	<0.001	<0.001	<0.001	<0.003	81.4	Silt to clear No odor
2	81.94	93.7	1.9	6	1/31/2012	104	603	<0.001	<0.001	<0.001	<0.003	94.9	Silt to clear No odor
2	81.93	93.7	1.9	6	5/3/2012	112	607	<0.001	<0.001	<0.001	<0.003	96	Silt to 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	81.88	93.7	1.9	6	7/25/2012	112	592	<0.001	<0.001	<0.001	<0.003	82	Silt to clear No odor
2	81.77	93.7	1.9	6	10/24/2012	96	564	<0.001	<0.001	<0.001	<0.003	79	Silt to clear No odor
2	81.72	93.7	1.9	6	3/26/2013	108	583	<0.001	<0.001	<0.001	<0.003	91	Silt to clear No odor
2	81.73	93.7	1.9	6	4/24/2013	104	560	<0.001	<0.001	<0.001	<0.003	101	Silt to clear No odor
2	81.69	93.7	1.9	6	7/30/2013	104	583	<0.001	<0.001	<0.001	<0.003	122	Silt to clear No odor
2	81.59	93.7	1.9	6	10/23/2013	104	551	<0.001	<0.001	<0.001	<0.003	90	Silt to clear No odor
2	81.48	93.7	2	6	2/7/2014	120	581	<0.001	<0.001	<0.001	<0.003	101	Silt to clear No odor
2	81.64	93.7	1.9	6	4/10/2014	104	568	<0.001	<0.001	<0.001	<0.003	96.6	Silt to clear No odor
2	81.46	93.7	2	6	7/28/2014	112	588	<0.001	<0.001	<0.001	<0.003	85.1	Silt to clear No odor
2	81.52	93.7	1.9	6	10/30/2014	100	504	<0.001	<0.001	<0.001	<0.003	71	Silt to clear No odor
2	81.44	93.7	2	6	2/9/2015	108	602	<0.001	<0.001	<0.001	<0.003	83	Silt to clear No odor
2	81.52	93.7	1.9	6	4/23/2015	92	628	<0.001	<0.001	<0.001	<0.003	86	Silt to clear No odor
2	81.33	93.7	1.98	6	7/31/2015	128	694	<0.001	<0.001	<0.001	<0.003	84	Silt to clear No odor
2	81.31	93.7	1.98	6	10/26/2015	120	622	<0.001	<0.001	<0.001	<0.003	65	Silt to clear No odor
2	81.17	93.7	2	6	1/29/2016	60	620	<0.001	<0.001	<0.001	<0.003	140	Silt to clear No odor
2	81.13	93.7	2	6	4/22/2016	112	582	<0.001	<0.001	<0.001	<0.003	101	Silt to clear No odor
2	81.15	93.7	2	6	7/22/2016	112	646	<0.001	<0.001	<0.001	<0.003	79	Silt to clear No odor
2	81.08	93.7	2	6	10/26/2016	128	592	<0.001	<0.001	<0.001	<0.003	102	Silt to clear No odor
2	81.12	93.7	2	6	2/6/2017	128	632	<0.001	<0.001	<0.001	<0.003	102	Silt to clear No odor
2	81.04	93.7	2	6	4/12/2017	136	670	<0.001	<0.001	<0.001	<0.003	95	Silt to clear No odor
2	80.98	93.7	2	6	7/27/2017	132	646	<0.001	<0.001	<0.001	<0.003	89	Silt to clear No odor
2	81	93.7	2	6	10/23/2017	148	676	<0.001	<0.001	<0.001	<0.003	107	Silt to clear No odor
2	80.85	93.7	2.1	6	1/17/2018	140	652	<0.001	<0.001	<0.001	<0.003	109	Silt to clear No odor
2	80.88	93.7	2.1	6	4/27/2018	140	614	<0.001	<0.001	<0.001	<0.003	116	Silt to clear No odor
2	80.78	93.7	2.1	6	8/3/2018	148	630	<0.001	<0.001	<0.001	<0.003	91.5	Silt to clear No odor
2	80.72	93.7	2.1	6	11/2/2018	140	586	<0.001	<0.001	<0.001	<0.003	103	Silt to clear No odor
2	80.68	93.7	2.1	6	2/5/2019	128	646	<0.001	<0.001	<0.001	<0.003	122	Silt to clear No odor
2	80.69	93.7	2.1	6	4/23/2019	112	562	<0.001	<0.001	<0.001	<0.003	101	Silt to clear No odor

