

# **RICE** *Operating Company*

112 West Taylor • Hobbs, New Mexico 88240

Phone: (575) 393-9174 • Fax: (575) 397-1471

**September 8, 2020**

## **Bradford Billings**

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

RE: **Termination Request**  
**Rice Operating Company – BD SWD System**  
**BD K-4 (1R0459): UL/K, Sec. 4, T22S, R37E**

Mr. Billings:

RICE Operating Company (ROC) submits the following to address potential environmental concerns at the above referenced site in the BD Saltwater Disposal (SWD) system. 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 1 mile southwest of Eunice, New Mexico at UL/K, Sec. 4, T22S, R37E as shown on the Geographical Location Map and Area Map. Monitoring wells installed at the site confirmed groundwater is located at a depth of 83 feet below ground surface (bgs).

On February 25<sup>th</sup>, 2004, a leak was discovered 34 feet east of the K-4 junction box. According to the initial C-141 filed with the New Mexico Oil Conservation Division (NMOCD), the spill was due to a rupture of a 4-inch PVC line. Initial soil characterization was conducted at the site on July 14<sup>th</sup>, 2004, using a hollow-stem auger unit to drill one soil bore at the source. The soil bore was advanced to a depth of 80 ft bgs with soil samples collected at regular intervals. Between October 12<sup>th</sup> and October 19<sup>th</sup>, 2006, three monitoring wells (MW-1 through MW-3) were installed at the site. MW-1 was installed at the source, MW-2 was installed down-gradient, and MW-3 was installed up-gradient. Soil samples were collected at regular intervals and field screened for chlorides. MW-1 resulted in a concentration of 430 mg/kg at 85 ft bgs and 459 mg/kg at 95 ft bgs. Soil chloride concentrations in MW-2 and MW-3 were low throughout, below 115 mg/kg. On August 7<sup>th</sup>, 2007, MW-1 was plugged and replaced with a 4 inch well. The wells have been sampled quarterly since installation.

On April 23<sup>rd</sup>, 2007, ROC submitted a Corrective Action Plan (CAP) and NMOCD approved the report verbally during the December 16<sup>th</sup>, 2009, 4<sup>th</sup> quarterly meeting between NMOCD and ROC. The CAP addressed elevated levels of chloride within the soil which included the

September 8, 2020

placement of an infiltration barrier at 3 ft bgs and reseeded the disturbed area with native vegetation. In addition, the CAP proposed limited withdrawal of groundwater from MW-1 to address the chlorides within the well.

Beginning February 22<sup>nd</sup>, 2010, the site was excavated to a depth of 4 ft bgs and a 68x120-ft liner was installed in the bottom of the excavation. Blended backfill soils were placed over the 20-mil liner. Clean soil was imported to the site to continue backfilling. Imported hay was blended with the existing excavated topsoil, placed over the site, and used to backfill the site to ground surface. Silt net fencing was placed around the site and the site was reseeded with native vegetation. A Soil Closure Request summarizing this liner installation details was submitted on October 10<sup>th</sup>, 2012. NMOCD granted Soil Closure on October 11<sup>th</sup>, 2012.

Beginning September 3<sup>rd</sup>, 2009, groundwater has been removed periodically from the existing 4 inch well (MW-1). Since recovery began, approximately 40,179.4 gallons of groundwater have been removed and subsequently utilized for a beneficial use. Due to the current climate, and in interest of safety, ROC requested NMOCD approval to suspend groundwater recovery in 2020. NMOCD granted approval on April 22<sup>nd</sup>, 2020. Quarterly monitoring well sampling results indicate the site chloride and TDS concentrations have overall decreased in MW-1 and have remained below 250 mg/L for eight consecutive quarters. Chloride concentrations remain below 250 mg/L in MW-2 and MW-3. BTEX concentration have remained below detectable limits since the wells were installed.

### **Recommendations**

ROC has completed the vadose zone remediation as approved by NMOCD in the CAP, and Soil Closure was granted on October 11<sup>th</sup>, 2012. The 20-mil reinforced liner will inhibit the further migration of any residual chloride through the vadose zone into groundwater. The groundwater monitoring results have remained below WQCC standards for eight consecutive quarters. As such, ROC respectfully requests termination of the regulatory file. ROC acknowledges they have met the requirements of 19.15.29 NMAC and a final C-141 is attached. Upon NMOCD approval of this Termination Request, the monitoring wells (MW-1, MW-2, and MW-3) will be plugged using a cement grout with 1 to 3% bentonite and a 3-ft cap of cement at the surface.

