AP - 98

ANNUAL MONITORING REPORT

YEAR(S): 2012

L. Peter Galusky, Jr. Ph.D., P.G.
Texerra LLC

20055 Laredo Ln Monument, CO 80132
Tel: 719-339-6791 E-mail: lpg@texerra.com

March 28th, 2013

Mr. Edward Hansen
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

Re: **2012 Annual Report**
Rice Operating Company – Hobbs Jct. E-4
UL E, Sec 4, T19S, R38E
OCD Case No. AP-98

Sent via Certified Mail w/ Return Receipt No. 7007 2560 0001 9727 8896

Mr. Hansen:

This letter summarizes the results of groundwater monitoring over the past year for Rice Operating Company's Hobbs Jct. E-4 project. Site locations are given in Figure 1 and monitor well locations in Figure 2 (Appendix).

In summary:

- The estimated direction of groundwater flow is toward the southeast (Appendix - Figure 3) based upon water table depth measurements taken from MW-3, MW-4 and MW-5.

- Groundwater chloride concentrations remained low (< 150 mg/l) for monitor wells (MW-3, MW-4 and MW-5) encompassing the study area (Appendix - Figure 4). It thus appears that chlorides are not a concern with respect to groundwater contamination from this location.

- Oil product has been found floating on the near-source and up-gradient wells (MW-1 and MW-2 respectively) for the past 24 +/- months. Therefore, these wells have not been sampled over this period. Initial sampling of these wells yielded low concentrations of chloride but elevated concentrations of BTEX.

- Groundwater benzene and (total) BTEX concentrations have been above laboratory limits of detection in the east side-gradient well (MW-4) since October of 2008 and in the west side-gradient well (MW-5) since October of 2009. Benzene in groundwater samples from the down-gradient monitor well (MW-3) have either been below the limit of laboratory detection or below the WQCC groundwater standard (0.010 mg/l) since sampling for this began in October 2008 with a single exception of a measured value of 0.012 mg/l from a sample taken in June of 2012 (Appendix – Figure 5 & Table 1).

The fact that oil product is found in the up-gradient monitor well (MW-2) and dissolved petroleum hydrocarbons as BTEX has been found in the side gradient well (MW-4 and MW-5) indicates that there is an up-gradient source of residual petroleum hydrocarbons, and that historical operations at this former junction box location are likely not the cause of either the oil product observed in MW-2 or MW-1 or of the dissolved-phase BTEX observed in the other monitor wells. Further, the relatively low (less than 150 mg/L) concentrations of groundwater chlorides observed in the down-gradient (MW-3) and side-gradient monitor wells (MW-4 and MW-5) indicate that this former junction box is also not a significant potential source of groundwater chloride contamination. It also be noted that the former junction box was removed in 2007 and that the surface was restored to natural conditions in 2009.

A Termination Request was previously submitted to NMOCD on October 4, 2012, with a follow Addendum submitted on February 13, 2013. ROC is currently compiling additional information for the termination request.

Rice Operating Company (ROC) will nevertheless continue to monitor groundwater quality through 2013 unless directed otherwise by OCD.

ROC is the service provider (agent) for the Hobbs 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.

Please do not hesitate to contact either Rice Operating Company or myself if you have any questions or need additional information.

Thank you for your consideration.

Sincerely,

L. Peter Galusky, Jr. Ph.D.
Principal

Copy: Rice Operating Company

Attachment: Appendix

Rice Operating Company
Hobbs Jct E-4 2012 Annual Report

Appendix

Figure 1 - Location map.

Figure 2 - Monitor well locations.

Figure 3 - Estimated (calculated) direction of groundwater flow.

Figure 4 - Groundwater chloride concentrations.

Figure 5 - Groundwater benzene concentrations.

Table 1 - Groundwater BTEX concentrations.

Figure 6 – Laboratory report November, 2012 groundwater samples

Figure 1 – Hobbs Jct. E-4 location map.

