

1R - 425-37

WORKPLANS

Date:

7-29-13

Rice Environmental Consulting & Safety

P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

RECEIVED OGD

CERTIFIED MAIL
RETURN RECEIPT NO. 7007 2560 0003 0320 5532

2013 JUL 31 P 2: 26

July 29th, 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: **Corrective Action Plan (CAP)**
Rice Operating Company – Vacuum SWD System
Vacuum F-33 boot (1R425-37): UL/F sec. 33 T17S R35E

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 abandoned Vacuum Salt Water Disposal (SWD) system.

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.

Background and Previous Work

The site is located approximately 2.5 miles east of Buckeye, New Mexico at UL/F sec. 33 T17S R35E as shown on the Site Location Map (Figure 1). Monitor well sampling at the site indicates that groundwater is located at 82 ft bgs.

In 2007, ROC initiated work on the former Vacuum F-33 boot junction box. The site was delineated using a backhoe to form a 30 ft x 30 ft x 12 ft deep excavation and soil samples were screened at regular intervals for both hydrocarbons and chlorides (Figure 2). From the excavation, the four-wall composite, bottom composite and the backfill were taken to a commercial laboratory for analysis. Laboratory tests of the four-wall composite showed a chloride reading of 2,260 mg/kg, a gasoline range organics (GRO) readings of 67.3 mg/kg and a diesel range organics (DRO) reading of 1,180 mg/kg. The sample was also submitted for BTEX analysis which returned results of non-detect for benzene, 0.128 mg/kg for toluene, 0.624 mg/kg for ethyl-benzene and 1.85 mg/kg for total xylenes. The bottom composite showed a chloride laboratory reading of 6,800 mg/kg, a GRO reading of 127 mg/kg and a DRO reading of 1,710 mg/kg. BTEX readings returned results of 0.012 mg/kg for benzene, 0.103 mg/kg for toluene, 0.096 mg/kg for ethyl benzene and 0.527 mg/kg for total xylenes. The excavated soil was

blended on site and returned to the excavation. A sample of the backfill was taken to a commercial laboratory for analysis and returned results of 3,600 mg/kg for chlorides, a GRO concentration below detectable limits and 1,700 mg/kg for DRO. The area was contoured to the surrounding landscape, and an identification plate was placed on the surface of the site to mark its location for future environmental considerations. NMOCD was notified of potential groundwater impact on November 20th, 2007 and a junction box disclosure report was submitted to NMOCD with all the 2007 junction box closures and disclosures.

An Investigation and Characterization Plan (ICP) was submitted to NMOCD on March 17th, 2008 and was approved on May 21st, 2008. As part of the ICP, three soil bores and a monitor well were installed at the site on February 3rd and 4th, 2009 (Figure 2). As the soil bores and monitor well were installed, sample were taken at regular intervals and field tested for chlorides and hydrocarbons. Representative samples were taken to a commercial laboratory for confirmatory chloride analysis (Appendix A). SB-1 and SB-2 were installed to 20 ft bgs. Laboratory analysis of SB-1 returned with a chloride value of 384 mg/kg at 5 ft bgs; however, field chloride levels dropped to a concentration of 222 mg/kg at 20 ft bgs. Laboratory analysis of SB-2 returned a chloride value of 1,860 mg/kg at 10 ft bgs; however, the chloride field values dropped as the bore was being advanced. SB-3, installed near the source, returned laboratory chloride readings of 4,400 mg/kg at 20 ft bgs and 5,760 mg/kg at 65 ft bgs. Field chloride levels remained high throughout the bore.

MW-1 was installed 35 feet down-gradient of the former junction box site. As the well was installed, field chloride levels dropped as the bore reached 60 ft bgs. Laboratory chloride readings showed chloride levels of 3,480 mg/kg at 25 ft bgs and 304 mg/kg at 60 ft bgs. The monitor well has been sampled quarterly since it has been installed (Figure 3). During the most recent sampling event on May 29th, 2013, MW-1 had a chloride reading of 860 mg/L and a TDS reading of 1,680 mg/L (Appendix B).

Corrective Action Plan

RECS recommends that ROC install a 20-mil reinforced poly liner measuring 62 ft x 61 ft at a depth of 3 ft bgs, due to the presence of hard rock in the area (Figure 2). The liner will provide a barrier that will inhibit the downward migration of chlorides to groundwater. The soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID reading below 100 ppm. Excavated soil will be evaluated for use as backfill and any soils requiring disposal will be properly disposed of at a NMOCD approved facility. Upon completion of backfilling, the site will be seeded with a native vegetative mix and soil amendments will be added as necessary. Vegetation above the liner will also provide a natural infiltration barrier for the site since plants capture water through their roots thereby reducing the volume of water moving through the vadose zone to groundwater.