ROC appreciates the opportunity to work with you on this project. Please call me at (575) 393-9174 or Edward Hansen at (505) 920-4965 if you have any questions or wish to discuss the site.

Sincerely,

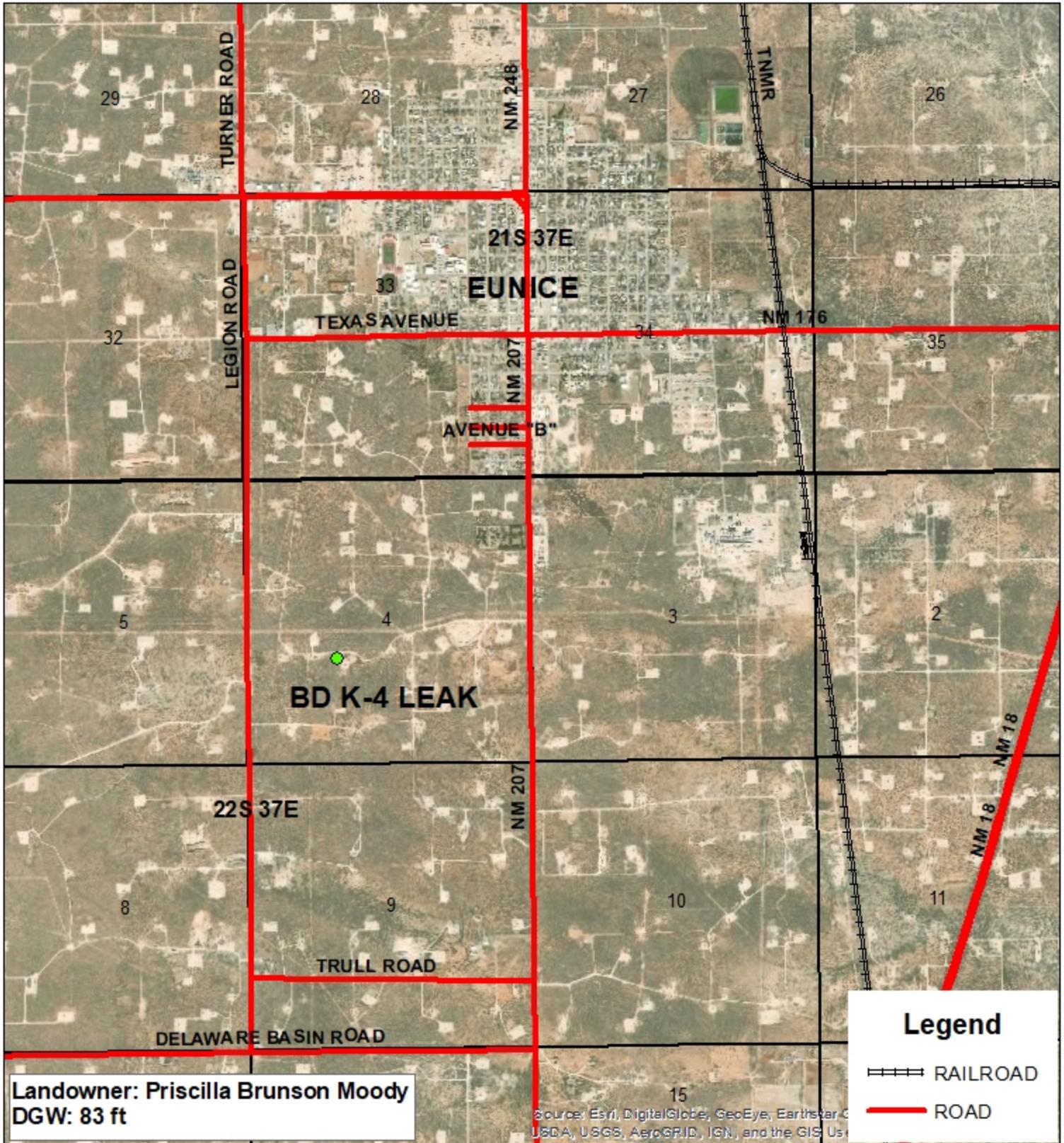


Katie Davis  
Environmental Manager  
RICE Operating Company

Appendix

# Figures

**RICE Operating Company**  
112 West Taylor, Hobbs, NM 88240  
Phone 575.393.9174



Landowner: Priscilla Brunson Moody  
 DGW: 83 ft

**Legend**

- RAILROAD
- ROAD



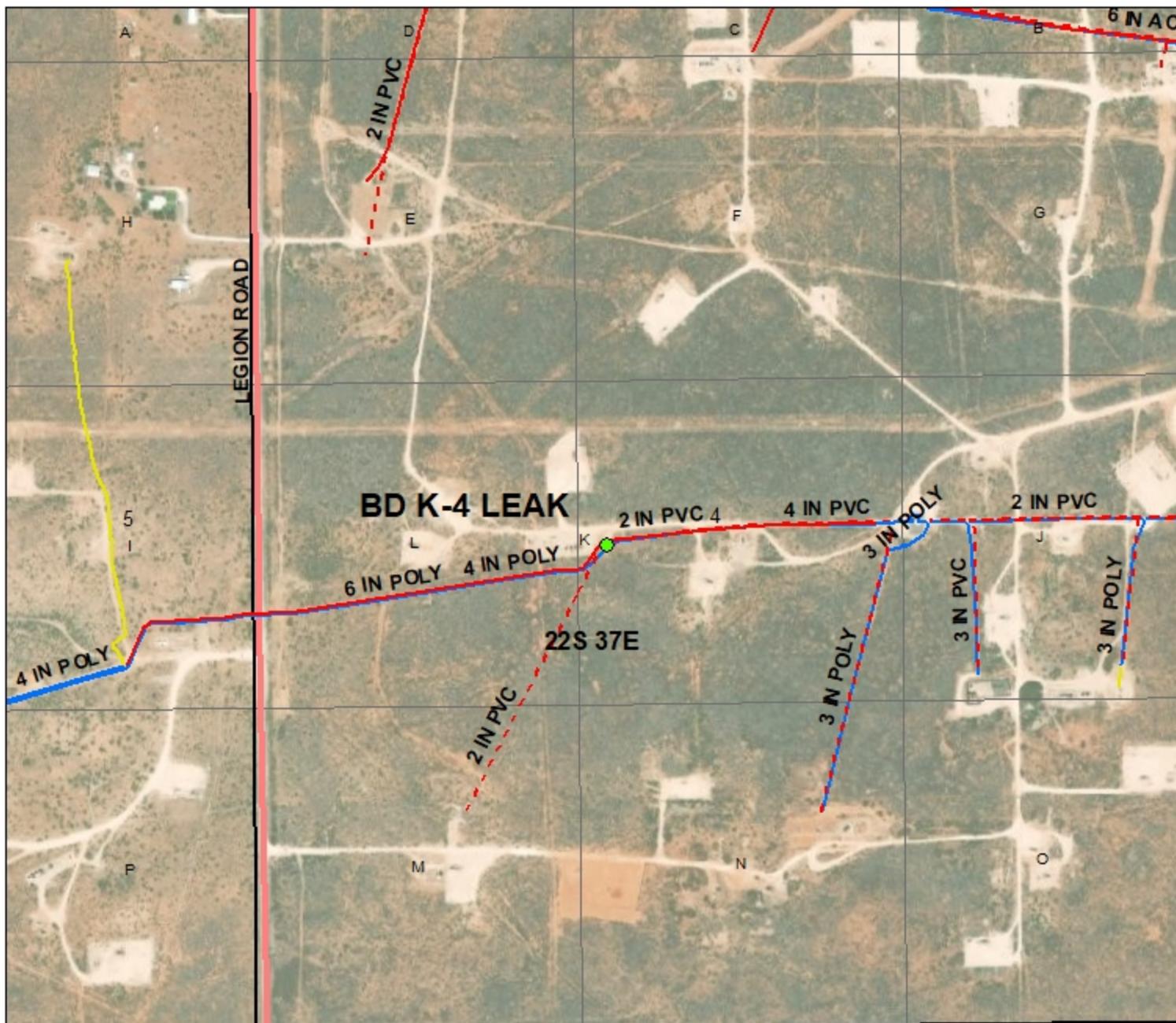
**BD**  
**K-4 LEAK**  
 1R0459

UL/K SECTION 4  
 T-22-S R-37-E  
 LEA COUNTY, NM

GPS: 32.419088 -103.171969  
 NAD83 STATE PLANE PROJ  
 NM EAST ZONE

0 0.25 0.5  
 Miles

Drawing date: 2/3/20  
 Drafted by: T. Grieco



Landowner: Priscilla Brunson Moody  
 DGW: 83 ft

Source: Esri, DigitalGlobe, USDA, USGS, AeroGRID

**Legend**

- ROC ACTIVE LINE
- ROC ISOLATED LINE PROJECTED
- CUSTOMER LINE ACTIVE
- ROC ISOLATED LINE LOCATED
- ROAD



**BD**  
**K-4 LEAK**  
 1R0459

UL/K SECTION 4  
 T-22-S R-37-E  
 LEA COUNTY, NM

GPS: 32.419088 -103.171969  
 NAD83 STATE PLANE PROJ.  
 NM EAST ZONE

0 500 1,000  
 Feet

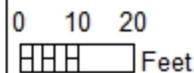
Drawing date: 8/14/20  
 Drafted by: T. Grieco



**BD**  
**K-4 LEAK**  
1R0459

UL/K SECTION 4  
T-22-S R-37-E  
LEA COUNTY, NM

GPS: 32.419088 -103.171969  
NAD83 STATE PLANE PROJ.  
NM EAST ZONE



Drawing date: 8/25/20  
Drafted by: T. Grieco



# Monitoring Well Sampling

**RICE Operating Company**  
112 West Taylor, Hobbs, NM 88240  
Phone 575.393.9174

