

1R - 500

REPORTS

DATE:

10-23-12

# RICE *Operating Company*

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October 23, 2012

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

RE: Groundwater Remediation Report  
BD N-18 BGT (1R-500): UL/N, Sec. 18, T22S, R37E  
RICE Operating Company – Blinebry-Drinkard SWD System

Mr. Hansen:

Rice Operating Company (ROC) is the service provider (agent) for the BD Saltwater Disposal (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**

Rice Operating Company utilized Palmer of Texas to complete an integrity test of the two below-grade tanks at the BD N-18 SWD system in July 2009 and ROC completed a preliminary soils investigation in October 2009. The tanks were found to have integrity, and based on analysis of soils near and adjacent to the tanks, it was concluded that the hydrocarbon found in the excavated soils was from surface overflow rather than tank leakage.

Between October 5 and December 21, 2010, ROC personnel were onsite to oversee the installation of eight soil bores and three monitor wells (MW-1 through MW-3) located within, up and down gradient of the former tank location. These wells have been sampled on a quarterly basis since installation. Quarterly monitoring well sampling confirmed that an up-gradient source is contributing to the degradation of groundwater quality.

On July 1, 2011, ROC submitted a Corrective Action Plan (CAP) for the site and was approved by NMOCD on July 13, 2011. The CAP addressed elevated levels of chlorides within the soil which included placement of a barrier at 30 feet bgs, a second liner at 5 feet bgs, and importing caliche for pad repair. In addition, the CAP proposed a chloride mass

removal from MW-1. NMOCD's approval requires ROC to recalculate the amount of groundwater to be recovered (based on the chloride concentration in the recovered groundwater) on a bi-weekly basis; as well as, recover a sufficient amount of groundwater to remove the calculated amount of chloride as specified in the plan or to create a significant reduction in chloride concentration in the groundwater, whichever occurs later. (However, if the chloride concentration in the groundwater at the site is reduced to the background concentration, then no further groundwater recovery will be required.).

#### SOIL

Beginning November 2011, the site was excavated to a depth of 27 ft bgs, where rock was encountered. A CAP Addendum was submitted to NMOCD requesting to install the liner at 27 ft bgs, which NMOCD approved on January 23, 2012. The bottom of the excavation was padded with six inches of blow sand, and a 98 ft x 98 ft liner was installed and properly seated. The liner was then padded with six inches of blow sand and the site was backfilled with blended soil to 5 feet bgs. At 5 feet bgs, a second 108 ft x 108 ft liner was installed with a blow sand pad below and above the liner. The remainder of the excavation was backfilled with blended soil. Clean caliche was imported to the site to complete backfill, contour the site to the surrounding area and repair the pad. ROC submitted a CAP Progress Report on March 6, 2012 and received NMOCD approval and Soil Closure on June 26, 2012.

#### GROUNDWATER

In the CAP, ROC proposed a chloride mass removal of 1,927 kg from the near-source well (MW-1). Beginning June 7, 2012, the well has been pumped on a weekly basis. Since groundwater recovery began, approximately 1,302 barrels of groundwater or approximately 962 kg of chloride have been recovered and subsequently utilized for pipeline and well maintenance.

The vadose zone remediation portion of the CAP is completed. However, ROC will continue the groundwater remedy by pumping a total of 1,927 kg of chlorides from the site. Once the groundwater pumping program is completed, ROC will submit a written report which will include a request for 'remediation termination' and the closure of the regulation file.

Please contact me at (575)393-9174 if you have any questions or wish to discuss this site. Thank you for your time and consideration.

Sincerely,  
RICE Operating Company



Hack Conder  
Environmental Manager

**Hansen, Edward J., EMNRD**

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**From:** Hack Conder <hconder@riceswd.com>  
**Sent:** Tuesday, October 30, 2012 4:39 PM  
**To:** Hansen, Edward J., EMNRD  
**Subject:** FW: BD N-18 BGT (1R-500) Monthly, Quarterly Monitor Well Data  
**Attachments:** BD N-18 BGT (1R-500) Monthly, Quarterly Monitor Well Data.pdf

Edward Hansen ,

Attach is the MW data For N-18 BGT.

