

1R - 425-67

WORKPLANS

Date:

8-21-13



Rice Operating Company 1R425-67 Vacuum F-34 Boot Vent project update

L Peter Galusky <lpg@texerra.com>

Thu, Aug 22, 2013 at 8:56 AM

To: "Edward J. Hansen" <edwardj.hansen@state.nm.us>

Cc: Katie Jones <kjones@riceswd.com>, Laura Pena <lpena@riceswd.com>

Edward,

The attached document is to replace the report previously submitted and incorrectly dated "April 8th, 2013" for Rice Operating Company's Vacuum F-34 Boot Vent project. This document is identical to the one previously submitted, except that the date has been corrected to today's date and a new certified mail return receipt number is used. I will follow this e-mail submittal with a hard copy in the mail.

Thank you for your consideration.

Sincerely,

Pete G.

--

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

Principal Environmental Engineer

Texerra LLC

Cell: 719-339-6791

E-mail: lpg@texerra.com

Web: www.texerra.com



ROC Vacuum F-34 vent boot project update 08.21.2013s.pdf

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2013 AUG 26 P 2:12

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

Texerra LLC

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

August 21st, 2013

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: **Project Update**
Rice Operating Company – Vacuum SWD System
Vacuum F-34 Vent Boot UL F, Section 34, Township 17S, Range 35E
NMOCD Case Number 1R425-67

Sent via E-mail and U.S. Mail Certified Return Receipt No. 7007 2560 0001 9729 0669

Mr. Hansen:

This letter is provided to update NMOCD with respect to the project history, present status and proposed work at Rice Operating Company's (ROC) Vacuum F-34 Vent Boot project in Lea County, New Mexico. It should be noted that there is no longer a threat of continued, compounded impact at this site as the former junction box has been eliminated and the Vacuum SWD system is no longer operating.

Background and Project History

The site is located approximately 2.5 miles east-southeast of Buckeye, New Mexico. The regional topography is gently sloping toward the southeast. Soils on the location are characterized in the Lea County Soil Survey as nearly level and gently sloping, shallow, gravelly loam soils underlain by indurated (hard) caliche. Groundwater is encountered at a depth of approximately 70 ft below ground surface (bgs) in unconsolidated Tertiary alluvium of the Ogallala Formation.

This junction box was removed during the Vacuum SWD System abandonment. Subsequent initial soil evaluation was completed in June of 2008 and NMOCD was notified of potential groundwater impact at the site on July 31, 2008. In March 2009, a Junction Box Disclosure Report was submitted to NMOCD with the 2008 junction box closure and disclosure reports.

Preliminary site characterization work indicated that soil chloride concentrations (determined by field titration) at 10 ft south of the source ranged from 1,533 ppm at the surface to 4,720 ppm at a depth of 12 ft below ground surface (bgs). PID (hydrocarbon vapor) readings at the source indicated elevated levels. This was confirmed by laboratory measured DRO concentrations of 1,610 ppm in the excavation sidewalls and 748 ppm in the excavation bottom. The excavated soil was blended on site, backfilled into the excavation and then contoured to the surrounding terrain. The site was subsequently reseeded to a native prairie mixture. An identification plate was placed on the surface to mark this location for future environmental considerations.

Texerra submitted an Investigation and Characterization Plan (ICP) to NMOCD on October 5th, 2009 and approved by NMOCD on January 28th, 2010. Soil samples taken at and near the former boot location

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VAC F-34 Vent Boot

indicated elevated soil chloride levels at depth. Groundwater samples taken from a near-source down-gradient monitor well tested 940 ppm and 1,040 ppm Cl- on May 28th and July 27th, respectively, whereas dissolved hydrocarbons (as BTEX) were not detected in either sampling event. Texerra submitted a Notification of Groundwater Impact to NMOCD on October 26th, 2010. ROC subsequently installed and began sampling an up-gradient monitor well.

