

1R - 426-09

**Annual GW Mon.  
REPORTS**

**DATE:**

2010



**TETRA TECH**

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March 25, 2011

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

**Re: 2010 Annual Groundwater Summary Report & Project Status Report, Rice Operating Company, Blinebry Drinkard (BD) SWD System H-19 Vent, Unit H, Section 19, T-21-S, R-37-E, Lea County, New Mexico, NMOCD CASE #1R0426-09**

Mr. Hansen:

Tetra Tech Inc. (Tetra Tech) takes this opportunity to submit the 2010 Annual Groundwater Summary Report for the Rice Operating Company (ROC), Blinebry Drinkard (BD) SWD System H-19 Vent. This report consists of the following sections:

1. A figure presenting the location of the monitoring wells and most recent groundwater sampling results.
2. A table summarizing all laboratory results and depths to groundwater at the site, including the current year (2010).
3. A graph showing the concentration of chlorides, total dissolved solids (TDS), and sulfates over time.
4. Laboratory results for the most recent groundwater sampling event.

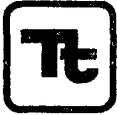
On February 25, 2010, seven soil borings (SB-2 through SB-8) along with two monitor wells (MW-2 and MW-3) were installed to further delineate the site. A Corrective Action Plan (CAP) was submitted to the NMOCD on January 5, 2011. The CAP proposed placement of a 50' x 50' x 4' deep 20 mil liner and a mass calculation to remove approximately 13,405 gallons of chloride impacted groundwater from the first available recovery system located at BD O-23 vent or BD O-23-1 vent. ROC is currently further delineating soils at this site to verify the proposed liner dimensions. As such, ROC proposes to continue quarterly monitoring at the site for 2011.

ROC is the service provider (agent) for the BD Salt Water Disposal System and has no ownership of any portion of the pipeline, well or facility. The BD SWD system is owned

Tetra Tech

1910 North Big Spring, Midland, TX 79705

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**TETRA TECH**

by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

Thank you for your consideration of this annual summary information. If you have any questions, please contact me at (432) 682-4559, or Hack Conder of ROC at (575) 393-9174.



Respectfully Submitted,  
Tetra Tech, Inc.

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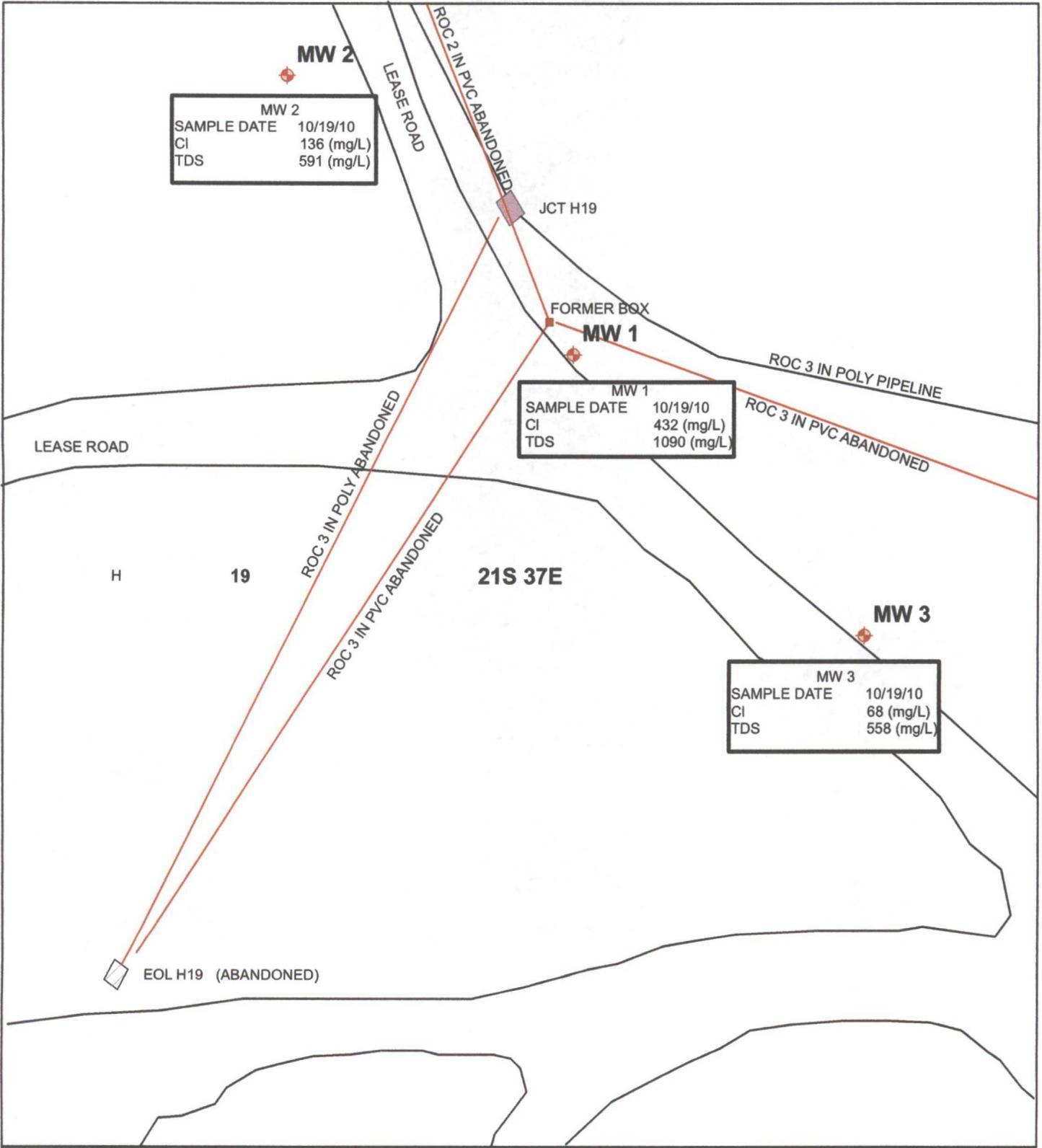
Jeffrey Kindley, P.G.  
Senior Environmental Geologist