## ROC - BD K-4 (1R-459)

## Unit Letter K, Section 4, T22S, R37E

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	XXX	XXX	XXX	XXX	8/7/2007	XXX	XXX	XXX	XXX	XXX	XXX	XXX	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

## ROC - BD K-4 (1R-459)

## Unit Letter K, Section 4, T22S, R37E

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
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

**ROC - BD K-4 (1R-459)**  
**Unit Letter K, Section 4, T22S, R37E**

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	83.44	98.4	9.7	100	2/18/2020	140	658	<0.0005	<0.0005	<0.0005	<0.002	125	Clear No odor
1	83.5	98.4	9.7	100	5/27/2020	132	626	XXX	XXX	XXX	XXX	102	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	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

## ROC - BD K-4 (1R-459)

## Unit Letter K, Section 4, T22S, R37E

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
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

## ROC - BD K-4 (1R-459)

## Unit Letter K, Section 4, T22S, R37E

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
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
2	80.57	93.7	2.1	6	2/18/2020	116	573	<0.0005	<0.0005	<0.0005	<0.002	122	Silt to clear No odor
2	80.62	93.7	2.1	6	5/27/2020	104	556	XXX	XXX	XXX	XXX	97	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	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

## ROC - BD K-4 (1R-459)

## Unit Letter K, Section 4, T22S, R37E

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
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