ROC then completed the installation of a double synthetic subsurface soil liner and surface restoration as the vadose zone protective remedy for the Vacuum F-34 Vent Boot, as summarized in the previously submitted (October 26th, 2010) Notification of Groundwater Impact, proposed liner dimensions submitted November 3rd, 2010, and Addendum submitted December 22, 2010. These were subsequently approved on February 7th, 2011. This work, which was completed in April and May of 2011, is summarized, below:

Soils were excavated to 4.5 ft bgs over an area of approximately 75 by 45 ft. Additional soil material was excavated to a depth of 16 ft bgs from two separate excavations, each encompassing an area of approximately 10 by 10 ft and surrounding the soil borings, which previously indicated more significant subsurface chloride contamination (SB-2 and SB-4). Six inches of clean blow sand was added as padding to the bottoms of these two, deeper excavations and a 20 mil reinforced liner was installed into each one. The liner was then padded with six inches of clean blow sand and blended backfill was backfilled into each 10 by 10 ft excavation to the base of the larger excavation (at 4.5 ft bgs). Six inches of clean blow sand was added as padding over the 75 by 45 ft area. A 20 mil reinforced liner was installed over the 75 by 45 ft excavation and six inches of clean blow sand was added as padding above it. Clean soil was then backfilled to near the surface and clean blow sand was added and contoured to the original ground surface. Silt fencing was installed around the restored area. The site was seeded with a blend of native vegetation.

NMOCD subsequently granted remediation termination status or 'soil closure,' on September 15th, 2011, with respect to the vadose zone indicating that groundwater monitoring must be continued and that a groundwater restoration remedy must subsequently be proposed if the data warranted this (see Appendix).

Proposed Path Forward

Groundwater monitoring data (see Appendix) indicate that up-gradient groundwater (sampled from MW-2) is low in chlorides (< 100 mg/l) but that the groundwater from the near-source, down-gradient well (MW-1) has had elevated chloride concentrations (generally above 900 mg/l) since sampling began in 2010. However, chloride concentrations in groundwater from this well trended lower since the vadose zone remedial work was completed in 2011, dropping from the max value of 1,260 mg/l in 2011 to the lowest concentration of 590 mg/l in November 2012. This data suggests that the downward migration of chlorides from the vadose zone into groundwater has been reduced and that natural dilution is occurring. The most recent chloride concentration observed in MW-1 was 1,020 mg/l. We propose to conduct limited groundwater withdrawals from the near-source, down-gradient well and periodic sampling of chlorides over the course of the rest of this calendar year to determine if this may be an effective means of reducing groundwater chloride mass. We thus respectfully request OCD approval to conduct these activities.

ROC is the service provider (agent) for the Vacuum 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 call either myself or Hack Conder of Rice Operating Company if you have any questions or wish to discuss this matter. Thank you for your consideration.

