

1R - 426-169

Annual GW Mon. Report

Year:
2011

Rice Environmental Consulting & Safety

P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

RECEIVED OGD

CERTIFIED MAIL

RETURN RECEIPT NO. 7008 1140 0001 3070 6235

2012 APR -3 A 11: 26

March 30th, 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: 2011 Annual Groundwater Monitoring Report
Rice Operating Company – BD SWD System
BD B-29 (1R426-169): UL/B sec. 29 T21S R37E**

Mr. Hansen:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site in the BD Salt Water 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.

This 2011 Annual Groundwater Monitoring Report contains:

1. A table presenting all laboratory results and depths to groundwater for each well at the site.
2. Graphs showing the concentrations of chloride and TDS in groundwater over time.
3. A map showing the well locations.
4. The laboratory analytical results for the most recent sampling event.

Quarterly groundwater sampling will continue in 2012. The 20-mil reinforced liners will also be installed according to NMOCD approval of the CAP and CAP Addendum.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-9174 or me if you have any questions or wish to discuss the site.

Sincerely,



Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

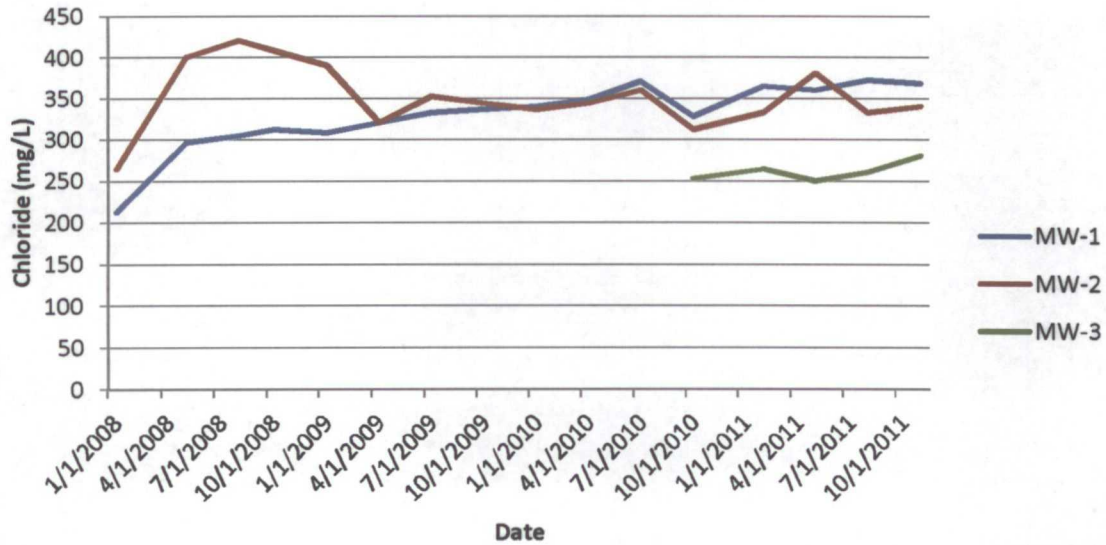
BD B-29 (1R426-169)

MW	Depth to Water	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
			(mg/L)						
MW-1	90.07	1/9/2008	212	749	<0.001	<0.001	<0.001	<0.003	128
	90.13	5/5/2008	296	1280	<0.002	<0.002	<0.002	<0.006	462
	90.35	8/12/2008	304	1380	<0.001	<0.001	<0.001	<0.003	456
	90.24	10/9/2008	312	1480	<0.001	<0.001	<0.001	<0.003	393
	90.21	1/13/2009	308	1450	<0.001	<0.001	<0.001	<0.003	479
	90.26	4/20/2009	320	1460	<0.001	<0.001	<0.001	<0.003	518
	90.29	7/27/2009	332	1450	<0.001	<0.001	<0.001	<0.003	444
	90.32	10/16/2009	336	1500	<0.001	<0.001	<0.001	<0.003	437
	90.35	1/25/2010	340	1550	<0.001	<0.001	<0.001	<0.003	502
	90.34	4/22/2010	348	1460	<0.001	<0.001	<0.001	<0.003	539
	90.32	7/21/2010	370	1470	<0.001	<0.001	<0.001	<0.003	494
	90.29	10/20/2010	328	1430	<0.001	<0.001	<0.001	<0.003	467
	90.2	2/9/2011	364	1420	<0.001	<0.001	<0.001	<0.003	433
	90.21	5/16/2011	360	1460	<0.001	<0.001	<0.001	<0.003	475
	90.16	8/4/2011	372	1530	<0.001	<0.001	<0.001	<0.003	437
	90.14	11/3/2011	368	1460	<0.001	<0.001	<0.001	<0.003	477