In order to determine if there is an up-gradient groundwater source for contamination at the site, RECS recommends that ROC install a monitor well (MW-2) approximately 100

ft up-gradient of the site (Figure 3). The monitor well will be sampled quarterly in conjunction with MW-1. Once the monitor wells at the site have been analyzed for chloride and TPH readings, ROC will submit a groundwater remedy to NMOCD to address groundwater quality at the site.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

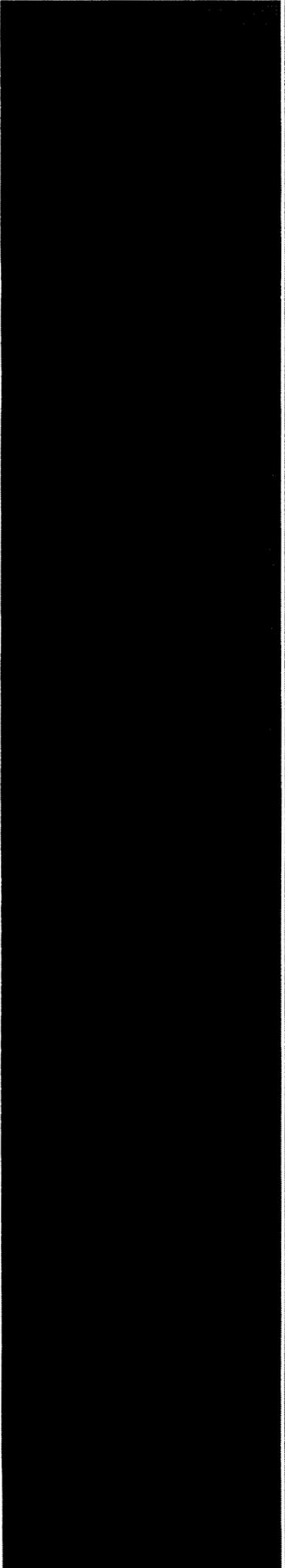
Sincerely,

A handwritten signature in black ink, appearing to read 'L. Weinheimer', with a long horizontal flourish extending to the right.

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

- Figure 1 – Site Location Map
- Figure 2 – Soil Data Map
- Figure 3 – MW Sampling Map
- Appendix A – Soil Bore Installation Labs
- Appendix B – MW Sampling Lab