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

**ROC - BD K-4 (1R-459)  
Unit Letter K, Section 4, T22S, R37E**

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
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
3	83.63	94.61	1.8	6	2/18/2020	128	617	<0.0005	<0.0005	<0.0005	<0.002	106	Silt to clear No odor
3	83.7	94.71	1.7	6	5/27/2020	132	509	XXX	XXX	XXX	XXX	108	Silt to clear No odor



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

---

August 16, 2018

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 08/06/18 12:26.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	08/06/2018	Sampling Date:	08/03/2018
Reported:	08/16/2018	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 (H802133-01)**

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	08/08/2018	ND	0.023	113	0.0200	6.27	
Toluene*	<0.001	0.001	08/08/2018	ND	0.023	113	0.0200	9.13	
Ethylbenzene*	<0.001	0.001	08/08/2018	ND	0.023	114	0.0200	8.97	
Total Xylenes*	<0.003	0.003	08/08/2018	ND	0.068	113	0.0600	8.73	
Total BTEX	<0.006	0.006	08/08/2018	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*	200	4.00	08/08/2018	ND	100	100	100	0.00	

Sulfate 375.4		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	113	25.0	08/07/2018	ND	19.9	99.4	20.0	3.27	

TDS 160.1		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	780	5.00	08/10/2018	ND	500	94.9	527	1.42	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	08/06/2018	Sampling Date:	08/03/2018
Reported:	08/16/2018	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 (H802133-02)**