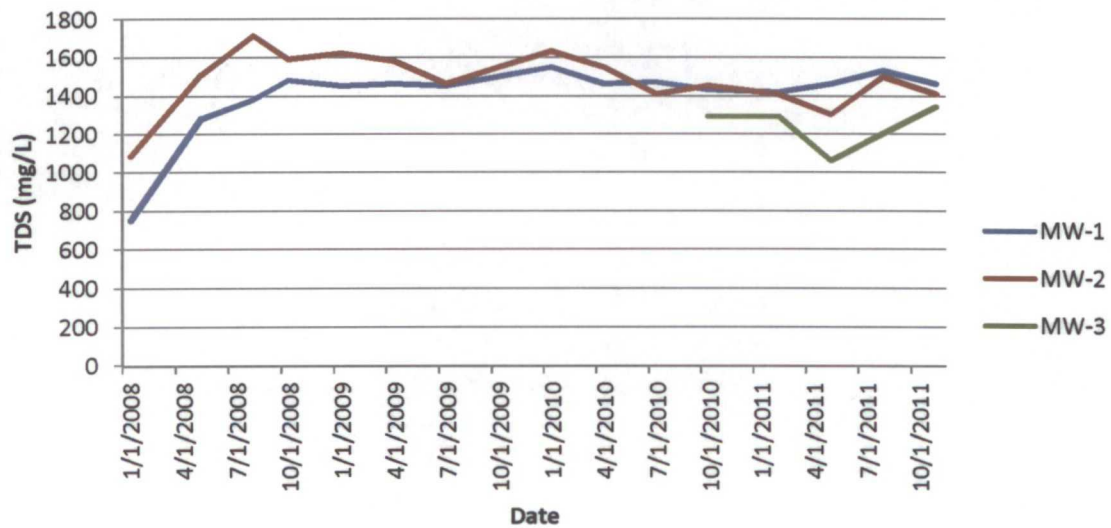
MW	Depth to Water	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
			(mg/L)						
MW-2	89.38	1/9/2008	264	1085	<0.001	<0.001	0.002	<0.003	257
	89.31	5/5/2008	400	1510	<0.002	<0.002	<0.002	<0.006	502
	89.55	8/12/2008	420	1710	<0.001	<0.001	<0.001	<0.003	432
	89.51	10/9/2008	408	1590	<0.001	<0.001	<0.001	<0.003	421
	89.48	1/13/2009	390	1620	<0.001	<0.001	<0.001	<0.003	488
	89.5	4/20/2009	320	1580	<0.001	<0.001	<0.001	<0.003	497
	89.52	7/27/2009	352	1460	<0.001	<0.001	<0.001	<0.003	444
	89.49	10/16/2009	344	1550	<0.001	<0.001	<0.001	<0.003	416
	89.56	1/25/2010	336	1630	<0.001	<0.001	<0.001	<0.003	510
	89.48	4/22/2010	344	1550	<0.001	<0.001	<0.001	<0.003	488
	89.45	7/21/2010	360	1410	<0.001	<0.001	<0.001	<0.003	473
	89.47	10/20/2010	312	1450	<0.001	<0.001	<0.001	<0.003	455
	89.38	2/9/2011	332	1410	<0.001	<0.001	<0.001	<0.003	458
	89.4	5/16/2011	380	1300	<0.001	<0.001	<0.001	<0.003	342
	89.4	8/4/2011	332	1500	<0.001	<0.001	<0.001	<0.003	451
	89.39	11/3/2011	340	1410	<0.001	<0.001	<0.001	<0.003	458