Figures

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

Site Location Map

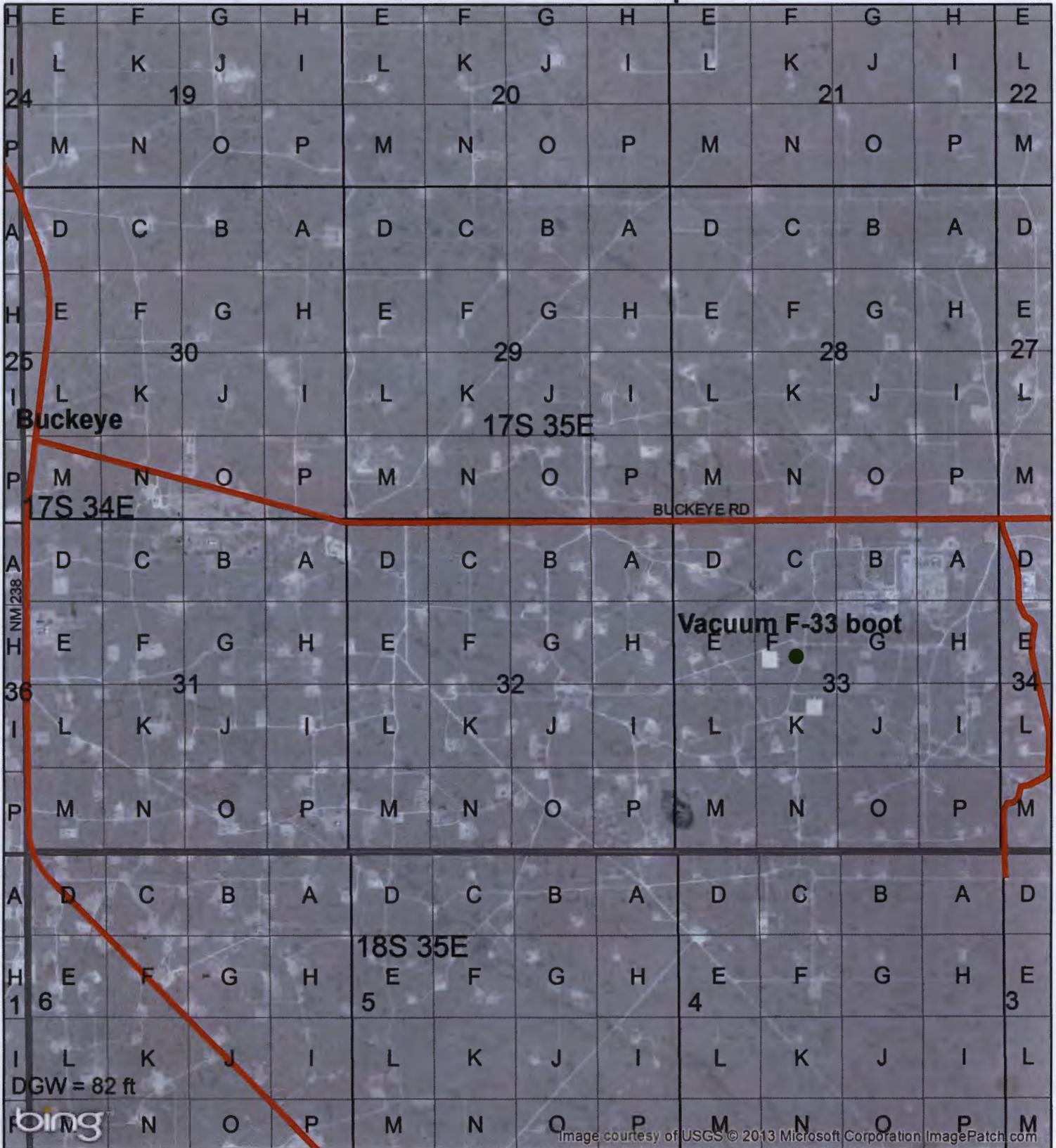


Image courtesy of USGS © 2013 Microsoft Corporation ImagePatch.com

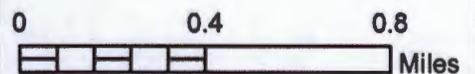


VACUUM F-33 BOOT

LEGALS: UL/F sec. 33
T-17-S R-35-E
LEA COUNTY, NM

NMOCD CASE #: 1R425-37

Figure 1



Drawing date: 5/13/13
Drafted by: L. Weinheimer

Soil Data

MW-1			
Depth	Cl-	PID	LAB Cl-
5	418	1.4	
10	630	0.2	
15	783	0.2	
20	1087	0.1	
25	2567	0.4	3480
30	1112	0.2	
35	1023	0	
40	947	0.1	
45	700	0.1	
50	401	0	
55	431	0	
60	366	0	304

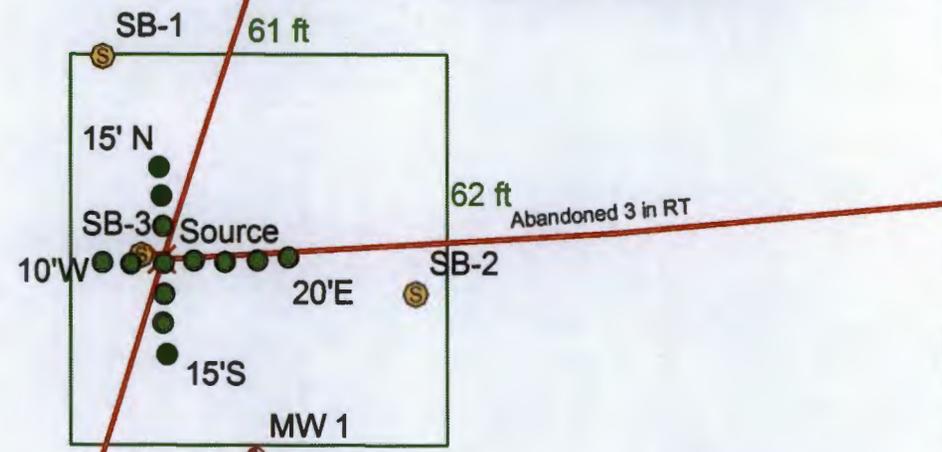
SB-1			
Depth	Cl-	PID	LAB Cl-
5	395	0.2	384
10	253	0.2	
15	230	0.2	
20	222	0.2	

SB-2			
Depth	Cl-	PID	LAB Cl-
5	1283	0.5	
10	648	0.5	1860
15	675	0.5	
20	610	0.5	

SB-3			
Depth	Cl-	PID	LAB Cl-
15	1452	86	
20	2614	127	4400
25	5615	29	
30	6307	23	
35	4706	3.8	
40	2678	7	
45	4399	3.5	
50	4203	3.7	
55	4309	0.6	
60	5304	0.6	
65	4259	—	5760

Source			5'N			5'S			5'E			5'W		
Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID
8	164	23.7	8	4981	546	8	273	343	8	1969	177	8	421	83
9	515	139	9	4348	461	9	334	320	9	3788	314	9	183	65.4
10	775	308	10	6560	511	10	338	252	10	6060	367	10	513	534
11	221	540	11	6600	653	11	468	740	11	4025	528	11	346	631
12	126	954	12	7698	528	12	490	1272	12	6121	706	12	326	715