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	08/08/2018	ND	0.023	113	0.0200	6.27	
Toluene*	<0.001	0.001	08/08/2018	ND	0.023	113	0.0200	9.13	
Ethylbenzene*	<0.001	0.001	08/08/2018	ND	0.023	114	0.0200	8.97	
Total Xylenes*	<0.003	0.003	08/08/2018	ND	0.068	113	0.0600	8.73	
Total BTEX	<0.006	0.006	08/08/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 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*	148	4.00	08/08/2018	ND	100	100	100	0.00	

Sulfate 375.4		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	91.5	25.0	08/07/2018	ND	19.9	99.4	20.0	3.27	

TDS 160.1		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	630	5.00	08/10/2018	ND	500	94.9	527	1.42	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	08/06/2018	Sampling Date:	08/03/2018
Reported:	08/16/2018	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 (H802133-03)**

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	08/08/2018	ND	0.023	113	0.0200	6.27	
Toluene*	<0.001	0.001	08/08/2018	ND	0.023	113	0.0200	9.13	
Ethylbenzene*	<0.001	0.001	08/08/2018	ND	0.023	114	0.0200	8.97	
Total Xylenes*	<0.003	0.003	08/08/2018	ND	0.068	113	0.0600	8.73	
Total BTEX	<0.006	0.006	08/08/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 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*	148	4.00	08/08/2018	ND	100	100	100	0.00	

Sulfate 375.4		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	103	25.0	08/07/2018	ND	19.9	99.4	20.0	3.27	

TDS 160.1		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	630	5.00	08/10/2018	ND	500	94.9	527	1.42	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

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

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager





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

---

November 15, 2018

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 11/07/18 14:50.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	11/07/2018	Sampling Date:	11/02/2018
Reported:	11/15/2018	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 (H803215-01)**

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	11/07/2018	ND	0.020	101	0.0200	0.104	
Toluene*	<0.001	0.001	11/07/2018	ND	0.019	96.4	0.0200	0.826	
Ethylbenzene*	<0.001	0.001	11/07/2018	ND	0.018	90.1	0.0200	1.11	
Total Xylenes*	<0.003	0.003	11/07/2018	ND	0.058	97.4	0.0600	0.783	
Total BTEX	<0.006	0.006	11/07/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.4 % 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*	156	4.00	11/10/2018	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*	113	25.0	11/09/2018	ND	20.4	102	20.0	8.63	

TDS 160.1		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	562	5.00	11/13/2018	ND	556	106	527	5.07	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	11/07/2018	Sampling Date:	11/02/2018
Reported:	11/15/2018	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 (H803215-02)**

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	11/07/2018	ND	0.020	101	0.0200	0.104	
Toluene*	<0.001	0.001	11/07/2018	ND	0.019	96.4	0.0200	0.826	
Ethylbenzene*	<0.001	0.001	11/07/2018	ND	0.018	90.1	0.0200	1.11	
Total Xylenes*	<0.003	0.003	11/07/2018	ND	0.058	97.4	0.0600	0.783	
Total BTEX	<0.006	0.006	11/07/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.6 % 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*	140	4.00	11/10/2018	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*	103	25.0	11/09/2018	ND	20.4	102	20.0	8.63	

TDS 160.1		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	586	5.00	11/13/2018	ND	556	106	527	5.07	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	11/07/2018	Sampling Date:	11/02/2018
Reported:	11/15/2018	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 (H803215-03)**

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	11/07/2018	ND	0.020	101	0.0200	0.104	
Toluene*	<0.001	0.001	11/07/2018	ND	0.019	96.4	0.0200	0.826	
Ethylbenzene*	<0.001	0.001	11/07/2018	ND	0.018	90.1	0.0200	1.11	
Total Xylenes*	<0.003	0.003	11/07/2018	ND	0.058	97.4	0.0600	0.783	
Total BTEX	<0.006	0.006	11/07/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.5 % 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*	176	4.00	11/10/2018	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*	106	25.0	11/09/2018	ND	20.4	102	20.0	8.63	

TDS 160.1		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	450	5.00	11/13/2018	ND	556	106	527	5.07	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Notes and Definitions**

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

\*=Accredited Analyte

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





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

---

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/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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		Analyzed 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 % 81.3-128

Chloride, SM4500Cl-B		mg/L		Analyzed 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		Analyzed 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		Analyzed 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