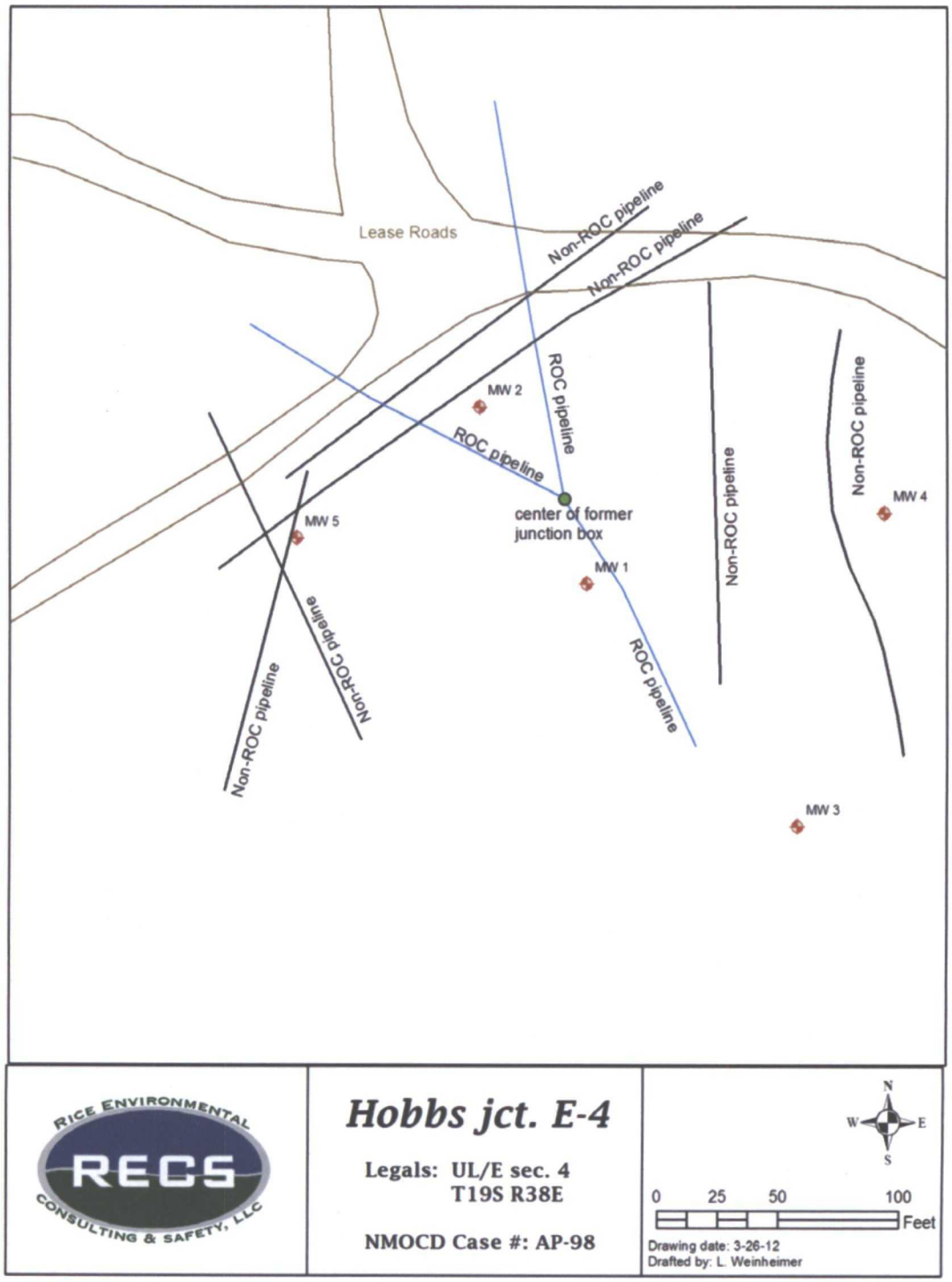

Figure 2 – Hobbs Jct. E-4 monitor well locations.

