

1RP-425-3

2013

Annual Report

DATE

March 31, 2014

From: [L. Peter Galusky](#)
To: [Lowe, Leonard, EMNRD](#)
Cc: [VonGonten, Glenn, EMNRD](#); [Katie Jones](#); [Laura Flores](#); [Hack Conder](#)
Subject: Rice Operating Company Annual Report for NMOCD No. 1R425-03 Vacuum K-35-1 Boot
Date: Monday, March 31, 2014 11:56:13 AM
Attachments: [Vacuum K-35-1 \(1R425-03\) 2013 Annual Report 03.31.2014s.pdf](#)

Mr. Lowe,

Attached is the 2013 Annual Groundwater Report for Vacuum K-35-1 Boot. Annual Reports are submitted yearly to update the NMOCD about groundwater quality for a particular site. This report does not require NMOCD approval; therefore, a flow chart is not included.

Please contact either myself or Hack Conder of Rice Operating Company if you have any questions or need additional information.

Thank you.

Sincerely,

Pete G.

--

L. Peter (Pete) Galusky, Jr. P.E.

Principal Environmental Engineer

Texerra LLC

Cell: 719-339-6791

E-mail: lpg@texerra.com

Web: www.texerra.com

Texerra LLC

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

March 31st, 2014

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

RE: **2013 Annual Report**
Rice Operating Company
Vacuum K-35-1 Boot, UL K, Sec 35, T17S, R35E
OCD Case Number 1R425-03

Mr. Lowe:

This letter summarizes remediation history and progress made for this project over the past calendar year. Location and site schematic maps are given in the Appendix (Figures 1 and 2, respectively). In brief:

- OCD granted termination of soil remediation requirements (soil closure) on October 13th, 2011, allowing for the cessation of groundwater withdrawals and stipulating that groundwater monitoring must continue semi-annually at wells MW-2, MW-3 and MW-4.
- A Groundwater Recovery Notification was submitted to the NMOCD on September 4, 2013. NMOCD approved the notification on September 5, 2013. Groundwater recovery began from RW-1 on September 13, 2013. According to the NMOCD approved Groundwater Recovery Notification, ROC will begin sampling all the wells (MW-1, MW-2, MW-3, MW-4, and RW-1) on a semi-annual (twice a year) basis, in 2013.
- Approximately 18,185 barrels of chloride-affected groundwater have been withdrawn from a near-source recovery well (RW-1) over the period June 2008 through November 2013 (Appendix – Table 1, Figure 3). Removed groundwater has been used for Rice SWD line and well maintenance.
- Chloride concentrations in MW-4 have shown a slight increase from 380 mg/L in June and August 2011 to 720 mg/L in November 2013 (Appendix – Table 1, Figure 3). Chloride concentrations up-gradient (MW-3) of the site have also increased to 308 mg/L in November 2013. Concentrations down gradient have remained low, staying around 36 mg/L.

- Down-gradient (RW-1) groundwater chloride concentrations (Appendix - Table 1, Figure 4) have generally decreased from 490 mg/l in August 2011 to 300 mg/l in November 2013.

ROC will continue with groundwater recovery in 2014, and will continue to sample and analyze groundwater from these wells twice during 2014, reporting to NMOCD the results by April of next year.

ROC is the service provider (agent) for the Vacuum Salt Water Disposal System and has no ownership of any portion of pipeline, well or facility. The Vacuum SWD 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 myself or Rice Operating Company if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to be 'L. Peter Galusky, Jr.', written in a cursive style.

L. Peter Galusky, Jr. Ph.D.

Copy: Glenn VonGonten, NMOCD; Rice Operating Company

Attachments: Appendix

APPENDIX



Figure 1 – Vacuum K-35-1 location.