VAC F-34 Vent Boot

Sincerely,

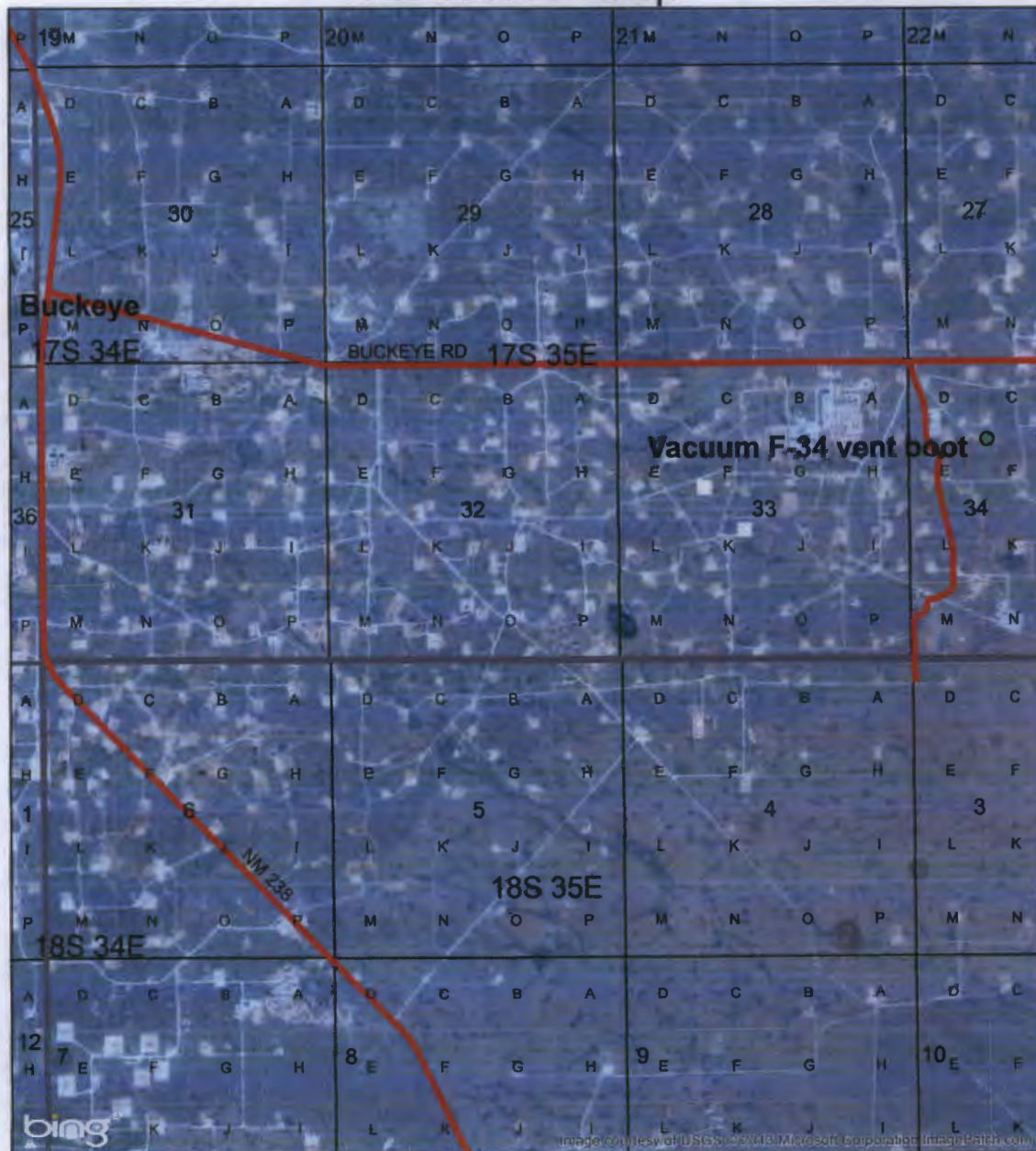
A handwritten signature in black ink, appearing to be 'L. Peter Galusky, Jr.', written in a cursive style.

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

Attachments:

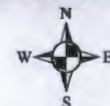
- Site location map
- Site map (showing soil bore soil bore and monitor well locations and areal footprints of installed subsurface liners)
- NMOCD approval of remediation termination for vadose zone
- Groundwater chloride concentrations
- Lab report (Cardinal Laboratories) of most recent (May 2013) groundwater samples.