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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		Analyzed 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 % 81.3-128

Chloride, SM4500Cl-B		mg/L		Analyzed 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		Analyzed 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		Analyzed 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

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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		Analyzed 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 % 81.3-128

Chloride, SM4500Cl-B		mg/L		Analyzed 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		Analyzed 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		Analyzed 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	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

\*=Accredited Analyte

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

*Celey D. Keene*

Celey D. Keene, Lab Director/Quality Manager





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

---

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/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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)**

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	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 % 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*	156	4.00	04/30/2019	ND	108	108	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*	119	25.0	05/01/2019	ND	20.5	103	20.0	12.7	

TDS 160.1		mg/L		Analyzed 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	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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		Analyzed 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) 98.6 % 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*	112	4.00	04/30/2019	ND	108	108	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*	101	25.0	05/01/2019	ND	20.5	103	20.0	12.7	

TDS 160.1		mg/L		Analyzed 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	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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		Analyzed 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) 97.6 % 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*	120	4.00	04/30/2019	ND	108	108	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*	98.3	25.0	05/01/2019	ND	20.5	103	20.0	12.7	

TDS 160.1		mg/L		Analyzed 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	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

\*=Accredited Analyte

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

*Celey D. Keene*

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)

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

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

Project #: \_\_\_\_\_ Project Name: **BD K-4 Release**

Project Location: **T22S R37E Sec4 K ~ Lea County New Mexico** Sampler Signature: *Rozanne Johnson* (575)631-9310

### ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX				PRESERVATIVE METHOD				SAMPLING		
				WATER	SOIL	AIR	SLUDGE	HCL (2.40ml VOA)	HNO <sub>3</sub>	NaHSO <sub>4</sub>	H <sub>2</sub> SO <sub>4</sub>	ICE (1-Liter HDPE)	NONE	DATE (2019)
<b>1</b>	Monitor Well #1	G	3	X				2				1	4/23	14:50
<b>2</b>	Monitor Well #2	G	3	X				2				1	4/23	10:15
<b>3</b>	Monitor Well #3	G	3	X				2				1	4/23	12:10

MTBE 8021B/602	
BTEX 8021B/602	X
TPH 418.1/TX1005 / TX1005 Extended (C35)	
PAH 8270C	
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
TCLP Pesticides	
RCI	
GC/MS Vol. 8260B/624	
GC/MS Semi. Vol. 8270C/625	
PCB's 8082/608	
Pesticides 8081A/608	
BOD, TSS, pH	
Moisture Content	
Cations (Ca, Mg, Na, K)	
Anions (Cl, SO <sub>4</sub> , CO <sub>3</sub> , HCO <sub>3</sub> )	
Sulfates	X
Total Dissolved Solids	X
Chlorides	X
Turn Around Time ~ 24 Hours	

Relinquished by: *Rozanne Johnson* Date: **4/25/2019** Time: **14:50**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received By: (Laboratory Staff) *Rozanne Johnson* Date: **4/25/19** Time: **14:51**

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

Sample Condition: Cool  Yes Intact  Yes

Checked By: *[Signature]* (Initials)

Phone Results: Yes  No

Fax Results: Yes  No  Additional Fax Number: \_\_\_\_\_

REMARKS:

Email Results: [kjones@riceswd.com](mailto:kjones@riceswd.com)  
[rozanne11@windstream.net](mailto:rozanne11@windstream.net)



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

---

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/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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)**

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	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 % 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*	156	4.00	07/30/2019	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*	131	25.0	07/31/2019	ND	18.7	93.6	20.0	0.107	

TDS 160.1		mg/L		Analyzed 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	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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		Analyzed 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 % 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*	108	4.00	07/30/2019	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*	115	25.0	07/31/2019	ND	18.7	93.6	20.0	0.107	

TDS 160.1		mg/L		Analyzed 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	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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		Analyzed 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 % 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*	136	4.00	07/30/2019	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*	124	25.0	07/31/2019	ND	18.7	93.6	20.0	0.107	

TDS 160.1		mg/L		Analyzed 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

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Notes and Definitions**

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

\*=Accredited Analyte

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





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

---

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/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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		Analyzed 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 % 74-98

Chloride, SM4500Cl-B		mg/L		Analyzed 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		Analyzed 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		Analyzed 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	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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		Analyzed 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 % 74-98