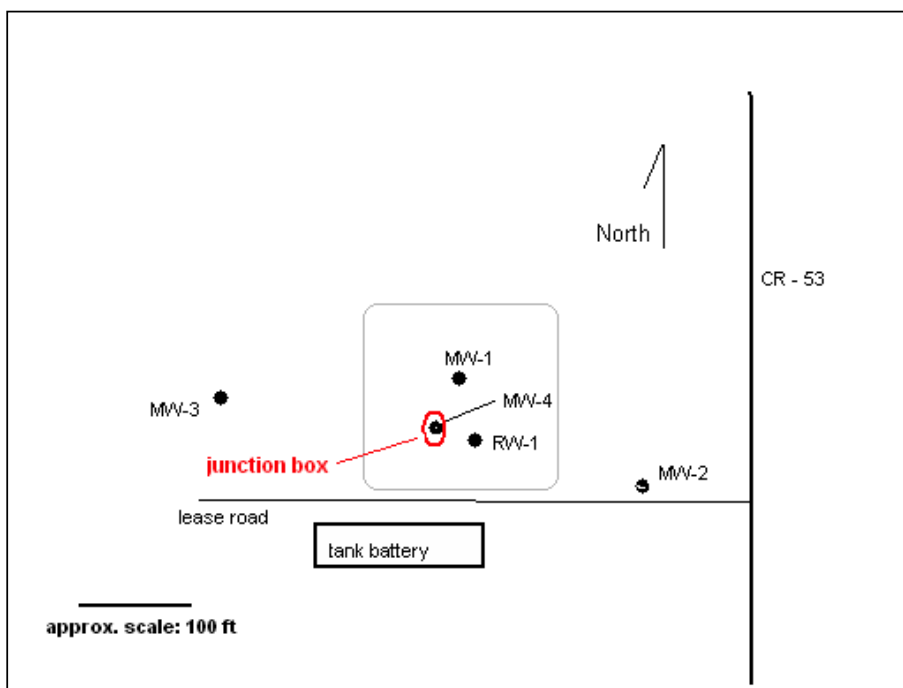


Figure 2 – Vacuum K-35-1 approximate monitor/recovery well locations.

Vacuum K-35-1 Annual Report

Groundwater Removal (bbls) and Chloride Concentration (mg/l)					
Date	MW-2 (down-gradient well)	MW-3 (up-gradient)	MW-4 (at-source)	RW-1 (down-gradient)	cum water hauled (bbls)
2/21/07	29	178	6,770		
5/22/07	25	128	6,390		
8/7/07	27	134	6,790		
10/16/07	28	112	5,670		
1/30/08	88	88	4,550		
4/30/08	32	84	3,450	1,880	
7/30/08	32	76	2,580	1,070	1,269
11/10/08	28	76	1,960	1,200	2,551
1/29/09	28	76	2,080	1,680	2,551
5/1/09	28	84	2,300	750	3,319
8/4/09	28	72	1,500	580	7,724
10/20/09					9,135
1/27/10	32	128	800	1,220	9,286
4/28/10	32	152	460	490	9,896
7/29/10	32	184	650	570	12,261
10/26/10	32	164	520	332	14,779
2/16/11	32	128	680	750	14,779
6/1/11	32	148	380	476	14,779
6/30/11					15,381
7/15/11					15,591
8/30/11	32	156	380	490	16,397
12/1/11	40	176	700		17,185
5/29/12	36	204	610		
11/15/12	36	252	690		
5/28/13	36	280	650		
9/6/13				212	
11/15/13	36	308	720	300	18,185

Table 1 – Groundwater recovery and chloride concentrations.