MW	Depth to Water	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
			(mg/L)						
MW-3	89.96	12/3/2010	252	1290	<0.001	<0.001	<0.001	<0.003	459
	89.9	2/9/2011	264	1290	<0.001	<0.001	<0.001	<0.003	432
	89.92	5/16/2011	250	1060	<0.001	<0.001	<0.001	<0.003	329
	89.88	8/4/2011	260	1200	<0.001	<0.001	<0.001	<0.003	469
	89.86	11/3/2011	280	1340	<0.001	<0.001	<0.001	<0.003	455

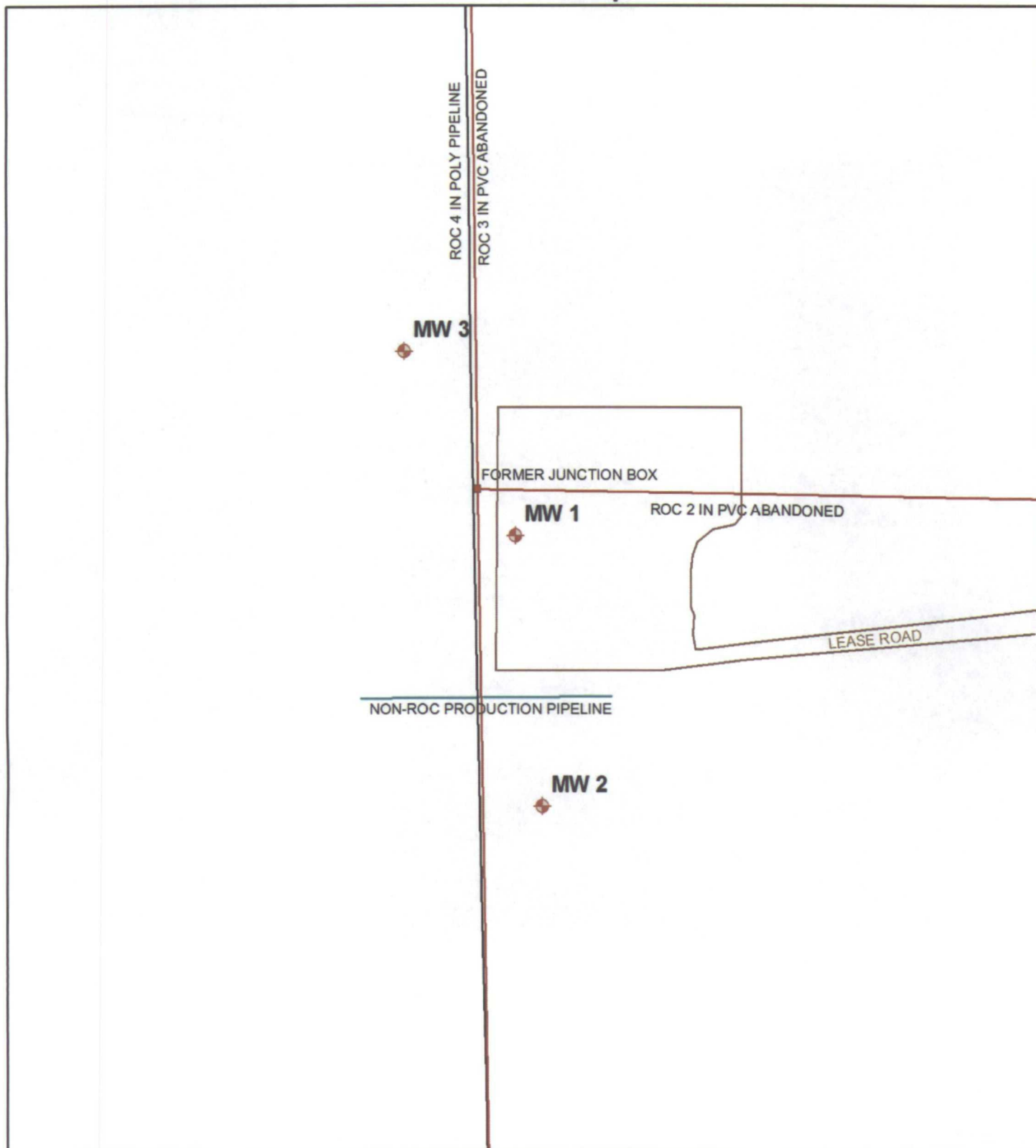
BD B-29 Chloride in Groundwater



BD B-29 TDS in Groundwater



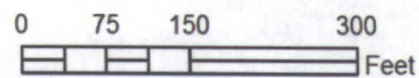
Site Map



BD B-29

Case #: 1R426-169

Legals: UL's B&C SEC. 29
T-21-S R-37-E



Drawing date: 1/4/14
Drafted by: T. Grieco, L. Weinheimer

November 14, 2011

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

RE: BD B-29 LEAK

Enclosed are the results of analyses for samples received by the laboratory on 11/07/11 13:48.

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.

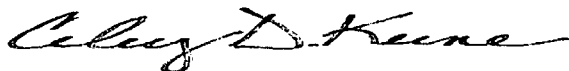
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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: 11/07/2011
 Reported: 11/14/2011
 Project Name: BD B-29 LEAK
 Project Number: BD B-29 LEAK
 Project Location: T21S R37E SEC29 B - LEA CTY., NM

 Sampling Date: 11/03/2011
 Sampling Type: Water
 Sampling Condition: Cool & Intact
 Sample Received By: Celey D. Keene

Sample ID: MONITOR WELL #1 (H102410-01)

BTEX 80218		mg/L		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	11/09/2011	ND	0.047	93.9	0.0500	3.46		
Toluene*	<0.001	0.001	11/09/2011	ND	0.046	92.6	0.0500	2.91		
Ethylbenzene*	<0.001	0.001	11/09/2011	ND	0.054	108	0.0500	3.22		