Site Location Map



Vacuum F-34 vent boot

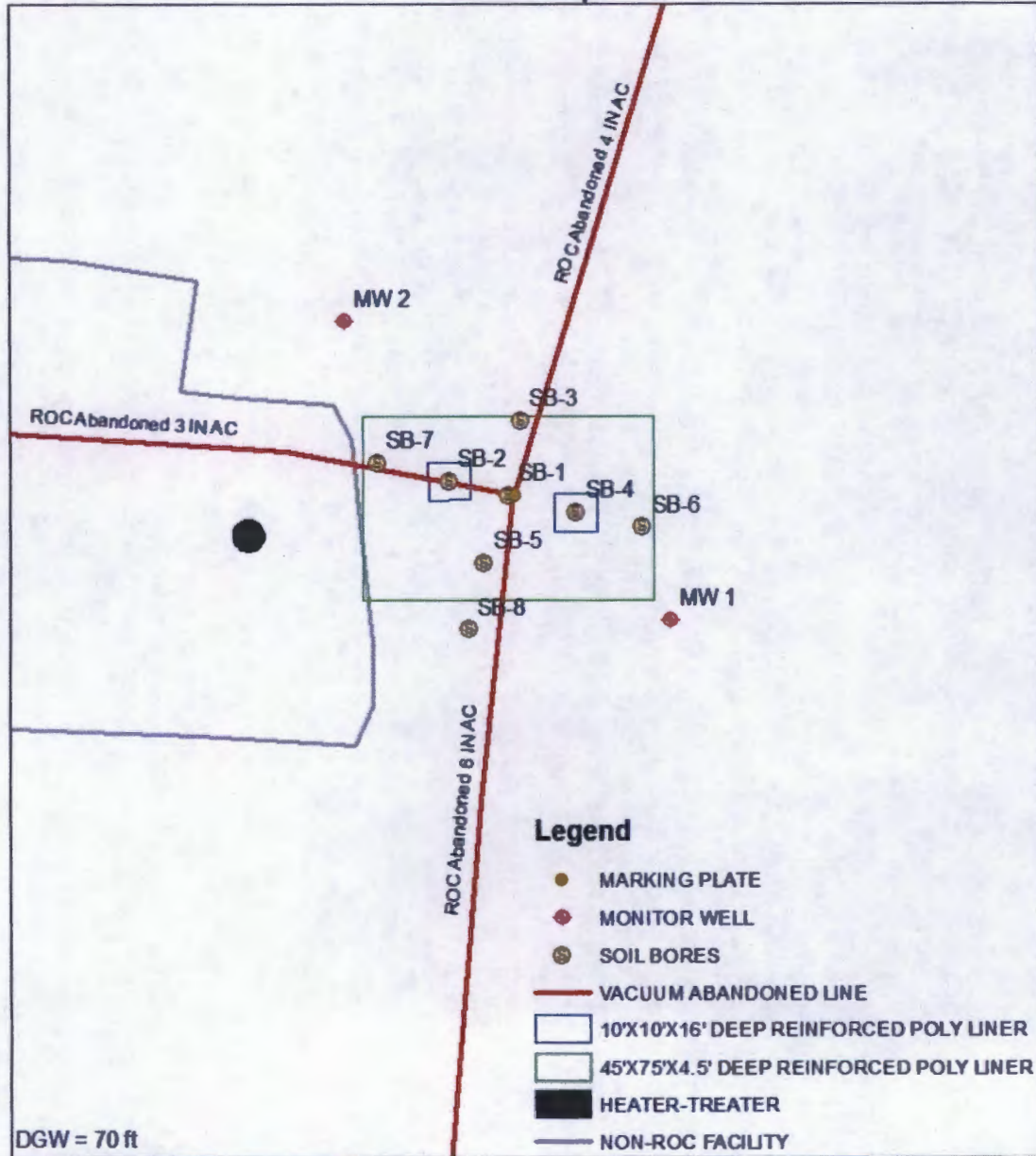
Legals: UL/F sec. 34
T17S R35E
NMOCD Case #: 1R425-67



0 0.45 0.9
Miles

Drawing date: 6/25/13
Drawn by: L. Weinheimer

Site Map



DGW = 70 ft

Legend

- MARKING PLATE
- ◆ MONITOR WELL
- SOIL BORES
- VACUUM ABANDONED LINE
- 10'X10'X16' DEEP REINFORCED POLY LINER
- 45'X75'X4.5' DEEP REINFORCED POLY LINER
- HEATER-TREATER
- NON-ROC FACILITY