10'N			10'S			10'E			10'W		
Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID
1	608	49.5	1	294	58.2	1	851	91.1	1	366	36.2
2	545	60.4	2	288	59.7	2	921	68.8	2	346	18.7
3	552	67.2	3	195	64.8	3	1806	28.4	3	136	29.6
4	651	14.6	4	337	150	4	2338	50.3	4	436	24.1
5	1864	32.6	5	242	650	5	2182	41	5	254	37.4
6	1611	344	6	233	279	6	2035	30	6	882	51
7	2282	337	7	356	378	7	1355	23.8	7	666	83.7
8	5328	511	8	264	725	8	2129	28.3	8	515	98
9	4799	643	9	164	534	9	3256	36.4	9	551	12.6
10	5547	765	10	282	737	10	3582	62.6	10	264	71.4
11	7966	761	11	771	959	11	4847	472	11	398	45.1
12	7248	665	12	967	900	12	4087	646	12	404	189



15'N			15'S			15'E			20'E		
Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID
1	885	0.7	1	105	0	1	1254	0	1	810	1.8
2	1438	0	2	162	0	2	873	0	2	978	1.5
3	1585	0	3	190	0	3	2892	0	3	855	2.3
4	4544	0	4	188	0	4	2670	0	4	932	1.2
5	5748	0	5	219	158	5	2327	0	5	1210	1.1
6	4984	0	6	269	173	6	3136	0	6	2240	2.4
7	6099	0	7	200	516	7	6352	0	7	2516	1.6
8	5958	0	8	398	325	8	4640	0	8	3259	3.9
9	9456	0	9	341	375	9	6303	0	9	3933	3.4
10	7552	0	10	518	576	10	10103	0.5	10	3524	2.4
11	5112	0	11	1129	219	11	9156	2.5	11	4413	5.4
12	3775	0	12	968	424	12	8288	2.4	12	3618	7.7

Legend

- MONITOR WELLS
 - VACUUM REMOVED BOX
 - VACUUM SOIL BORES
 - VACUUM ABANDONED LINE
 - PROPOSED 20-MIL REINFORCED POLY LINER @ 3 ft
 - VERTICALS
- DGW = 82 ft

Vertical Lab Data

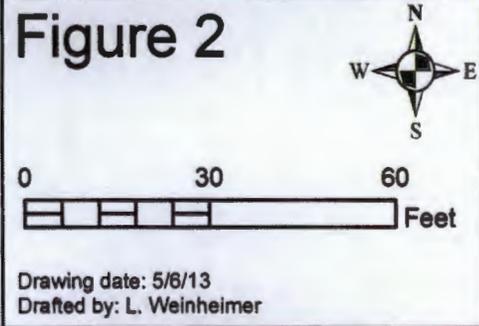
	Benzene	Toluene	Ethly Benzene	Xylenes	GRO	DRO	Cl-
4 wall comp	<0.025	0.128	0.624	1.85	67.3	1180	2260
Bottom Comp	0.012	0.103	0.096	0.527	127	1710	6800
Backfill					<10	1700	3600



VACUUM F-33 BOOT

LEGALS: UL/F sec. 33
 T-17-S R-35-E
 LEA COUNTY, NM
 NMOCD CASE #: 1R425-37

Figure 2



MW Sampling Data

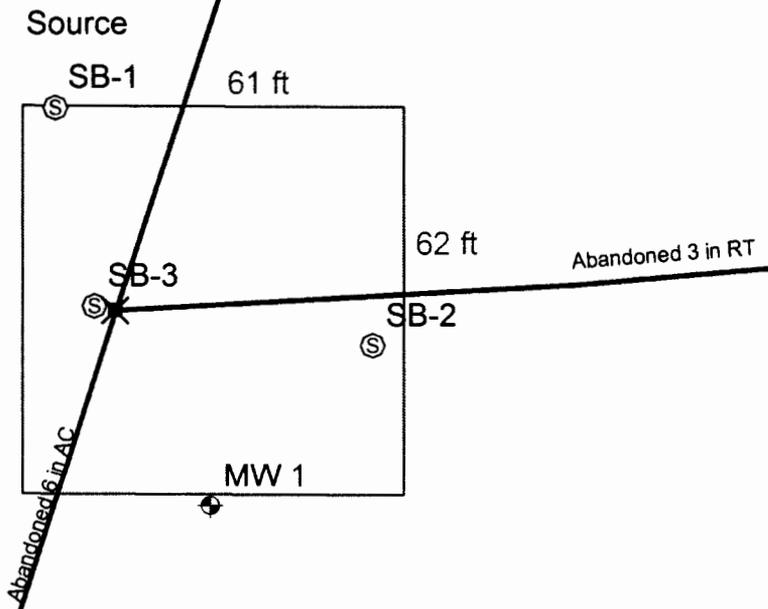
MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
1	80.63	126.5	3/2/2009	432	1070	<0.001	<0.001	<0.001	<0.003	56
	80.73	126.5	4/28/2009	600	1330	<0.001	<0.001	<0.001	<0.003	38.3
	80.85	126.5	8/5/2009	308	845	<0.001	<0.001	<0.001	<0.003	25.2
	80.98	126.5	11/23/2009	1080	2340	<0.001	<0.001	<0.001	<0.003	34.2
	81.11	126.51	2/9/2010	1160	2240	<0.001	<0.001	<0.001	<0.003	54.6
	81.29	126.51	5/28/2010	510	1190	<0.001	<0.001	<0.001	<0.003	29
	81.33	126.51	7/27/2010	710	1500	<0.001	<0.001	<0.001	<0.003	40.8
	81.4	126.51	10/27/2010	76	454	<0.001	<0.001	<0.001	<0.003	17.6
	81.53	126.51	2/20/2011	68	365	<0.001	<0.001	<0.001	<0.003	17.2
	81.66	126.51	6/3/2011	240	707	<0.001	<0.001	<0.001	<0.003	45.9
	81.74	126.51	9/1/2011	308	825	<0.001	<0.001	<0.001	<0.003	56.6
	81.78	126.51	12/12/2011	52	395	<0.001	<0.001	<0.001	<0.003	28.6
	81.9	126.51	2/23/2012	188	605	<0.001	<0.001	<0.001	<0.003	45.2
	81.82	126.51	5/30/2012	730	1740	<0.001	<0.001	<0.001	<0.003	84.9
	81.85	126.51	8/23/2012	580	1280	<0.001	<0.001	<0.001	<0.003	81.2
	81.89	126.51	11/19/2012	480	1170	<0.001	<0.001	<0.001	<0.003	50.4
	81.96	126.51	2/13/2013	870	1680	<0.001	<0.001	<0.001	<0.003	59.7
	82.03	126.51	5/29/2013	860	1940	<0.001	<0.001	<0.001	<0.003	79.3