Total Xylenes*	<0.003	0.003	11/09/2011	ND	0.151	101	0.150	2.45		

Surrogate: 4-Bromofluorobenzene (PIL) 97.7 % 70.7-118

Chloride, SM4500Cl-B		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	368	4.00	11/14/2011	ND	104	104	100	3.77		

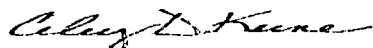
Sulfate 375.4		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate	477	10.0	11/14/2011	ND	17.2	86.0	20.0	6.61	

TDS 160.1		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS	1460	5.00	11/08/2011	ND	237	98.8	240	0.727	

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: 11/07/2011
 Reported: 11/14/2011
 Project Name: BD B-29 LEAK
 Project Number: BD B-29 LEAK
 Project Location: T21S R37E SEC29 B - LEA CTY., NM

 Sampling Date: 11/03/2011
 Sampling Type: Water
 Sampling Condition: Cool & Intact
 Sample Received By: Celey D. Keene

Sample ID: MONITOR WELL #2 (H102410-02)

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	11/09/2011	ND	0.047	93.9	0.0500	3.46	
Toluene*	<0.001	0.001	11/09/2011	ND	0.046	92.6	0.0500	2.91	
Ethylbenzene*	<0.001	0.001	11/09/2011	ND	0.054	108	0.0500	3.22	
Total Xylenes*	<0.003	0.003	11/09/2011	ND	0.151	101	0.150	2.45	

Surrogate: 4-Bromofluorobenzene (PIE) 100 % 70.7-118

Chloride, SM4500Cl-B		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	340	4.00	11/14/2011	ND	104	104	100	3.77	

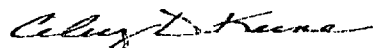
Sulfate 375.4		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate	458	10.0	11/14/2011	ND	17.2	86.0	20.0	6.61	

TDS 160.1		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS	1410	5.00	11/08/2011	ND	237	98.8	240	0.727	