Vacuum F-34 vent boot

Legals: UL/F sec. 34
T17S R35E
NMOCD Case #: 1R425-67



0 15 30 60
Feet

Drawing date: 7/1/13
Drafted by: L. Weinheimer

From: Hansen, Edward J., EMNRD
To: Hack Conder
Cc: Leking, Geoffrey R., EMNRD; Katie Jones; lpg@texerra.com
Subject: Soil Closure Approval (1R425-67) - ROC Vacuum F-34 Vent Boot Site
Date: Thursday, September 15, 2011 5:30:59 PM

**RE: "Project Update"
for the Rice Operating Company's
Vacuum F-34 Vent Boot Site (1R425-67)
Unit Letter F, Section 34, T17S, R35E, NMPM, Lea County, New Mexico
Soil Closure Approval**

Dear Mr. Conder:

The New Mexico Oil Conservation Division (OCD) has received the Rice Operating Company's (ROC) report of the soil closure of the above-referenced site (dated July 7, 2011). The above-referenced report, submitted in fulfillment of 19.15.29 NMAC (Part 29, formally, Rule 116), indicates that Rice Operating Company (ROC) has partially met the requirements of 19.15.29 NMAC for this site. Therefore, the OCD hereby conditionally approves the soil closure for the Vacuum F-34 Vent Boot Site and no further soil remediation is required for this site.

The Vacuum F-34 Vent Boot Site is still active under Remediation Plan, 1R425-67, and groundwater monitoring, groundwater contamination delineation (if necessary), and groundwater remediation (if necessary) must continue at the Vacuum F-34 Vent Boot Site.

Please be advised that OCD partial approval of this request does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

Vacuum F-34 vent boot													
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	69.91	118.36	31.5	100	5/28/10	940	2030	<0.001	<0.001	<0.001	<0.003	91	Clear No odor
1	69.74	118.36	31.6	100	7/27/10	1040	2130	<0.001	<0.001	<0.001	<0.003	99.1	Clear No odor
1	69.75	118.36	31.6	100	10/27/10	970	2300	<0.001	<0.001	<0.001	<0.003	94.9	Clear No odor
1	69.87	118.36	31.5	100	2/18/11	1030	2010	<0.001	<0.001	<0.001	<0.003	85.6	Clear No odor
1	70.06	118.36	31.4	100	6/3/11	1150	2160	<0.001	<0.001	<0.001	<0.003	89.7	Clear No odor
1	70.08	118.36	31.4	100	9/1/11	1160	2380	<0.001	<0.001	<0.001	<0.003	87.3	Clear No odor
1	70.09	118.36	31.4	100	12/3/11	1260	2470	<0.001	<0.001	<0.001	<0.003	86.6	Clear No odor
1	70.22	118.36	31.3	100	2/23/12	1060	2360	<0.001	<0.001	<0.001	<0.003	98.4	Clear No odor
1	70.26	118.36	31.3	100	5/31/12	930	2130	<0.001	<0.001	<0.001	<0.003	81.2	Clear no odor
1	70.02	118.36	31.4	100	8/24/12	980	2060	<0.001	<0.001	<0.001	<0.003	80.8	Clear no odor
1	70.06	118.36	31.4	100	11/19/12	590	1320	<0.001	<0.001	<0.001	<0.003	77.7	Clear no odor
1	70.24	118.36	31.3	100	2/13/13	960	1990	<0.001	<0.001	<0.001	<0.003	76	Clear no odor
1	70.56	118.36	31.1	100	5/29/13	1020	2320	<0.001	<0.001	<0.001	<0.003	71	Clear no odor