cc: Hack Conder – ROC

Enclosures: Figure, Tables, Graphs, and Lab Results

**FIGURES**

# MONITOR WELL SAMPLING DATA

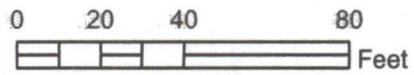


## BD H-19 VENT

Legals: UL/H SEC 19  
T-21-S R-37-E

Case #: 1R426-09

FIGURE 1



Drawing date: 3/9/11  
Drafted by: TONY GRIECO

**TABLES**

Table 1  
 Rice Operating Company  
 BD H-19 Vent  
 Lea County, New Mexico

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl mg/L	TDS mg/L	Benzene mg/L	Toluene mg/L	Ethyl Benzene mg/L	Total Xylenes mg/L	Sulfate mg/L	Comments
1	120.78	137.25	2.60	10	04/23/08	516	1270	<0.001	<0.001	<0.001	<0.003	106	Clear no odor
1	120.96	137.25	2.60	10	07/08/08	560	1400	<0.001	<0.001	<0.001	<0.006	95.5	Clear no odor
1	120.92	137.25	2.60	10	10/09/08	468	1210	<0.001	<0.001	<0.001	<0.003	86	Clear no odor
1	120.89	137.19	2.60	10	01/12/09	492	1240	<0.001	<0.001	<0.001	<0.003	91	Clear no odor
1	120.87	137.19	2.60	10	04/20/09	444	1160	<0.001	<0.001	<0.001	<0.003	86.3	Clear no odor
1	120.93	137.19	2.60	10	07/24/09	530	1310	<0.001	<0.001	<0.001	<0.003	82.4	Clear no odor
1	120.92	137.19	2.60	10	10/15/09	476	1130	<0.001	<0.001	<0.001	<0.003	82.4	Clear no odor
1	120.90	137.15	2.60	10	01/21/10	464	1180	<0.001	<0.001	<0.001	<0.003	95.3	Clear no odor
1	120.90	137.15	2.60	10	04/21/10	450	1150	<0.001	<0.001	<0.001	<0.003	97	Sand to clear
1	120.93	137.15	2.60	10	07/22/10	460	1150	<0.001	<0.001	<0.001	<0.003	76.2	Sand to clear
1	120.88	137.15	2.60	10	10/19/10	432	1090	<0.001	<0.001	<0.001	<0.003	82	Sand to clear

Graph 1  
 Rice Operating Company  
 MW-1  
 BD H-19 Vent  
 Lea County, New Mexico