Proposed MW-2

Legend

- ◆ MONITOR WELLS
- ✕ VACUUM REMOVED BOX
- Ⓢ VACUUM SOIL BORES
- VACUUM ABANDONED LINE
- PROPOSED 20-MIL REINFORCED POLY LINER @ 3 ft

DGW = 82 ft

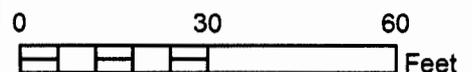


VACUUM F-33 BOOT

LEGALS: UL/F sec. 33
T-17-S R-35-E
LEA COUNTY, NM

NMOCD CASE #: 1R425-37

Figure 3

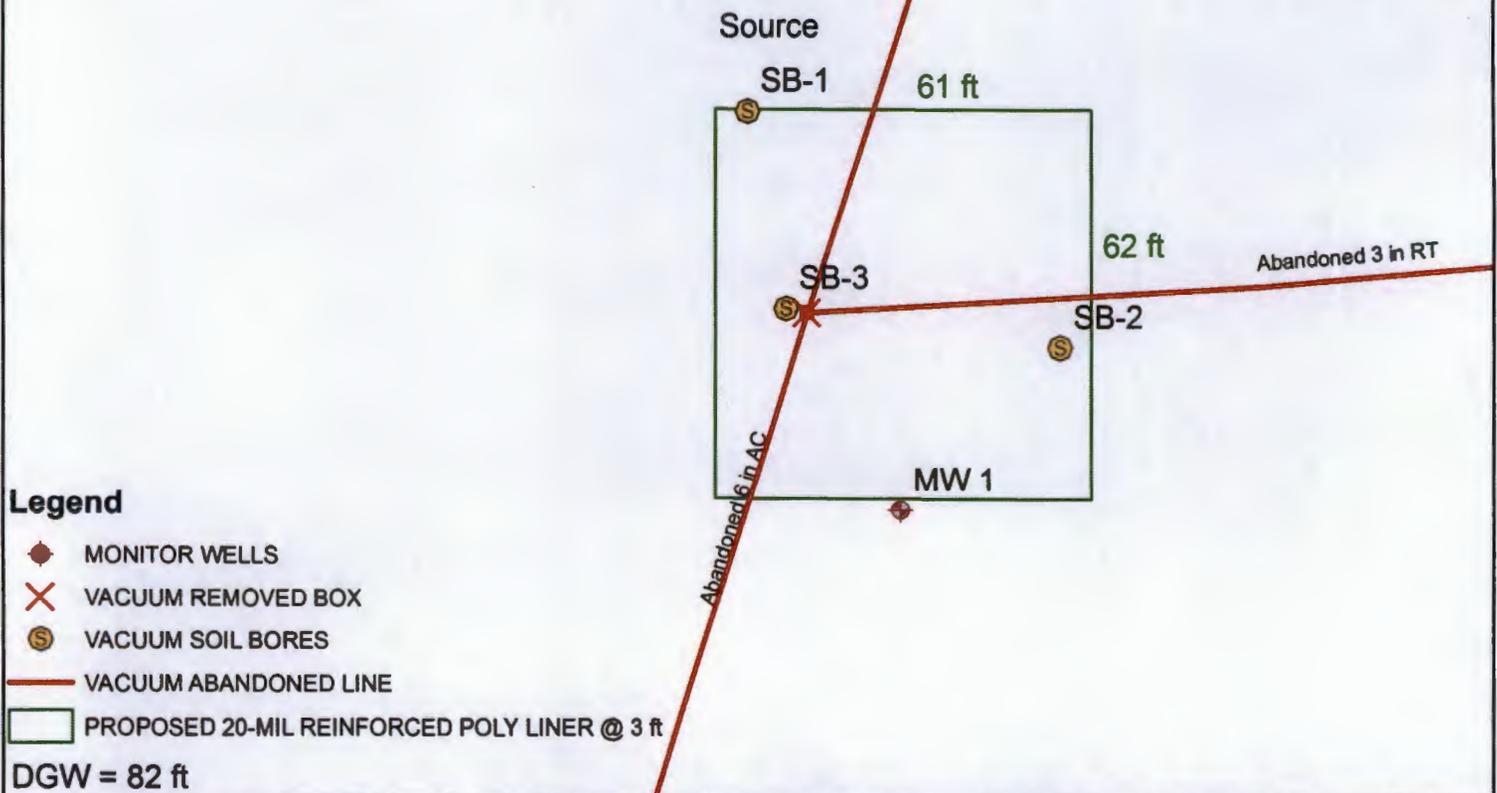


Drawing date: 7/24/13
Drafted by: L. Weinheimer

MW Sampling Data

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
1	80.63	126.5	3/2/2009	432	1070	<0.001	<0.001	<0.001	<0.003	56
	80.73	126.5	4/28/2009	600	1330	<0.001	<0.001	<0.001	<0.003	38.3
	80.85	126.5	8/5/2009	308	845	<0.001	<0.001	<0.001	<0.003	25.2
	80.98	126.5	11/23/2009	1080	2340	<0.001	<0.001	<0.001	<0.003	34.2
	81.11	126.51	2/9/2010	1160	2240	<0.001	<0.001	<0.001	<0.003	54.6
	81.29	126.51	5/28/2010	510	1190	<0.001	<0.001	<0.001	<0.003	29
	81.33	126.51	7/27/2010	710	1500	<0.001	<0.001	<0.001	<0.003	40.8
	81.4	126.51	10/27/2010	76	454	<0.001	<0.001	<0.001	<0.003	17.6