Vacuum F-34 vent boot													
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	70.48	84.22	2.2	10	11/22/10	68	340	<0.001	<0.001	<0.001	<0.003	71.7	Clear No odor
2	70.57	84.32	2.2	10	2/18/11	60	403	<0.001	<0.001	<0.001	<0.003	50.5	Clear No odor
2	70.72	84.32	2.2	10	6/3/11	56	384	<0.001	<0.001	<0.001	<0.003	56.9	Clear No odor
2	70.73	84.32	2.2	10	9/1/11	56	407	<0.001	<0.001	<0.001	<0.003	58.6	Clear No odor
2	70.75	84.32	2.2	10	12/3/11	44	350	<0.001	<0.001	<0.001	<0.003	54.1	Clear No odor
2	70.89	84.32	2.1	10	2/23/12	116	448	<0.001	<0.001	<0.001	<0.003	61.8	Clear No odor
2	70.94	84.32	2.1	10	5/31/12	40	422	<0.001	<0.001	<0.001	<0.003	64	Clear No odor
2	71.12	84.32	2.1	10	8/24/12	60	399	<0.001	<0.001	<0.001	<0.003	50.8	Clear No odor
2	71.18	84.32	2.1	10	11/19/12	52	398	<0.001	<0.001	<0.001	<0.003	47.6	Clear No odor
2	71.37	84.32	2.1	10	2/13/13	60	380	<0.001	<0.001	<0.001	<0.003	54.5	Clear No odor
2	71.71	84.32	2	10	5/29/13	32	595	<0.001	<0.001	<0.001	<0.003	43	Clear No odor



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

June 11, 2013

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

RE: VACUUM F-34 VENT

Enclosed are the results of analyses for samples received by the laboratory on 06/03/13 16:41.

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/ga/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,

Celey D. Keene
Lab Director/Quality Manager



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: 06/03/2013
Reported: 06/11/2013
Project Name: VACUUM F-34 VENT
Project Number: NOT GIVEN
Project Location: T175-R35E-SEC34 F - LEA CTY, NM

Sampling Date: 05/29/2013
Sampling Type: Water
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: MONITOR WELL #1 (H301297-01)

BTX 80218		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	06/05/2013	ND	0.053	106	0.0500	0.654	
Toluene*	<0.001	0.001	06/05/2013	ND	0.048	95.3	0.0500	0.828	
Ethylbenzene*	<0.001	0.001	06/05/2013	ND	0.050	101	0.0500	0.903	
Total Xylenes*	<0.003	0.003	06/05/2013	ND	0.146	97.4	0.150	1.14	
Total BTX	<0.006	0.006	06/05/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 90.6 % 89.5-126

Chloride, SM4500Cl-B		mg/L		Analyzed By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	1020	4.00	06/07/2013	ND	104	104	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*	71.0	25.0	06/06/2013	ND	18.3	91.7	20.0	3.61	

TDS 160.1		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	2320	5.00	06/06/2013	ND	245	102	240	1.53	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 06/03/2013
Reported: 06/11/2013
Project Name: VACUUM F-34 VENT
Project Number: NOT GIVEN
Project Location: T17S-R35E-SEC34 F - LEA CTY, NM

Sampling Date: 05/29/2013
Sampling Type: Water
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: MONITOR WELL #2 (H301297-02)

BTEX 80218		mg/L		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	06/05/2013	ND	0.053	106	0.0500	0.654		
Toluene*	<0.001	0.001	06/05/2013	ND	0.048	95.3	0.0500	0.828		
Ethylbenzene*	<0.001	0.001	06/05/2013	ND	0.050	101	0.0500	0.903		
Total Xylenes*	<0.003	0.003	06/05/2013	ND	0.146	97.4	0.150	1.14		
Total BTEX	<0.006	0.006	06/05/2013	ND						

Surrogate: 4-Bromofluorobenzene (PHL) 89.2 % 89.5-126

Chloride, SM4500Cl-B		mg/L		Analyzed By: DW						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	32.0	4.00	06/07/2013	ND	108	108	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*	43.0	10.0	06/06/2013	ND	18.3	91.7	20.0	3.61		

TDS 160.1		mg/L		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	595	5.00	06/06/2013	ND	245	102	240	1.53		

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*=Accredited Analyte

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Celestine Keene

Celestine D. Keene, Lab Director/Quality Manager



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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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Celey D. Keene, Lab Director/Quality Manager