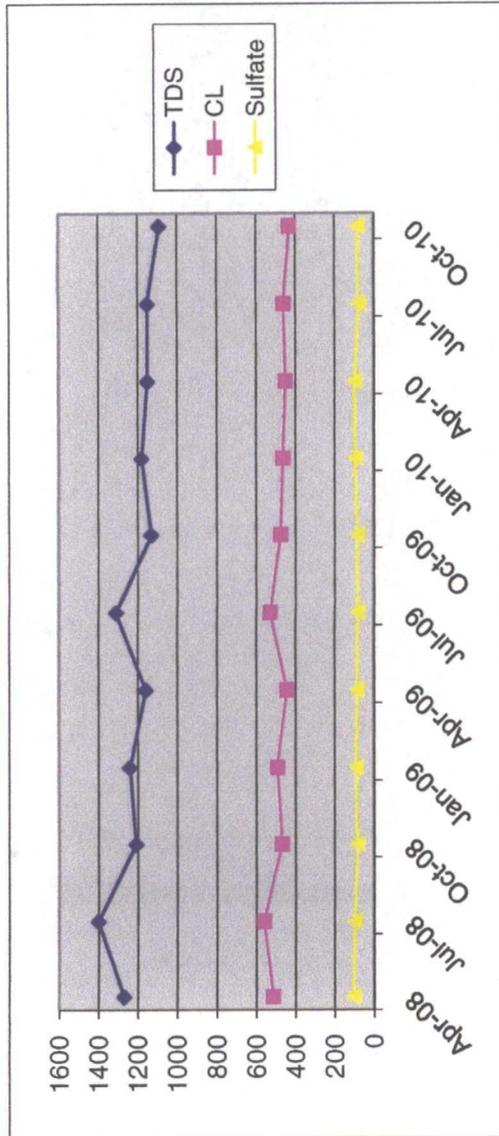


Table 2  
 Rice Operating Company  
 BD H-19 Vent  
 Lea County, New Mexico

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl mg/L	TDS mg/L	Benzene mg/L	Toluene mg/L	Ethyl Benzene mg/L	Total Xylenes mg/L	Sulfate mg/L	Comments
2	121.50	135.85	2.30	10	04/21/10	280	808	<0.001	<0.001	<0.001	<0.003	67	Sand to clear
2	121.53	135.85	2.30	10	07/22/10	300	853	<0.001	<0.001	<0.001	<0.003	65	Sand to clear
2	121.58	135.85	2.30	10	10/19/10	136	591	<0.001	<0.001	<0.001	<0.003	66.2	Sand to clear

Graph 2  
 Rice Operating Company  
 MW-2  
 BD H-19 Vent  
 Lea County, New Mexico