	81.53	126.51	2/20/2011	68	365	<0.001	<0.001	<0.001	<0.003	17.2
	81.66	126.51	6/3/2011	240	707	<0.001	<0.001	<0.001	<0.003	45.9
	81.74	126.51	9/1/2011	308	825	<0.001	<0.001	<0.001	<0.003	56.6
	81.78	126.51	12/12/2011	52	395	<0.001	<0.001	<0.001	<0.003	28.6
	81.9	126.51	2/23/2012	188	605	<0.001	<0.001	<0.001	<0.003	45.2
	81.82	126.51	5/30/2012	730	1740	<0.001	<0.001	<0.001	<0.003	84.9
	81.85	126.51	8/23/2012	580	1280	<0.001	<0.001	<0.001	<0.003	81.2
	81.89	126.51	11/19/2012	480	1170	<0.001	<0.001	<0.001	<0.003	50.4
	81.96	126.51	2/13/2013	870	1680	<0.001	<0.001	<0.001	<0.003	59.7
	82.03	126.51	5/29/2013	860	1940	<0.001	<0.001	<0.001	<0.003	79.3

◆ Proposed MW-2



Legend

- ◆ MONITOR WELLS
- ✕ VACUUM REMOVED BOX
- Ⓢ VACUUM SOIL BORES
- VACUUM ABANDONED LINE
- ▭ PROPOSED 20-MIL REINFORCED POLY LINER @ 3 ft

DGW = 82 ft

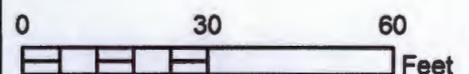


VACUUM F-33 BOOT

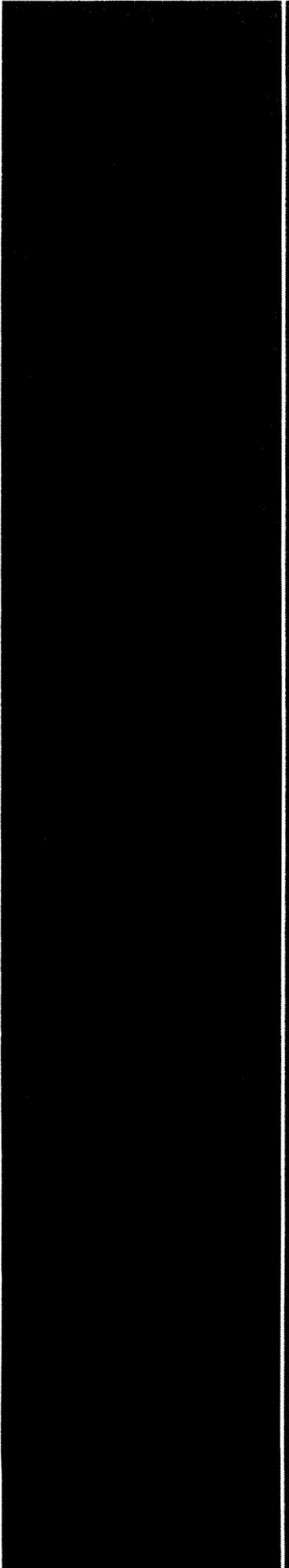
LEGALS: UL/F sec. 33
T-17-S R-35-E
LEA COUNTY, NM