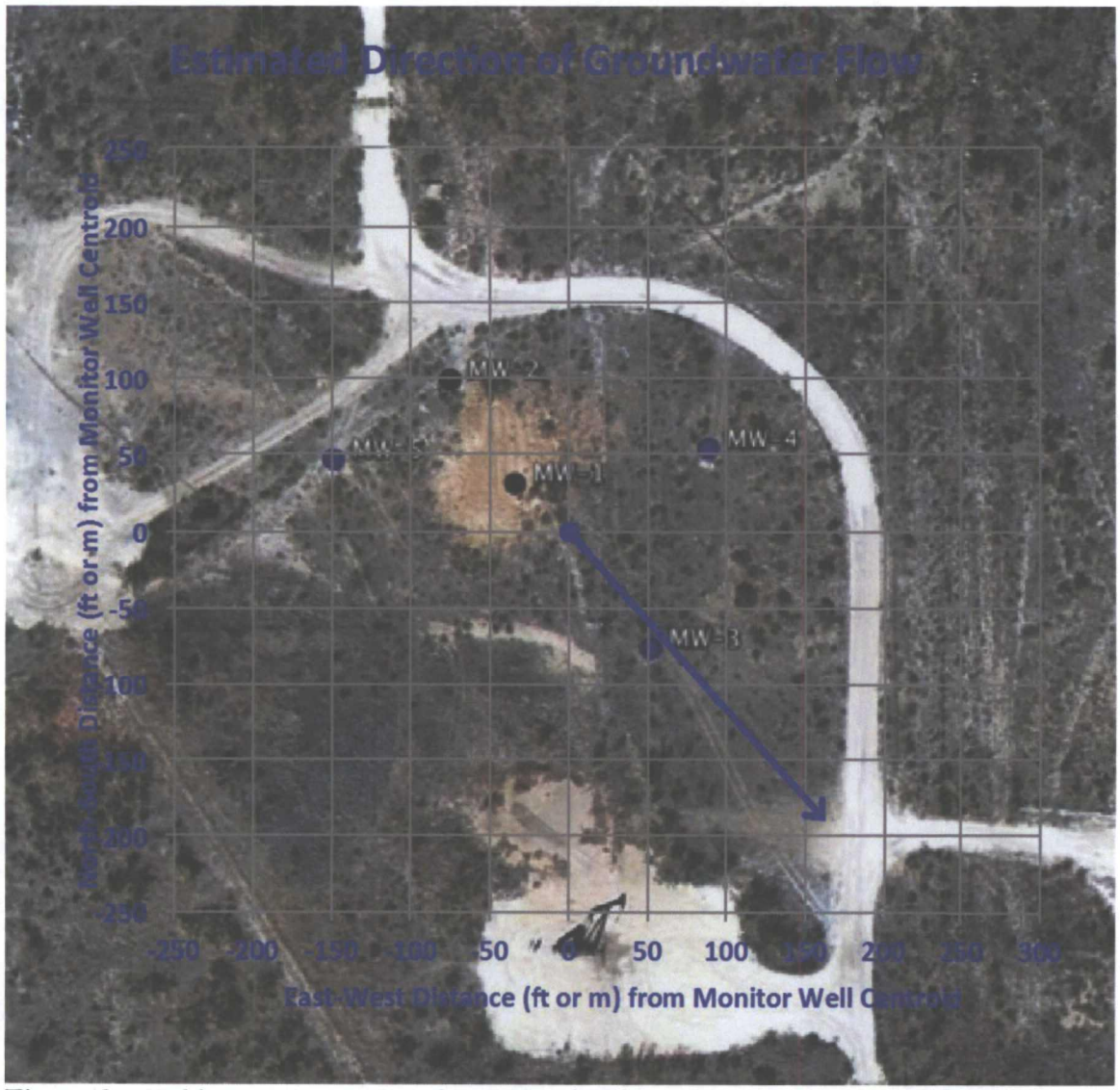

Figure 3 – Hobbs Jct. E-4 estimated (calculated) direction of groundwater flow (**blue arrow**). Google Earth image date 11/14/2011. Based on the average of four groundwater depths measured quarterly during 2011.