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*=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:	11/07/2011	Sampling Date:	11/03/2011
Reported:	11/14/2011	Sampling Type:	Water
Project Name:	BD B-29 LEAK	Sampling Condition:	Cool & Intact
Project Number:	BD B-29 LEAK	Sample Received By:	Celey D. Keene
Project Location:	T21S R37E SEC29 B - LEA CTY., NM		

Sample ID: MONITOR WELL #3 (H102410-03)

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	11/09/2011	ND	0.047	93.9	0.0500	3.46		
Toluene*	<0.001	0.001	11/09/2011	ND	0.046	92.6	0.0500	2.91		
Ethylbenzene*	<0.001	0.001	11/09/2011	ND	0.054	108	0.0500	3.22		
Total Xylenes*	<0.003	0.003	11/09/2011	ND	0.151	101	0.150	2.45		

Surrogate: 4-Bromofluorobenzene (PII) 99.0 % 70.7-118

Chloride, SM4500Cl-B		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	280	4.00	11/14/2011	ND	104	104	100	3.77		

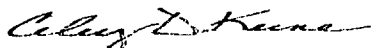
Sulfate 375.4		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate	455	10.0	11/14/2011	ND	17.2	86.0	20.0	6.61		

TDS 160.1		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS	1340	5.00	11/08/2011	ND	237	98.8	240	0.727		

Cardinal Laboratories

*=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.

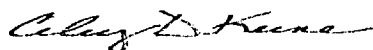
*** Insufficient time to reach temperature.

- 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

Cardinal Laboratories***=Accredited Analyte**

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Celey D. Keene, Lab Director/Quality Manager

Cardinal Laboratories, Inc. 101 East Marland - Hobbs, New Mexico 88240 Tel (575) 393-2326 Fax (575) 393-2476						CHAIN-OF-CUSTODY AND ANALYSIS REQUEST							
Company Name: RICE Operating Company						LAB Order ID # _____							
Project Manager: Hack Conder						ANALYSIS REQUEST (Circle or Specify Method No.)							
Address: 122 W Taylor Street ~ Hobbs, New Mexico 88240													
Phone #: (575) 393-9174													
Fax #: (575) 397-1471													
Project Name: BD B-29 Leak													
Project Location: T21S R37E Sec29 B ~ Lea County New Mexico													
Sampler Signature: Rozanne Johnson (575) 631-9310													
Rozanne@valornet.com													
LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	MATRIX			PRESERVATIVE METHOD				SAMPLING		TIME	Turn Around Time ~ 24 Hours
			WATER	AIR	SLUDGE	HCL (2.0ml VOA)	HNO ₃	H ₂ SO ₄	ICE (1-litter HDPE)	DATE (2011)			
1	Monitor Well #1	G	X			2		1	NONE	11-3	12:45		Chlorides X
2	Monitor Well #2	G	X			2		1		11-3	10:20		Total Dissolved Solids X
3	Monitor Well #3	G	X			2		1		11-3	8:45		Sulfates X
													Anions (Cl, SO ₄ , CO ₃ , HCO ₃) X
													Cations (Ca, Mg, Na, K) X
													Moisture Content X
													BOD, TSS, pH X
													Pesticides: 8081A/608 X
													PCBs: 8082/608 X
													GC/MS: Semi-Vol.: 8270C/625 X
													GC/MS: Vol.: 8260B/624 X
													RCI X
													TCLP Pesticides X
													TCLP Semi-Volatiles X
													TCLP Volatiles X
													TCLP Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 X
													PAH 8270C X
													TPH 418.1/TX1005 / TX1005 Extended (C35) X
													BTEX 8021B/602 X
													MTBE 8021B/602 X

Relinquished by: _____ Date: 11/7/2011 Time: 13:45		Received by: _____ Date: _____ Time: _____	
Relinquished by: Rozanne Johnson		Received By: (Laboratory Staff)	
Delivered By: (Circle One) UPS Bus Other:		Sample Condition: Cool Yes ☒ No ☐ Intact Yes ☒ No ☐	
Email Results to: hconder@riceswd.com		CHECKED BY: [Signature] (Initials) Cdh	
Additional Email: rozanne@valornet.com		Date: 11/7/11 Time: 1:48 p	