NMOCD CASE #: 1R425-37

Figure 3



Drawing date: 7/24/13
Drafted by: L. Weinheimer



Appendix A

Soil Bore Installation Labs

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967



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

ANALYTICAL RESULTS FOR
 RICE OPERATING COMPANY
 ATTN: HACK CONDER
 122 WEST TAYLOR
 HOBBS, NM 88240
 FAX TO: (575) 397-1471

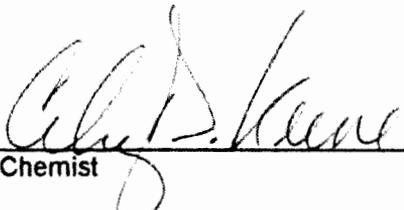
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 Reporting Date: 02/06/09
 Project Number: NOT GIVEN
 Project Name: VACUUM F-33 BOOT
 Project Location: VACUUM F-33 BOOT

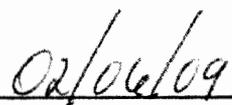
Analysis Date: 02/06/09
 Sampling Date: 02/03/09 & 02/04/09
 Sample Type: SOIL
 Sample Condition: COOL & INTACT
 Sample Received By: ML
 Analyzed By: HM

LAB NO.	SAMPLE ID	Cl ⁻ (mg/kg)
H16836-1	SB #1 @ 5'	384
H16836-2	SB #2 @ 5'	1,860
H16836-3	SB #3 @ 20'	4,400
H16836-4	SB #3 @ 60'	5,760
H16836-5	MW-1 @ 25'	3,480
H16836-6	MW-1 @ 60'	304
Quality Control		490
True Value QC		500
% Recovery		98.0
Relative Percent Difference		2.0

METHOD: Standard Methods 4500-Cl B

Note: Analyses performed on 1:4 w:v aqueous extracts.


 Chemist


 Date

H16836 RICE

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



ANALYTICAL RESULTS FOR
 RICE OPERATING COMPANY
 ATTN: HACK CONDER
 122 W. TAYLOR
 HOBBS, NM 88240
 FAX TO: (575) 397-1471

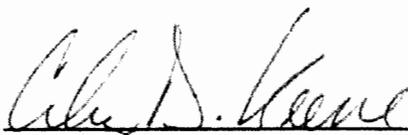
Receiving Date: 02/05/09
 Reporting Date: 02/10/09
 Project Number: NOT GIVEN
 Project Name: VACCUM F-33 BOOT
 Project Location: VACCUM F-33 BOOT

Sampling Date: 02/04/09
 Sample Type: SOIL
 Sample Condition: COOL & INTACT
 Sample Received By: ML
 Analyzed By: ZL

LAB NUMBER	SAMPLE ID	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)
ANALYSIS DATE		02/09/09	02/09/09	02/09/09	02/09/09
H16836-3	SB #3 @ 20'	<0.050	0.084	0.100	0.923
Quality Control		0.052	0.054	0.052	0.155
True Value QC		0.050	0.050	0.050	0.150
% Recovery		104	108	104	103
Relative Percent Difference		3.5	1.8	<1.0	<1.0

METHOD: EPA SW-846 8021B

TEXAS NELAP CERTIFICATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE, AND TOTAL XYLENES.


 Chemist


 Date

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
 (505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