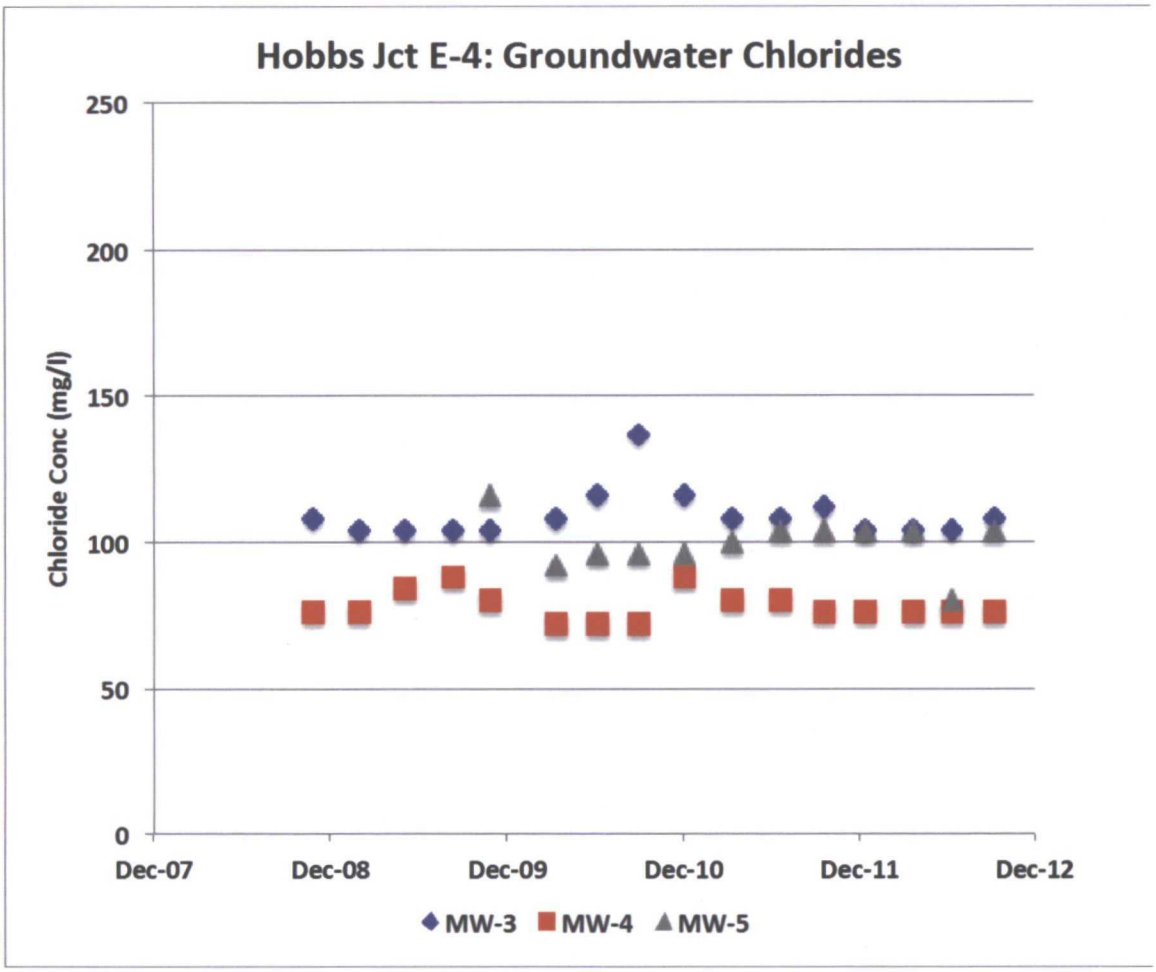

Figure 4 – Groundwater chloride concentrations from quarterly samples.