мw	Depth to	Total	Well	Volume	Sample Date	C	TDS	Benzene	Toluene	Ethyl	Total	Sulfato	Comments
	Water	Depth	Volume	Purged	Sample Date	C	103	Delizene	Toluelle	Benzene	Xylenes	Sunate	comments
2	80.64	93.7	2.1	6	7/25/2019	108	596	<0.001	<0.001	<0.001	<0.003	115	Silt to clear No odor
2	80.6	93.7	2.1	6	10/25/2019	120	603	<0.001	<0.001	<0.001	<0.003	93	Silt to clear No odor

	Depth to	Total	Well	Volume	6 I D I	c	TDC		 	Ethyl	Total		
MW	Water	Depth	Volume	Purged	Sample Date	Cl	TDS	Benzene	Toluene	Benzene	Xylenes	Sulfate	Comments
3	86.45	94.6	1.3	5	11/13/2006	148	622	<0.001	<0.001	<0.001	<0.001	97.6	Silt to clear No odor
3	86.41	94.5	1.3	5	3/8/2007	199	678	<0.001	<0.001	<0.001	<0.001	103	Silt to clear No odor
3	86.35	94.5	1.3	6	4/23/2007	145	674	<0.001	<0.001	<0.001	<0.001	92.1	Silt to clear No odor
3	86.23	94.5	1.3	6	9/14/2007	170	710	<0.001	<0.001	<0.001	<0.003	151	Silt to clear No odor
3	86.19	94.5	1.3	6	10/31/2007	156	689	<0.002	<0.002	<0.002	<0.006	106	Silt to clear No odor
3	86.09	94.35	1.3	6	2/15/2008	160	668	<0.002	<0.002	<0.002	<0.006	110	Silt to clear No odor
3	85.89	94.35	1.4	6	5/5/2008	160	710	<0.002	<0.002	<0.002	<0.006	166	Silt to clear No odor
3	85.94	94.35	1.3	6	8/11/2008	172	691	<0.001	<0.001	<0.001	<0.003	117	Silt to clear No odor
3	85.84	94.35	1.4	6	11/13/2008	168	711	<0.001	<0.001	<0.001	<0.003	124	Silt to clear No odor
3	85.84	94.2	1.3	6	1/21/2009	164	713	<0.001	<0.001	<0.001	<0.003	116	Silt to clear No odor
3	85.76	94.2	1.4	6	4/22/2009	168	730	<0.001	<0.001	<0.001	<0.003	108	Silt to clear No odor
3	85.64	94.2	1.4	6	7/20/2009	172	718	<0.001	<0.001	<0.001	<0.003	107	Silt to clear No odor
3	85.63	94.2	1.4	6	10/13/2009	168	688	<0.001	<0.001	<0.001	<0.003	94.1	Silt to clear No odor
3	85.52	94.58	1.4	6	1/19/2010	176	729	<0.001	<0.001	<0.001	<0.003	108	Silt to clear No odor
3	85.46	94.58	1.5	6	4/15/2010	180	708	<0.001	<0.001	<0.001	<0.003	108	Silt to clear No odor
3	85.38	94.58	1.5	6	7/20/2010	192	706	<0.001	<0.001	<0.001	<0.003	89.5	Silt to clear No odor
3	85.33	94.58	1.5	6	10/15/2010	188	675	<0.001	<0.001	<0.001	<0.003	87.7	Silt to clear No odor
3	85.29	94.61	1.5	6	1/26/2010	188	696	<0.001	<0.001	<0.001	<0.003	114	Silt to clear No odor
3	85.15	94.61	1.5	6	4/22/2011	208	719	<0.001	<0.001	<0.001	<0.003	111	Silt to clear No odor
3	85.11	94.61	1.5	6	7/29/2011	224	743	<0.001	<0.001	<0.001	<0.003	74.7	Silt to clear No odor
3	85.07	94.61	1.5	6	10/24/2011	252	765	<0.001	<0.001	<0.001	<0.003	101	Silt to clear No odor
3	85.04	94.61	1.5	6	1/31/2012	196	728	<0.001	<0.001	<0.001	<0.003	101	Silt to clear No odor
3	84.64	94.61	1.6	6	5/3/2012	272	824	<0.001	<0.001	<0.001	<0.003	104	Silt to 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	84.9	94.61	1.6	6	7/25/2012	184	723	< 0.001	<0.001	< 0.001	<0.003	109	Silt to clear No odor