Hack

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**From:** Laura Pena  
**Sent:** Tuesday, October 30, 2012 4:05 PM  
**To:** Hack Conder  
**Subject:** BD N-18 BGT (1R-500) Monthly, Quarterly Monitor Well Data

**BD N-18 BGT (1R-500)**

Unit Letter N, Section 18, T22S, R37E

Depth to Groundwater: 101'

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	101.17	146.3	29.3	90	1/14/2011	2400	4110	<0.001	<0.001	<0.001	<0.003	343	clear no odor
1	101.15	146.3	29.3	90	5/11/2011	3100	5450	<0.001	<0.001	<0.001	<0.003	195	clear no odor
1	101.09	146.3	29.4	90	8/1/2011	4350	7770	<0.001	<0.001	<0.001	<0.003	474	clear no odor
1	101.05	146.3	29.4	90	10/28/2011	4550	7610	<0.001	<0.001	<0.001	<0.003	563	clear no odor
1	101.04	146.3	29.4	90	2/21/2012	4450	8110	<0.001	<0.001	<0.001	<0.003	578	clear no odor
1	101.1	146.3	29.4	90	5/4/2012	5100	9340	<0.001	<0.001	<0.001	<0.003	607	clear no odor
1					6/21/2012	5400							Monthly pumping sample
1	XXX	146.3	0	running	7/26/2012	4450	7700	<0.001	<0.001	<0.001	<0.003	509	clear no odor; Monthly pumping sample
1					8/16/2012	5100							Monthly pumping sample
1					9/19/2012	4650							Monthly pumping sample

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	101.85	115.27	2.1	8	1/14/2011	1220	2490	<0.001	<0.001	<0.001	<0.003	480	clear no odor
2	101.84	115.27	2.1	8	5/11/2011	1450	3210	<0.001	<0.001	<0.001	<0.003	480	clear no odor
2	101.79	115.27	2.2	8	8/1/2011	1460	3330	<0.001	<0.001	<0.001	<0.003	503	clear no odor
2	101.8	115.27	2.2	8	10/28/2011	1600	3300	<0.001	<0.001	<0.001	<0.003	508	clear no odor
2	101.77	115.27	2.2	8	2/21/2012	1400	3210	<0.001	<0.001	<0.001	<0.003	476	clear no odor
2	101.91	115.27	2.1	8	5/4/2012	1360	3110	<0.001	<0.001	<0.001	<0.003	427	clear no odor
2	101.78	115.27	2.2	8	7/26/2012	1340	3430	<0.001	<0.001	<0.001	<0.003	455	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	99.08	116.55	2.8	10	1/14/2011	1720	3040	<0.001	<0.001	<0.001	<0.003	391	clear no odor
3	99.08	116.55	2.8	10	5/11/2011	1400	2840	<0.001	<0.001	<0.001	<0.003	302	clear no odor/no change in water depth
3	99.04	116.55	2.8	10	8/1/2011	1720	3490	<0.001	<0.001	<0.001	<0.003	289	clear no odor/no change in depth to water
3	99.02	116.55	2.8	10	10/28/2011	1680	3350	<0.001	<0.001	<0.001	<0.003	375	clear no odor/no change in depth to water
3	98.97	116.55	2.8	10	2/21/2012	1360	3090	<0.001	<0.001	<0.001	<0.003	381	clear no odor/no change in depth to water
3	99.01	116.55	2.8	10	5/4/2012	1360	3110	<0.001	<0.001	<0.001	<0.003	427	clear no odor/no change in depth to water
3	98.98	116.55	2.8	10	7/26/2012	1640	3420	<0.001	<0.001	<0.001	<0.003	368	clear no odor/no change in depth to water