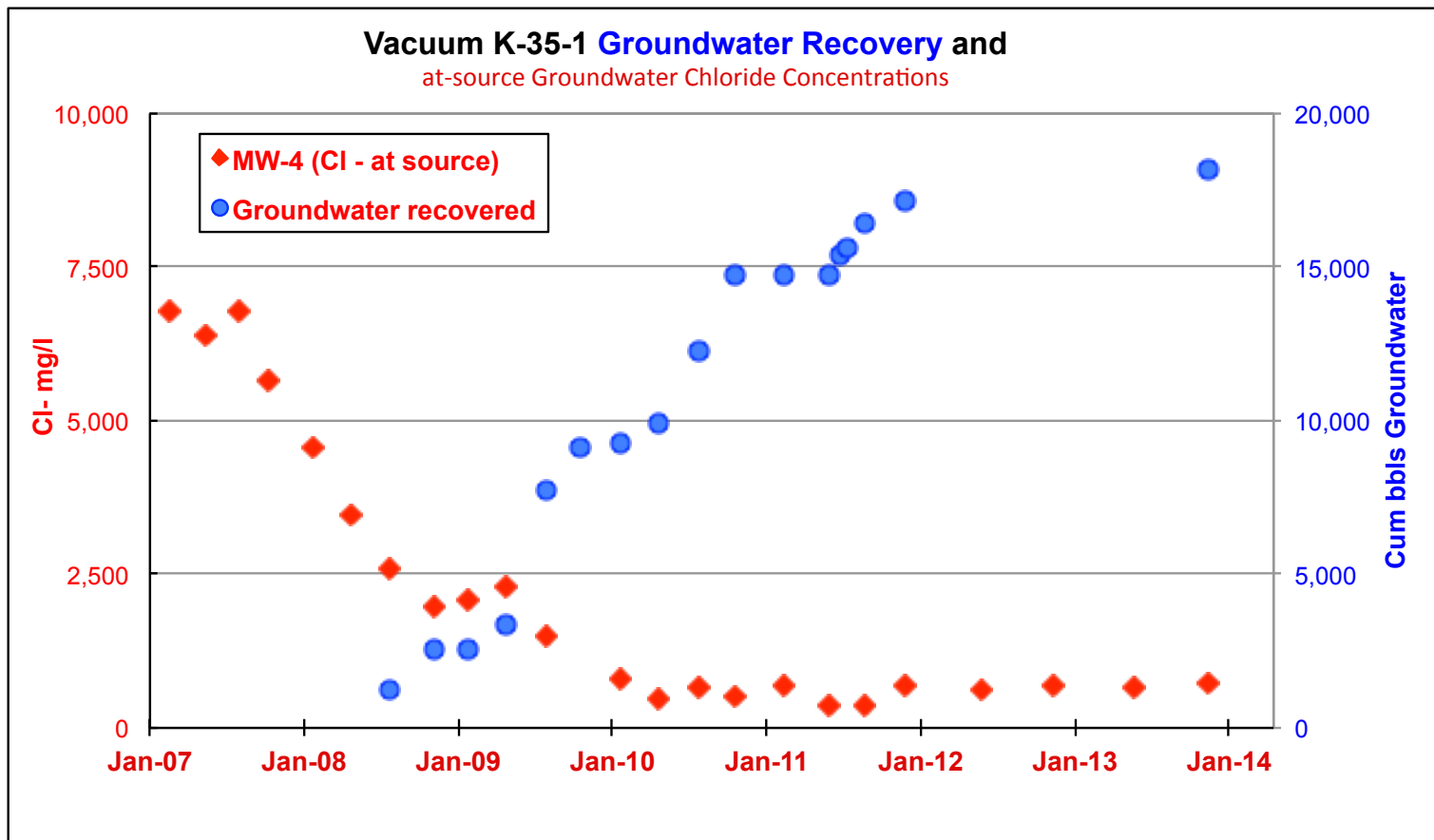


Figure 3– Cumulative groundwater withdrawal (right axis) and at-source groundwater chloride concentrations at Vacuum K-35-1 Boot location.