3	84.82	94.61	1.6	6	10/24/2012	124	617	<0.001	<0.001	<0.001	<0.003	96	Silt to clear No odor
3	84.81	94.61	1.6	6	3/26/2013	220	751	<0.001	<0.001	<0.001	<0.003	109	Silt to clear No odor
3	84.78	94.61	1.6	6	4/24/2013	208	741	<0.001	<0.001	<0.001	<0.003	128	Silt to clear No odor
3	84.77	94.61	1.6	6	7/30/2013	188	725	<0.001	<0.001	<0.001	<0.003	167	Silt to clear No odor
3	84.63	94.61	1.6	6	10/23/2013	228	733	<0.001	<0.001	<0.001	<0.003	116	Silt to clear No odor
3	84.54	94.61	1.6	6	2/7/2014	220	748	<0.001	<0.001	<0.001	<0.003	106	Silt to clear No odor
3	84.66	94.61	1.6	6	4/10/2014	152	622	<0.001	<0.001	<0.001	<0.003	121	Silt to clear No odor
3	84.48	94.61	1.6	6	7/28/2014	188	636	<0.001	<0.001	<0.001	<0.003	89.8	Silt to clear No odor
3	84.34	94.61	1.6	6	10/30/2014	144	656	<0.001	<0.001	<0.001	<0.003	92	Silt to clear No odor
3	84.47	94.61	1.6	6	2/9/2015	120	646	<0.001	<0.001	<0.001	<0.003	109	Silt to clear No odor
3	84.54	94.61	1.6	6	4/23/2015	268	814	<0.001	<0.001	<0.001	<0.003	79	Silt to clear No odor
3	84.35	94.61	1.64	6	7/31/2015	156	608	<0.001	<0.001	<0.001	<0.003	76	Silt to clear No odor
3	84.34	94.61	1.64	6	10/26/2015	120	892	<0.001	<0.001	<0.001	<0.003	240	Silt to clear No odor
3	84.21	94.61	1.7	6	1/29/2016	72	590	<0.001	<0.001	<0.001	<0.003	150	Silt to clear No odor
3	84.19	94.61	1.7	6	4/22/2016	152	696	<0.001	<0.001	<0.001	<0.003	112	Silt to clear No odor
3	84.18	94.61	1.7	6	7/22/2016	204	784	<0.001	<0.001	<0.001	<0.003	109	Silt to clear No odor
3	84.14	94.61	1.7	6	10/26/2016	196	740	<0.001	<0.001	<0.001	<0.003	115	Silt to clear No odor
3	84.18	94.61	1.7	6	2/6/2017	200	852	< 0.001	<0.001	<0.001	<0.003	117	Silt to clear No odor
3	84.11	94.61	1.7	6	4/12/2017	140	694	<0.001	<0.001	<0.001	<0.003	96	Silt to clear No odor
3	84.04	94.61	1.7	6	7/27/2017	152	700	<0.001	<0.001	<0.001	<0.003	95	Silt to clear No odor
3	84.07	94.61	1.7	6	10/23/2017	136	650	<0.001	<0.001	<0.001	<0.003	113	Silt to clear No odor
3	83.91	94.61	1.7	6	1/17/2018	144	652	<0.001	<0.001	<0.001	<0.003	107	Silt to clear No odor
3	83.93	94.61	1.7	6	4/27/2018	164	726	<0.001	<0.001	<0.001	<0.003	119	Silt to clear No odor
3	83.83	94.61	1.7	6	8/3/2018	148	630	<0.001	<0.001	<0.001	<0.003	103	Silt to clear No odor
3	83.76	94.61	1.7	6	11/2/2018	176	450	<0.001	<0.001	<0.001	<0.003	106	Silt to clear No odor
3	83.72	94.61	1.7	6	2/5/2019	120	586	<0.001	<0.001	<0.001	<0.003	114	Silt to clear No odor
3	83.74	94.61	1.7	6	4/23/2019	120	580	<0.001	<0.001	<0.001	<0.003	98	Silt to clear No odor
3	83.69	94.61	1.7	6	7/25/2019	136	634	<0.001	<0.001	<0.001	<0.003	124	Silt to clear No odor
3	83.65	94.61	1.7	6	10/25/2019	120	564	<0.001	<0.001	<0.001	<0.003	94	Silt to clear No odor