Chloride, SM4500Cl-B		mg/L		Analyzed 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		Analyzed 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		Analyzed 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

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	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		Analyzed 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		Analyzed 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		Analyzed 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		Analyzed 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	

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

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

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager





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

---

March 03, 2020

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 02/24/20 14:22.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	02/24/2020	Sampling Date:	02/18/2020
Reported:	03/03/2020	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 (H000575-01)**

BTEX 8260B		mg/L		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.0005	0.0005	02/26/2020	ND	0.019	92.6	0.0200	2.19		
Toluene*	<0.0005	0.0005	02/26/2020	ND	0.020	98.6	0.0200	2.80		
Ethylbenzene*	<0.0005	0.0005	02/26/2020	ND	0.020	98.4	0.0200	4.67		
Total Xylenes*	<0.002	0.002	02/26/2020	ND	0.067	111	0.0600	3.61		
Total BTEX	<0.003	0.003	02/26/2020	ND						

Surrogate: Dibromofluoromethane 104 % 89.2-112  
 Surrogate: Toluene-d8 102 % 92-106  
 Surrogate: 4-Bromofluorobenzene 95.1 % 80.4-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	140	4.00	02/25/2020	ND	100	100	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	125	25.0	02/26/2020	ND	20.5	102	20.0	6.89		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	658	5.00	02/27/2020	ND	541	108	500	0.819		

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	02/24/2020	Sampling Date:	02/18/2020
Reported:	03/03/2020	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 (H000575-02)**

BTEX 8260B		mg/L		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.0005	0.0005	02/26/2020	ND	0.019	92.6	0.0200	2.19		
Toluene*	<0.0005	0.0005	02/26/2020	ND	0.020	98.6	0.0200	2.80		
Ethylbenzene*	<0.0005	0.0005	02/26/2020	ND	0.020	98.4	0.0200	4.67		
Total Xylenes*	<0.002	0.002	02/26/2020	ND	0.067	111	0.0600	3.61		
Total BTEX	<0.003	0.003	02/26/2020	ND						

Surrogate: Dibromofluoromethane 107 % 89.2-112  
 Surrogate: Toluene-d8 103 % 92-106  
 Surrogate: 4-Bromofluorobenzene 95.7 % 80.4-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	116	4.00	02/25/2020	ND	100	100	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	122	25.0	02/26/2020	ND	20.5	102	20.0	6.89		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	573	5.00	02/26/2020	ND	541	108	500	0.819		

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	02/24/2020	Sampling Date:	02/18/2020
Reported:	03/03/2020	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 (H000575-03)**

BTEX 8260B		mg/L		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene	<0.0005	0.0005	02/28/2020	ND	0.019	92.8	0.0200	3.68		
Toluene	<0.0005	0.0005	02/28/2020	ND	0.020	97.6	0.0200	6.84		
Ethylbenzene	<0.0005	0.0005	02/28/2020	ND	0.021	103	0.0200	6.05		
Total Xylenes	<0.002	0.002	02/28/2020	ND	0.065	108	0.0600	5.88		
Total BTEX	<0.003	0.003	02/28/2020	ND						

Surrogate: Dibromofluoromethane 101 % 89.2-112  
 Surrogate: Toluene-d8 102 % 92-106  
 Surrogate: 4-Bromofluorobenzene 94.4 % 80.4-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	128	4.00	02/25/2020	ND	100	100	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	106	25.0	02/26/2020	ND	20.5	102	20.0	6.89		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	617	5.00	02/26/2020	ND	541	108	500	0.819		

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

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

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene

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**

Project Manager:  
**Katie Jones**

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

Phone #:  
**(575) 393-9174**

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

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

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

Project #: \_\_\_\_\_ Project Name:  
**BD K-4 Release**

Project Location:  
**T22S R37E Sec4 K ~ Lea County New Mexico**

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

### ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX				PRESERVATIVE METHOD					SAMPLING				
				WATER	SOIL	AIR	SLUDGE	HCL (2.40ml VOA)	HNO <sub>3</sub>	NaHSO <sub>4</sub>	H <sub>2</sub> SO <sub>4</sub>	ICE (1-1Liter HDPE)	NONE	DATE (2020)	TIME		
<i>H000575</i>																	
<i>1</i>	Monitor Well #1	G	3	X				2			1	2/18	15:40				
<i>2</i>	Monitor Well #2	G	3	X				2			1	2/18	11:05				
<i>3</i>	Monitor Well #3	G	3	X				2			1	2/18	13:20				