Vacuum K-35-1 Annual Report

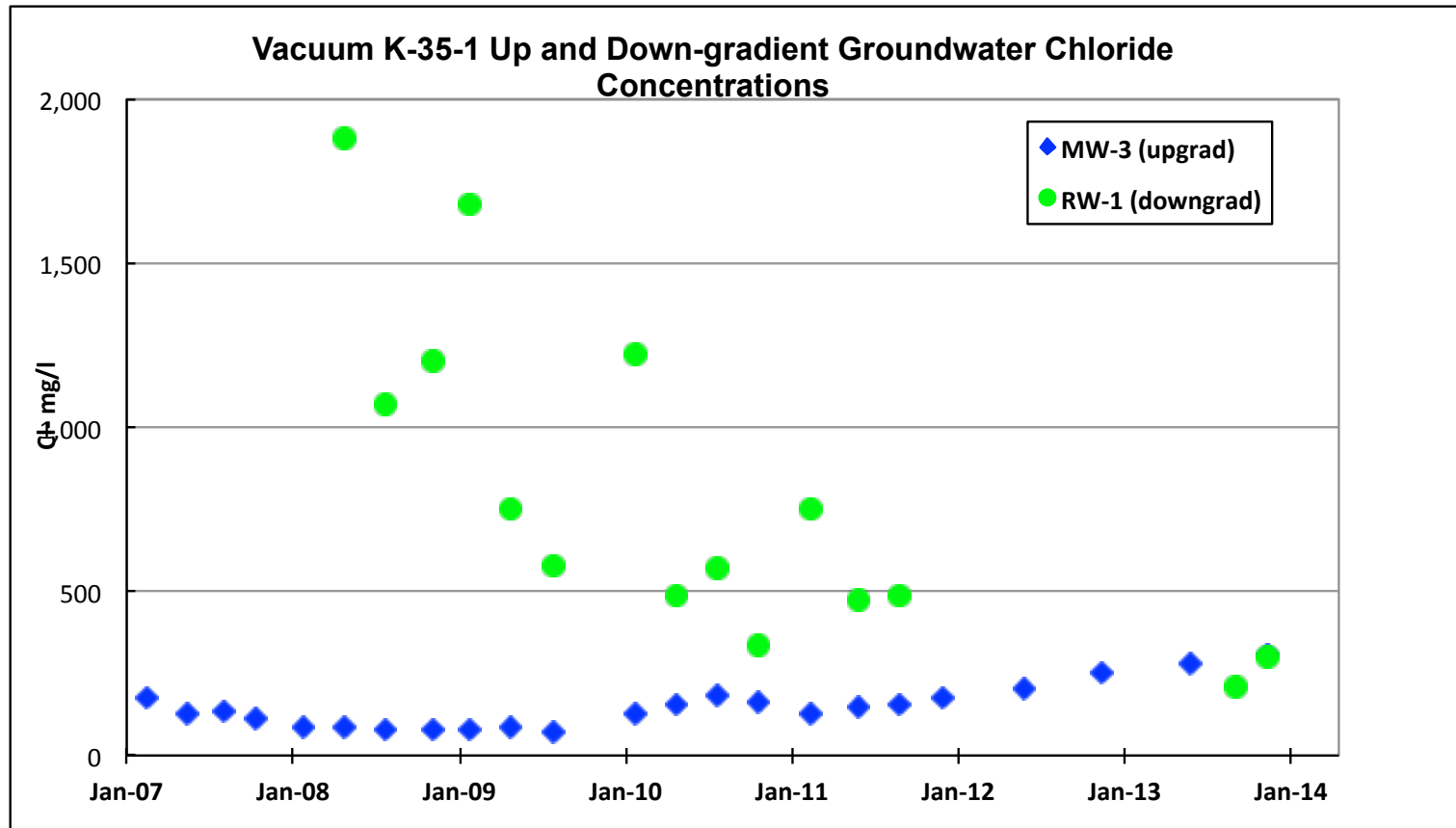


Figure 4 – Up and down-gradient groundwater chloride concentrations at Vacuum K-35-1 Boot location.