February 12, 2019

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

RE: BD K-4 RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 02/07/19 15:55.

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/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.

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. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	02/07/2019	Sampling Date:	02/05/2019
Reported:	02/12/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H900490-01)

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	02/10/2019	ND	0.023	114	0.0200	2.40	
Toluene*	<0.001	0.001	02/10/2019	ND	0.022	108	0.0200	1.01	
Ethylbenzene*	<0.001	0.001	02/10/2019	ND	0.022	108	0.0200	0.235	
Total Xylenes*	<0.003	0.003	02/10/2019	ND	0.067	112	0.0600	0.952	
Total BTEX	<0.006	0.006	02/10/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 %	81.3-12	8						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	156	4.00	02/11/2019	ND	104	104	100	3.77	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	123	25.0	02/12/2019	ND	22.9	115	20.0	6.39	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	620	5.00	02/12/2019	ND	524	99.4	527	2.58	

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	02/07/2019	Sampling Date:	02/05/2019
Reported:	02/12/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H900490-02)

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	02/10/2019	ND	0.023	114	0.0200	2.40	
Toluene*	<0.001	0.001	02/10/2019	ND	0.022	108	0.0200	1.01	
Ethylbenzene*	<0.001	0.001	02/10/2019	ND	0.022	108	0.0200	0.235	
Total Xylenes*	<0.003	0.003	02/10/2019	ND	0.067	112	0.0600	0.952	
Total BTEX	<0.006 0.006		02/10/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID			8						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	128	4.00	02/11/2019	ND	104	104	100	3.77	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	122	25.0	02/12/2019	ND	22.9	115	20.0	6.39	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	646	5.00	02/12/2019	ND	524	99.4	527	2.58	

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	02/07/2019	Sampling Date:	02/05/2019
Reported:	02/12/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #3 (H900490-03)

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	02/10/2019	ND	0.023	114	0.0200	2.40	
Toluene*	<0.001	0.001	02/10/2019	ND	0.022	108	0.0200	1.01	
Ethylbenzene*	<0.001	0.001	02/10/2019	ND	0.022	108	0.0200	0.235	
Total Xylenes*	<0.003	0.003	02/10/2019	ND	0.067	112	0.0600	0.952	
Total BTEX	<0.006 0.006		02/10/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 %	6 81.3-12	8						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	120	4.00	02/11/2019	ND	104	104	100	3.77	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	114	25.0	02/12/2019	ND	22.9	115	20.0	6.39	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	586	5.00	02/12/2019	ND	524	99.4	527	2.58	

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the sample identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

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May 02, 2019

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

RE: BD K-4 RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 04/25/19 14:51.

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/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.