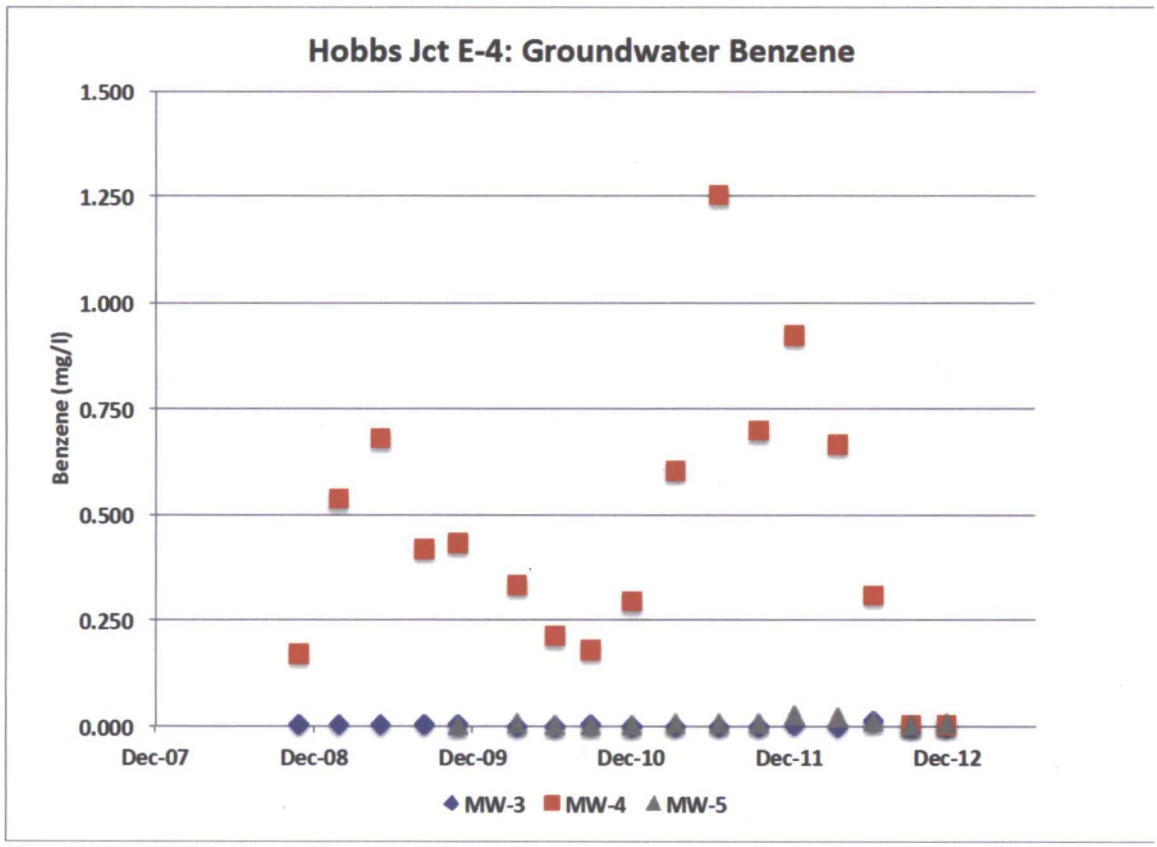

Figure 5 – Groundwater benzene concentrations from quarterly samples.

Benzene			
Date	MW-3	MW-4	MW-5
10/29/08	0.001	0.170	
1/30/09	0.005	0.538	
5/7/09	0.002	0.680	
8/12/09	0.001	0.419	
10/28/09	0.003	0.434	0.001
3/16/10	<0.001	0.330	0.007
6/11/10	<0.001	0.215	0.003
9/1/10	0.004	0.180	0.001
12/7/10	<0.001	0.295	0.003
3/14/11	<0.001	0.604	0.008
6/24/11	<0.001	1.250	0.009
9/23/11	<0.001	0.697	0.010
12/14/11	0.003	0.924	0.025
3/23/12	<0.001	0.664	0.020
6/13/12	0.012	0.310	0.011
9/10/12	<0.001	0.002	0.004
11/28/12	<0.001	0.002	0.008

Total BTEX			
Date	MW-3	MW-4	MW-5
10/29/08	0.126	0.325	
1/30/09	0.194	0.721	
5/7/09	0.069	0.875	
8/12/09	0.045	0.626	
10/28/09	0.015	0.577	0.003
3/16/10	0.000	0.444	0.010
6/11/10	0.000	0.288	0.005
9/1/10	0.005	0.233	0.005
12/7/10	0.000	0.367	0.006
3/14/11	0.000	0.669	0.016
6/24/11	0.000	1.430	0.012
9/23/11	0.000	0.859	0.012
12/14/11	0.003	1.154	0.034
3/23/12	<0.006	1.778	0.073
6/13/12	0.016	0.442	0.039
9/10/12	<0.006	0.043	0.016

Table 1a (upper) Groundwater benzene concentrations and **1b** (lower) Total BTEX concentrations (mg/l) in down-gradient (MW-3) and side-gradient (MW-4 and MW-5) monitor wells.

CARDINAL Laboratories

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

December 10, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: HOBBS JUNCTION E-4

Enclosed are the results of analyses for samples received by the laboratory on 12/03/12 8:48.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	12/03/2012	Sampling Date:	11/28/2012
Reported:	12/10/2012	Sampling Type:	Water
Project Name:	HOBBS JUNCTION E-4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	T19S-R38E-SEC4 E-LEA CTY.,NM		

Sample ID: MONITOR WELL #3 (H202898-01)

BTEX 8021B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	12/05/2012	ND	0.048	95.4	0.0500	4.02	
Toluene*	<0.001	0.001	12/05/2012	ND	0.051	103	0.0500	4.38	
Ethylbenzene*	<0.001	0.001	12/05/2012	ND	0.049	97.5	0.0500	4.49	
Total Xylenes*	<0.003	0.003	12/05/2012	ND	0.150	99.9	0.150	4.40	
Total BTEX	<0.006	0.006	12/05/2012	ND					