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

November 25, 2013

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM JUNCTION K-35-1

Enclosed are the results of analyses for samples received by the laboratory on 11/20/13 12:16.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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 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,

Mike Snyder

Organic Supervisor



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:	11/20/2013	Sampling Date:	11/15/2013
Reported:	11/25/2013	Sampling Type:	Water
Project Name:	VACUUM JUNCTION K-35-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T17S-R35E-SEC35 K LEA COUNTY, NM		

Sample ID: MONITOR WELL #1 (H302829-01)

Chloride, SM4500Cl-B		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	1040	4.00	11/25/2013	ND	100	100	100	0.00	
Sulfate 375.4		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	69.4	10.0	11/25/2013	ND	19.8	98.8	20.0	1.86	
TDS 160.1		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	2250	5.00	11/25/2013	ND	245			0.0480	

Sample ID: MONITOR WELL #2 (H302829-02)

Chloride, SM4500Cl-B		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	36.0	4.00	11/25/2013	ND	100	100	100	0.00	
Sulfate 375.4		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	62.2	10.0	11/25/2013	ND	19.8	98.8	20.0	1.86	
TDS 160.1		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	408	5.00	11/25/2013	ND	245			0.0480	

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*=Accredited Analyte

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Mike Snyder, Organic Supervisor



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Analytical Results For:

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

Received: 11/20/2013
Reported: 11/25/2013
Project Name: VACUUM JUNCTION K-35-1
Project Number: NONE GIVEN
Project Location: T17S-R35E-SEC35 K LEA COUNTY, NM

Sampling Date: 11/15/2013
Sampling Type: Water
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: MONITOR WELL #3 (H302829-03)

Chloride, SM4500Cl-B		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	308	4.00	11/25/2013	ND	100	100	100	0.00	
Sulfate 375.4		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	74.0	10.0	11/25/2013	ND	19.8	98.8	20.0	1.86	
TDS 160.1		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	856	5.00	11/25/2013	ND	245			0.0480	

Sample ID: MONITOR WELL #4 (H302829-04)

Chloride, SM4500Cl-B		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	720	4.00	11/25/2013	ND	100	100	100	0.00	
Sulfate 375.4		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	75.5	10.0	11/25/2013	ND	19.8	98.8	20.0	1.86	
TDS 160.1		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	1630	5.00	11/25/2013	ND	245			0.0480	

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Mike Snyder, Organic Supervisor



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Analytical Results For:

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

Received: 11/20/2013
Reported: 11/25/2013
Project Name: VACUUM JUNCTION K-35-1
Project Number: NONE GIVEN
Project Location: T17S-R35E-SEC35 K LEA COUNTY, NM

Sampling Date: 11/15/2013
Sampling Type: Water
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: RECOVERY WELL #1 (H302829-05)

Chloride, SM4500Cl-B		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	300	4.00	11/25/2013	ND	100	100	100	0.00	
Sulfate 375.4		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	65.5	10.0	11/25/2013	ND	17.8	89.0	20.0	4.72	
TDS 160.1		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	779	5.00	11/25/2013	ND	245			0.0480	

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Mike Snyder, Organic Supervisor

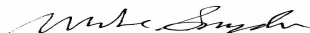
Notes and Definitions

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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Mike Snyder, Organic Supervisor

Cardinal Laboratories, Inc.

LAB Order ID #

Company Name: RICE Operating Company		BILL TO Company: PO# RICE Operating Company	
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#: Fax#: (575) 393-9174 (575)397-1471	
Phone #: (575) 393-9174		Fax #: (575) 397-1471	
Project #:		Project Name: Vacuum Junction K-35-1	
Project Location: T17S-R35E-Sec35 K ~ Lea County New Mexico		Sampler Signature:  Rozanne Johnson (575)631-9310	

(Circle or Specify Method No.)

[illegible]

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