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. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	04/25/2019	Sampling Date:	04/23/2019
Reported:	05/02/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H901493-01)

ВТЕХ 8021В	• 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	04/27/2019	ND	0.021	104	0.0200	1.04	
Toluene*	<0.001	0.001	04/27/2019	ND	0.021	107	0.0200	0.520	
Ethylbenzene*	< 0.001	0.001	04/27/2019	ND	0.020	102	0.0200	0.0147	
Total Xylenes*	<0.003	0.003	04/27/2019	ND	0.062	103	0.0600	1.67	
Total BTEX	<0.006 0.006		04/27/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	98.0 9	% 81.3-12	8						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	156	4.00	04/30/2019	ND	108	108	100	3.77	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	119	25.0	05/01/2019	ND	20.5	103	20.0	12.7	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	562	5.00	05/02/2019	ND	562	107	527	15.7	

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	04/25/2019	Sampling Date:	04/23/2019
Reported:	05/02/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H901493-02)

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	04/27/2019	ND	0.021	104	0.0200	1.04	
Toluene*	<0.001	0.001	04/27/2019	ND	0.021	107	0.0200	0.520	
Ethylbenzene*	<0.001	0.001	04/27/2019	ND	0.020	102	0.0200	0.0147	
Total Xylenes*	<0.003	0.003	04/27/2019	ND	0.062	103	0.0600	1.67	
Total BTEX	<0.006 0.006 e (PID 98.6 % 81.3-128		04/27/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	98.6 9	81.3-12	8						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	112	4.00	04/30/2019	ND	108	108	100	3.77	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	101	25.0	05/01/2019	ND	20.5	103	20.0	12.7	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	562	5.00	05/02/2019	ND	562	107	527	15.7	

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	04/25/2019	Sampling Date:	04/23/2019
Reported:	05/02/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #3 (H901493-03)

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	04/27/2019	ND	0.021	104	0.0200	1.04	
Toluene*	<0.001	0.001	04/27/2019	ND	0.021	107	0.0200	0.520	
Ethylbenzene*	<0.001	0.001	04/27/2019	ND	0.020	102	0.0200	0.0147	
Total Xylenes*	<0.003	0.003	04/27/2019	ND	0.062	103	0.0600	1.67	
Total BTEX	<0.006 0.006 e (PID 97.6 % 81.3-128		04/27/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	97.6 9	81.3-12	8						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	120	4.00	04/30/2019	ND	108	108	100	3.77	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	98.3	25.0	05/01/2019	ND	20.5	103	20.0	12.7	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	580	5.00	05/02/2019	ND	562	107	527	15.7	

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Celey D. Keene, Lab Director/Quality Manager



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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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

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Tel (575) 39 Fax (575) 39	3-2326 Calul 3-2476	114					a	U.			3,		IC.						LA	во	rder	ID #	¥								-			
Company Name: RICE Opera	ating Company		RICE		Com			nna	nv			PO#				-				F		ALY	SIS	R	EQ	UE	ST							
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	Street, City, Zip) eet ~ Hobbs, New Mexico 88240		(575	1 30	Phor							Fax#:	1207	-1471					0.7						5									
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(575) 393-9		(575) 397-	147	1			/	7	1	,						(C35		6010															
Project #:	Project Name: BD K-4 Release					/		1	1		2						papus		e Hg	611.20														
Project Location: T22S R37E	Sec4 K ~ Lea County New Mex	kico			Sam	pler {	Signatu	re:	Roz	anne	e Joh	insen (575)63	1-9310	_		5 Exte		r Pb S						25					03)				urs
			Y METHOD											IPLIN	G		TX100		OPO					4	70C/6				1	3. HO		s		24 Hours
LAB #	FIELD CODE	C)omp	MATHOD SAMPLING											1B/602	B/602	418.1/TX1005 / TX1005 Extended (C35)	0	s Ag As Ba	les	Volatiles	cides		8260B/62	ni. Vol. 82	2/608	8081A/608	Ha .	ontent	a, Mg, Na, SO4. CO:		Ived Solid		d Time ~ 2	
LAB USE ONLY	8	(G)rab or ((G)rab or (C)omp # CONTAINERS WATER VVATER SOIL AIR SOIL AIR AIR SLUDGE SLUDGE SLUDGE HCL (2 40ml vOA) HCL (MTBE 8021B/602	BTEX 8021B/602	TPH 418.1	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	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 ~
1	Monitor Well #1	G	3	X				2	-			1	4/2		_	X					1	-	-											
2	Monitor Well #2	G	3	X				2				1	4/2	3 10:1	5	X																		
3	Monitor Well #3	G	3	X				2				1	4/2	3 12:1	0	X															X	х	х	
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Delivered By: (Circle One)	Sample	e Condit	on Cool		Intact	T	СН	ECK		_	1																n.net	t					
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August 02, 2019