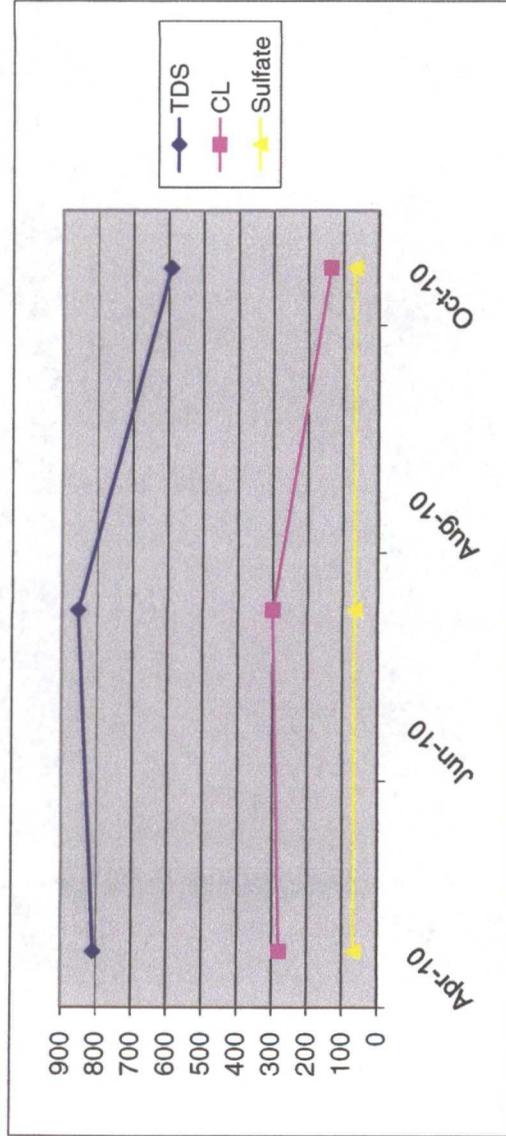
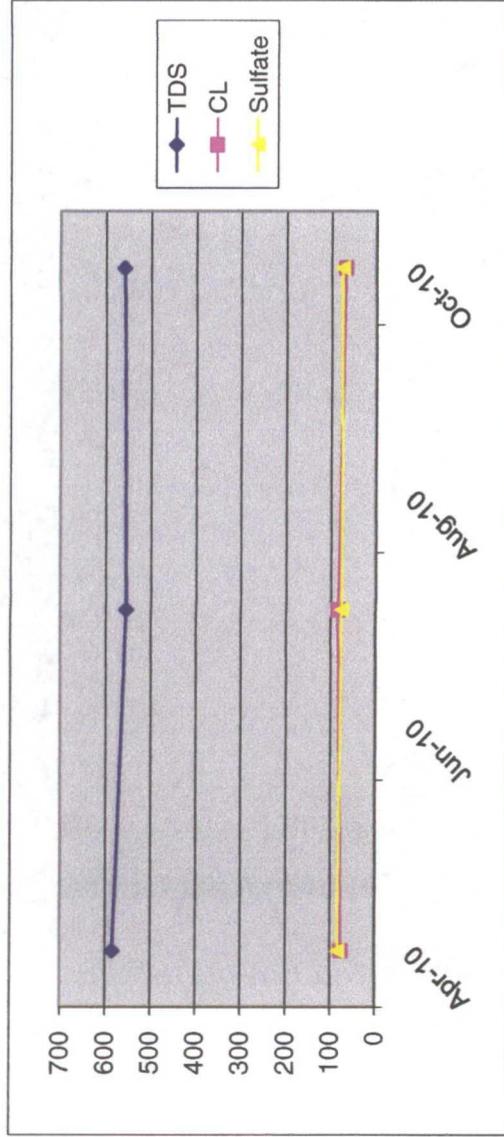


Table 3  
 Rice Operating Company  
 BD H-19 Vent  
 Lea County, New Mexico

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl mg/L	TDS mg/L	Benzene mg/L	Toluene mg/L	Ethyl Benzene mg/L	Total Xylenes mg/L	Sulfate mg/L	Comments
3	119.97	134.31	2.30	10	04/21/10	76	584	<0.001	<0.001	<0.001	<0.003	83	Sand to clear
3	120.09	134.31	2.30	10	07/22/10	84	554	<0.001	<0.001	<0.001	<0.003	75.5	Sand to clear
3	120.11	134.31	2.30	10	10/19/10	68	558	<0.001	<0.001	<0.001	<0.003	75	Sand to clear

Graph 3  
 Rice Operating Company  
 MW-3  
 BD H-19 Vent  
 Lea County, New Mexico



**APPENDIX A**



October 28, 2010

Hack Conder  
Rice Operating Company  
112 W. Taylor  
Hobbs, NM 88240

RE: BD H-19 VENT

Enclosed are the results of analyses for samples received by the laboratory on 10/22/10 12:50.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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 (V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/22/2010	Sampling Date:	10/19/2010
Reported:	10/28/2010	Sampling Type:	Water
Project Name:	BD H-19 VENT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	T21S R37E SEC19 H - LEA CTY., NM		

**Sample ID: MONITOR WELL #1 (H021132-01)**

BTEX 8021B		mg/L		Analyzed By: cms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	10/28/2010	ND	0.027	109	0.0250		
Toluene*	<0.001	0.001	10/28/2010	ND	0.027	110	0.0250		
Ethylbenzene*	<0.001	0.001	10/28/2010	ND	0.028	113	0.0250		
Total Xylenes*	<0.003	0.003	10/28/2010	ND	0.083	111	0.0750		

Surrogate: 4-Bromofluorobenzene (PIL) 120 % 80-120

Chloride, SM4500Cl-B		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	4.00	10/26/2010	ND	100	100	100	0.00	

Sulfate 375.4		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate	82.0	10.0	10/26/2010	ND	36.8	92.0	40.0	0.319	