MTBE 8021B/602	
BTEX 8021B/602	X
TPH 418.1/TX1005 / TX1005 Extended (C35)	
PAH 8270C	
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
TCLP Pesticides	
RCI	
GC/MS Vol. 8260B/624	
GC/MS Semi. Vol. 8270C/625	
PCB's 8082/608	
Pesticides 8081A/608	
BOD, TSS, pH	
Moisture Content	
Cations (Ca, Mg, Na, K)	
Anions (Cl, SO <sub>4</sub> , CO <sub>3</sub> , HCO <sub>3</sub> )	
Sulfates	X
Total Dissolved Solids	X
Chlorides	X
Turn Around Time ~ 24 Hours	

Relinquished by: *Rozanne Johnson* Date: *2-24-2019* Time: *14:22*

Received by: *Samara Blakely* Date: *2-24-20* Time: *14:22*

Phone Results: Yes  No

Fax Results: Yes  No  Additional Fax Number: \_\_\_\_\_

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

Sample Condition: Cool  Intact

CHECKED BY: *RP*

REMARKS:  
 Email Results: [kjones@riceswd.com](mailto:kjones@riceswd.com)  
[rozanne11@windstream.net](mailto:rozanne11@windstream.net)



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

---

June 04, 2020

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 06/01/20 14:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	06/01/2020	Sampling Date:	05/27/2020
Reported:	06/04/2020	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 (H001476-01)**

Chloride, SM4500Cl-B		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride*</b>	<b>132</b>	4.00	06/02/2020	ND	104	104	100	0.00		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Sulfate*</b>	<b>102</b>	25.0	06/02/2020	ND	20.1	101	20.0	0.890		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>TDS*</b>	<b>626</b>	5.00	06/03/2020	ND	540	108	500	0.777		

**Sample ID: MONITOR WELL #2 (H001476-02)**

Chloride, SM4500Cl-B		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride*</b>	<b>104</b>	4.00	06/02/2020	ND	104	104	100	0.00		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Sulfate*</b>	<b>97.0</b>	25.0	06/02/2020	ND	20.1	101	20.0	0.890		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>TDS*</b>	<b>556</b>	5.00	06/03/2020	ND	540	108	500	0.777		

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	06/01/2020	Sampling Date:	05/27/2020
Reported:	06/04/2020	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 (H001476-03)**

Chloride, SM4500Cl-B		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride*</b>	<b>132</b>	4.00	06/02/2020	ND	104	104	100	0.00		
Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Sulfate*</b>	<b>108</b>	25.0	06/02/2020	ND	20.1	101	20.0	0.890		
TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>TDS*</b>	<b>509</b>	5.00	06/03/2020	ND	540	108	500	0.777		

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Notes and Definitions**

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

\*=Accredited Analyte

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 samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



# Current Photos

**RICE Operating Company**  
112 West Taylor, Hobbs, NM 88240  
Phone 575.393.9174

**BD K-4 (1R0459)  
Unit K, Section 4, T22S, R37E**



Facing northwest

7/15/2020



Facing southwest

7/15/2020



Facing west-southwest

7/15/2020

# Final C-141

**RICE Operating Company**  
112 West Taylor, Hobbs, NM 88240  
Phone 575.393.9174

Incident ID	nRM2025442645
District RP	1R0459
Facility ID	
Application ID	pLWP0532653000

## Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist:** *Each of the following items must be included in the closure report.*

- A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Katie Davis Title: Environmental Manager

Signature: Bradford Billings for Katie Davis Date: 9/8/2020

email: kjones@riceswd.com Telephone: 575-393-9174 *Bradford Billings*

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: *Bradford Billings* Date: 12/08/2021

Printed Name: Bradford Bilings Title: Envi.Seqc.A

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

**District II**  
 811 S. First St., Artesia, NM 88210  
 Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**  
 1220 S. St Francis Dr., Santa Fe, NM 87505  
 Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 10060

**CONDITIONS**

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID: 19174
	Action Number: 10060
	Action Type: [C-141] Release Corrective Action (C-141)

**CONDITIONS**

Created By	Condition	Condition Date
bbillings	P&A wells as per OSE regulations.	12/8/2021