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

RE: BD K-4 RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 07/29/19 13:40.

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/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.

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. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	07/29/2019	Sampling Date:	07/25/2019
Reported:	08/02/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H902583-01)

ВТЕХ 8021В	• mg/	Ľ	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	07/31/2019	ND	0.020	101	0.0200	1.45	
Toluene*	< 0.001	0.001	07/31/2019	ND	0.021	103	0.0200	1.22	
Ethylbenzene*	< 0.001	0.001	07/31/2019	ND	0.020	97.7	0.0200	1.68	
Total Xylenes*	<0.003	0.003	07/31/2019	ND	0.060	99.5	0.0600	2.63	
Total BTEX	<0.006	0.006	07/31/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	107 9	81.3-12	8						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	156	4.00	07/30/2019	ND	104	104	100	0.00	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	131	25.0	07/31/2019	ND	18.7	93.6	20.0	0.107	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	663	5.00	08/02/2019	ND	533	101	527	2.69	

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*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	07/29/2019	Sampling Date:	07/25/2019
Reported:	08/02/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H902583-02)

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	07/31/2019	ND	0.020	101	0.0200	1.45	
Toluene*	<0.001	0.001	07/31/2019	ND	0.021	103	0.0200	1.22	
Ethylbenzene*	<0.001	0.001	07/31/2019	ND	0.020	97.7	0.0200	1.68	
Total Xylenes*	<0.003	0.003	07/31/2019	ND	0.060	99.5	0.0600	2.63	
Total BTEX	<0.006	0.006	07/31/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	105 %	6 81.3-12	8						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	108	4.00	07/30/2019	ND	104	104	100	0.00	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	115	25.0	07/31/2019	ND	18.7	93.6	20.0	0.107	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	596	5.00	08/02/2019	ND	533	101	527	2.69	

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	07/29/2019	Sampling Date:	07/25/2019
Reported:	08/02/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #3 (H902583-03)

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	07/31/2019	ND	0.020	101	0.0200	1.45	
Toluene*	<0.001	0.001	07/31/2019	ND	0.021	103	0.0200	1.22	
Ethylbenzene*	<0.001	0.001	07/31/2019	ND	0.020	97.7	0.0200	1.68	
Total Xylenes*	<0.003	0.003	07/31/2019	ND	0.060	99.5	0.0600	2.63	
Total BTEX	<0.006	0.006	07/31/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	107 9	% 81.3-12	8						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	136	4.00	07/30/2019	ND	104	104	100	0.00	
Sulfate 375.4	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	124	25.0	07/31/2019	ND	18.7	93.6	20.0	0.107	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	634	5.00	08/02/2019	ND	533	101	527	2.69	

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

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122S R37E	Sec4 K ~ Lea County New Me	XICO	-	-	H	-	4	-	DDE	SED	01/A*	TIVE	-		_		1005		SP						C/62									24 Hours
H902583		4	los	4	M		× V	-	N	SER NETI			SAN		-		05 / TX		s Ba Co		lles)B/624	. 82700		/608		t i	, Na, K) CO3 HCO3		Solids		ie ~ 24
LAB USE ONLY	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	WATER	SOIL	AIR	SLUDGE	HCL (2 40ml VOA)	HNO ₃	NaHSO ₄	H ₂ SO ₄	ICE (1-1Liter HDPE) NONE	DATE (2019)	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP 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 (CI, SO4 Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~
	Monitor Well #1	G	3	×	0	4	<u></u>	2	1	2	-	<u> </u>	7/2		_	X		e.	FF	16	F	F	₩	Ø	U	e.	ď.	m	20					
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2	Monitor Well #3	G	3	x		\vdash	+	2		\vdash		1	7/2	_	_	x	-		+	+	┢			-	-				+	+	_		X	
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November 06, 2019

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

RE: BD K-4 RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 10/31/19 13:20.