Surrogate: 4-Bromofluorobenzene (PID *125 %* *89.5-126*

Chloride, SM4500Cl-B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**96.0**	4.00	12/04/2012	ND	100	100	100	3.92	

Sulfate 375.4 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**249**	10.0	12/05/2012	ND	23.5	117	20.0	1.33	

TDS 160.1 mg/L **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**902**	5.00	12/05/2012	ND	239	99.6	240	4.31	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	12/03/2012	Sampling Date:	11/28/2012
Reported:	12/10/2012	Sampling Type:	Water
Project Name:	HOBBS JUNCTION E-4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	T19S-R38E-SEC4 E-LEA CTY.,NM		

Sample ID: MONITOR WELL #4 (H202898-02)

BTEX 8021B mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**0.002**	0.001	12/05/2012	ND	0.048	95.4	0.0500	4.02	
Toluene*	**0.002**	0.001	12/05/2012	ND	0.051	103	0.0500	4.38	
Ethylbenzene*	**0.013**	0.001	12/05/2012	ND	0.049	97.5	0.0500	4.49	
Total Xylenes*	<0.003	0.003	12/05/2012	ND	0.150	99.9	0.150	4.40	
Total BTEX	**0.017**	0.006	12/05/2012	ND					

Surrogate: 4-Bromofluorobenzene (PIL *125 %* *89.5-126*

Chloride, SM4500Cl-B mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**76.0**	4.00	12/04/2012	ND	100	100	100	3.92	

Sulfate 375.4 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**22.6**	10.0	12/10/2012	ND	16.7	83.7	20.0	7.64	

TDS 160.1 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**805**	5.00	12/05/2012	ND	239	99.6	240	4.31	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	12/03/2012	Sampling Date:	11/28/2012
Reported:	12/10/2012	Sampling Type:	Water
Project Name:	HOBBS JUNCTION E-4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	T19S-R38E-SEC4 E-LEA CTY.,NM		

Sample ID: MONITOR WELL #5 (H202898-03)

BTEX 8021B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**0.008**	0.001	12/05/2012	ND	0.048	95.4	0.0500	4.02	
Toluene*	**0.003**	0.001	12/05/2012	ND	0.051	103	0.0500	4.38	
Ethylbenzene*	**0.005**	0.001	12/05/2012	ND	0.049	97.5	0.0500	4.49	
Total Xylenes*	<0.003	0.003	12/05/2012	ND	0.150	99.9	0.150	4.40	
Total BTEX	**0.016**	0.006	12/05/2012	ND					

Surrogate: 4-Bromofluorobenzene (PIL *118 %* *89.5-126*

Chloride, SM4500Cl-B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**100**	4.00	12/04/2012	ND	100	100	100	3.92	

Sulfate 375.4 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**125**	10.0	12/10/2012	ND	16.7	83.7	20.0	7.64	

TDS 160.1 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**922**	5.00	12/05/2012	ND	239	99.6	240	4.31	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
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

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

101 East Marland - Hobbs, New Mexico 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: Hack Conder	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 — Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: Hobbs Junction E-4
Project Location: T19S-R38E-Sec4 E ~ Lea County - New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2012)	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP 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, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
H202898-01	Monitor Well #3	G	3	X				2				1		11-28	10:15		X																X	X	X	
02	Monitor Well #4	G	3	X				2				1		11-28	11:15		X																X	X	X	
03	Monitor Well #5	G	3	X				2				1		11-28	12:20		X																X	X	X	

Relinquished by: Rozanne Johnson	Date: 12/3/2012	Time: 8:00	Received by: [signature] Date: 12/3/2012 Time: 8:01
Relinquished by: [signature]	Date: 12/3/12	Time: 8:48	Received By: (Laboratory Staff) [signature] Date: 12/3/12 Time: 8:48

Phone Results ☐ Yes ☐ No
Fax Results ☐ Yes ☐ No Additional Fax Number:

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

Sample Condition: Cool: Yes ☑ No ☐ — Intact: Yes ☑ No ☐

CHECKED BY: (Initials) COH

REMARKS:

Email Results: hconder@riceswd.com
weinheimer@rice-ecs.com
kjones@riceswd.com
rozanne@valornet.com

#26