TDS 160.1		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS	1090	5.00	10/25/2010	ND				1.46	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/22/2010  
 Reported: 10/28/2010  
 Project Name: BD H-19 VENT  
 Project Number: NOT GIVEN  
 Project Location: T21S R37E SEC19 H - LEA CTY., NM

Sampling Date: 10/19/2010  
 Sampling Type: Water  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: MONITOR WELL #2 (H021132-02)**

BTEX 8021B		mg/L		Analyzed By: cms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	10/28/2010	ND	0.027	109	0.0250			
Toluene*	<0.001	0.001	10/28/2010	ND	0.027	110	0.0250			
Ethylbenzene*	<0.001	0.001	10/28/2010	ND	0.028	113	0.0250			
Total Xylenes*	<0.003	0.003	10/28/2010	ND	0.083	111	0.0750			

Surrogate: 4-Bromofluorobenzene (PIL) 105 % 80-120

Chloride, SM4500Cl-B		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	136	4.00	10/26/2010	ND	100	100	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate	66.2	10.0	10/26/2010	ND	36.8	92.0	40.0	0.319		

TDS 160.1		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS	591	5.00	10/25/2010	ND				1.46		

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Caley D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/22/2010  
 Reported: 10/28/2010  
 Project Name: BD H-19 VENT  
 Project Number: NOT GIVEN  
 Project Location: T21S R37E SEC19 H - LEA CTY., NM

Sampling Date: 10/19/2010  
 Sampling Type: Water  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: MONITOR WELL #3 (H021132-03)**

BTEX 80218		mg/L		Analyzed By: cms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	10/28/2010	ND	0.027	109	0.0250			
Toluene*	<0.001	0.001	10/28/2010	ND	0.027	110	0.0250			
Ethylbenzene*	<0.001	0.001	10/28/2010	ND	0.028	113	0.0250			
Total Xylenes*	<0.003	0.003	10/28/2010	ND	0.083	111	0.0750			

*Surrogate: 4-Bromofluorobenzene (PIL) 110 % 80-120*

Chloride, SM4500Cl-B		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	68.0	4.00	10/26/2010	ND	100	100	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate	75.0	10.0	10/26/2010	ND	36.8	92.0	40.0	0.319		

TDS 160.1		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS	558	5.00	10/25/2010	ND				1.46		

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

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

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

# Cardinal Laboratories, Inc.

101 East Mariend - Hobbs, New Mexico 88240  
 Tel (505) 393-2326  
 Fax (505) 393-2476

**Company Name:** RICE Operating Company  
**Project Manager:** Hack Conder  
**Address:** 122 W Taylor Street - Hobbs, New Mexico 88240  
**Phone #:** (575) 393-9174  
**Fax #:** (575) 397-1471  
**Project #:** (575) 397-1471  
**Project Name:** BD H-19 Vent

**LAB Order ID #**  
**ANALYSIS REQUEST**  
 (Circle or Specify Method No.)

**Project Location:** T21S R37E Sec19 H - Lea County New Mexico  
**Sampler Signature:** Rozanne Johnson (505) 631-9310  
**rozanne@valornet.com**

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	MATRIX	PRESERVATIVE METHOD						DATE (2010)	TIME
				HCL (2.4ml VOA)	HNO <sub>3</sub>	NaHSO <sub>4</sub>	H <sub>2</sub> SO <sub>4</sub>	ICE (1-liter HDPE)	NONE		
A-C 1	Monitor Well #1	3	WATER	2					10-19	10:10	
A-C 2	Monitor Well #2	3	AIR	2					10-19	8:55	
A-C 3	Monitor Well #3	3	SLUDGE	2					10-19	7:45	

**Relinquished by:** Rozanne Johnson 10-22-2010 11:50  
**Relinquished to:** [Signature] 10-22-2010 11:50  
**Received by:** [Signature] Date: Time:  
**Received By:** (Laboratory Staff) Date: Time: 10/22/10 12:50

**Delivered By:** (Circle One) Sample - UPS - Bus - Other  
**Checked by:** [Signature] (Initials) JH  
**Sample Condition:** Cool  Yes  No  
 Insect  Yes  No

PH 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	GCMS 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	Total Dissolved Solids	Chlorides	Turn Around Time - 24 Hours	
X																			

**REMARKS:**  
 Em Email Results to hconder@riceswd.com  
 hconder@riceswd.com  
 kiones@riceswd.com  
 rozanne@valornet.com