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.

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. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	10/31/2019	Sampling Date:	10/25/2019
Reported:	11/06/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H903719-01)

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	11/05/2019	ND	0.020	98.4	0.0200	0.744	
Toluene*	< 0.001	0.001	11/05/2019	ND	0.017	84.5	0.0200	3.21	
Ethylbenzene*	<0.001	0.001	11/05/2019	ND	0.018	90.9	0.0200	3.11	
Total Xylenes*	<0.003	0.003	11/05/2019	ND	0.056	93.3	0.0600	1.61	
Total BTEX	<0.006	0.006	11/05/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	98.3 S	% 74-98							
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	140	4.00	11/01/2019	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*	114	25.0	11/01/2019	ND	19.9	99.4	20.0	15.8	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	647	5.00	11/01/2019	ND	495	93.9	527	1.68	
Chloride* Sulfate 375.4 Analyte Sulfate* TDS 160.1 Analyte	140 mg/ Result 114 mg/ Result	4.00 L Reporting Limit 25.0 L Reporting Limit	11/01/2019 Analyzed Analyzed 11/01/2019 Analyzed	ND d By: AC Method Blank ND d By: AC Method Blank	104 BS 19.9 BS	104 % Recovery 99.4 % Recovery	100 True Value QC 20.0 True Value QC	3.92 RPD 15.8 RPD	

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	10/31/2019	Sampling Date:	10/25/2019
Reported:	11/06/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H903719-02)

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	11/05/2019	ND	0.020	98.4	0.0200	0.744	
Toluene*	<0.001 0.001		11/05/2019	ND	0.017	84.5	0.0200	3.21	
Ethylbenzene*	<0.001 0.001		11/05/2019	ND	0.018	90.9	0.0200	3.11	
Total Xylenes*	<0.003	0.003	11/05/2019	ND	0.056	93.3	0.0600	1.61	
Total BTEX	<0.006	0.006	11/05/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 %	6 74-98							
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	120	4.00	11/01/2019	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*	92.7	25.0	11/01/2019	ND	19.9	99.4	20.0	15.8	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	603	5.00	11/04/2019	ND	495	93.9	527	1.68	

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	10/31/2019	Sampling Date:	10/25/2019
Reported:	11/06/2019	Sampling Type:	Water
Project Name:	BD K-4 RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T22S R37E SEC4K - LEA CTY., NM		

Sample ID: MONITOR WELL #3 (H903719-03)

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	11/05/2019	ND	0.020	98.4	0.0200	0.744	
Toluene*	<0.001	0.001	11/05/2019	ND	0.017	84.5	0.0200	3.21	
Ethylbenzene*	<0.001	0.001	11/05/2019	ND	0.018	90.9	0.0200	3.11	
Total Xylenes*	<0.003	0.003	11/05/2019	ND	0.056	93.3	0.0600	1.61	
Total BTEX	<0.006	0.006	11/05/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	98.1 %	% 74-98							
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	120 4.00		11/01/2019	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*	94.2	25.0	11/01/2019	ND	19.9	99.4	20.0	15.8	
TDS 160.1	mg/	L	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	564	5.00	11/01/2019	ND	495	93.9	527	1.68	

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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.
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

Celey D. Keene, Lab Director/Quality Manager

101 East Marland - Hobbs, NM 88240 Tel (575) 393-2326 Fax (575) 393-2476 Cardinal Laboratories, Inc.											Page 1 of 1 CHAIN-OF-CUSTODY AND ANALYSIS REQUEST																						
Fax (575) 39 Company Name:										LAB Order ID #																							
RICE Operating Company				RICE Operating Company									ANALYSIS REQUEST (Circle or Specify Method No.)																				
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