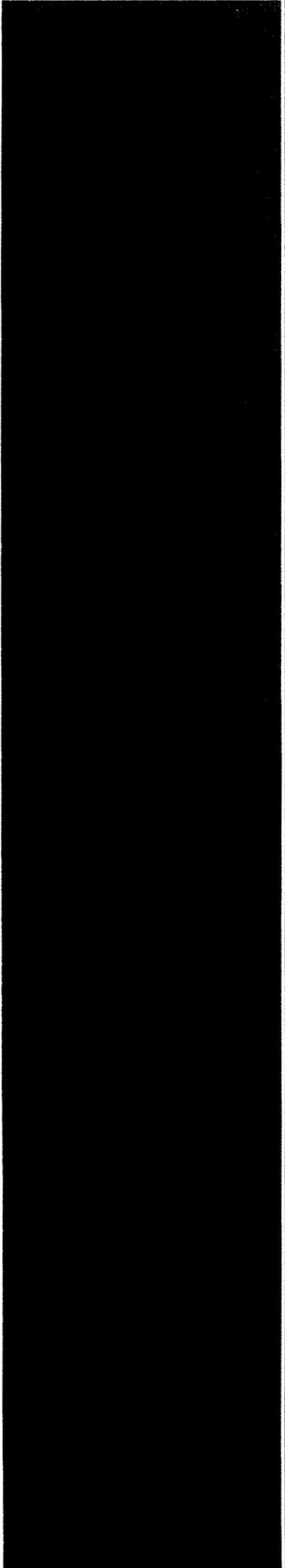
Company Name: Rice Operating Company				BILL TO				ANALYSIS REQUEST																	
Project Manager: Hack Conder				P.O. #:				Chlorides TPH 8015 M BTEX																	
Address: 122 West Taylor				Company:																					
City: Hobbs		State: NM Zip: 88240		Attn:																					
Phone #: 393-9174		Fax #: 397-1471		Address:																					
Project #:		Project Owner:		City:																					
Project Name: Vacuum F-33 boot				State: Zip:																					
Project Location: Vacuum F-33 boot				Phone #:																					
Sampler Name: Lara Weinheimer				Fax #:																					
FOR LAB USE ONLY																									
Lab I.D.	Sample I.D.	(GRAB OR (C)OMP.)	# CONTAINERS	MATRIX					PRESERV.			SAMPLING													
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE	ICE / COOL	OTHER :	DATE	TIME											
H16836-1	SB #1 @ 5'		1			✓				✓		2/3/09	04:12	✓											
-2	SB #2 @ 5'		1			✓				✓		2/3/09	04:35	✓											
-3	SB #3 @ 20'		1			✓				✓		2/4/09	08:47	✓		✓									
-4	SB #3 @ 60'		1			✓				✓		2/4/09	09:08	✓											
-5	MW-1 @ 25'		1			✓				✓		2/4/09	10:25	✓											
-6	MW-1 @ 60'		1			✓				✓		2/4/09	10:37	✓											

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: L. Weinheimer	Date: 2-3-09	Received By: <i>[Signature]</i>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
	Time: 4:45		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: email results	
	Time:		Hconder@riceswd.com; jpurvis@riceswd.com; Lweinheimer@riceswd.com	
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	(Initials) <i>[Signature]</i>		

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

NEED SAMPLES BACK, PLEASE



Appendix B

MW Sampling Lab

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

June 07, 2013

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

RE: VACUUM F-33 BOOT

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/qa/lab_accred_certif.html.

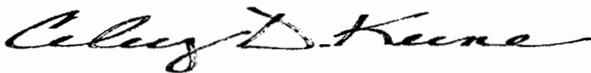
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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,



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: 06/03/2013
 Reported: 06/07/2013
 Project Name: VACUUM F-33 BOOT
 Project Number: NOT GIVEN
 Project Location: T17S-R35E-SEC33 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 (H301296-01)

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	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 (PII) 92.2 % 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*	860	4.00	06/07/2013	ND	104	104	100	0.00	

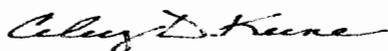
Sulfate 375.4		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	79.3	10.0	06/06/2013	ND	18.3	91.7	20.0	3.61	

TDS 160.1		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	1940	5.00	06/06/2013	ND	245	102	240	1.53	

Cardinal Laboratories

*=Accredited Analyte

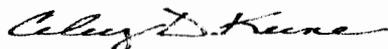
PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celestine 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



Celey D. Keene, Lab Director/Quality Manager

Hansen, Edward J., EMNRD

From: Laura Pena <lpena@riceswd.com>
Sent: Wednesday, August 14, 2013 9:39 AM
To: Hansen, Edward J., EMNRD
Cc: Hack Conder; Katie Jones; Lara Weinheimer
Subject: ROC - Vacuum F-33 boot (1R425-37) CAP Addendum
Attachments: Vacuum F-33 boot Liner and SB Data.pdf

Mr. Hansen

ROC submits the following as an Addendum to the Vacuum F-33 boot (1R425-37) CAP. Page 2, section Corrective Action Plan: text in blue lettering, below, will be added to the paragraph. Red lettering marked with a strike-through will be deleted. The new Figure 2 plat showing the updated proposed liner is attached.

RECS recommends that ROC install a 20-mil reinforced poly liner measuring 62 ft x ~~61~~ 71 ft, extending 15 ft to the east past SB-2, at a depth of 3 ft bgs, due to the presence of hard rock in the area (Figure 2). The liner will provide a barrier that will inhibit the downward migration of chlorides to groundwater. The soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID reading below 100 ppm. Excavated soil will be evaluated for use as backfill and any soils requiring disposal will be properly disposed of at a NMOCD approved facility. Upon completion of backfilling, the site will be seeded with a native vegetative mix and soil amendments will be added as necessary. Vegetation above the liner will also provide a natural infiltration barrier for the site since plants capture water through their roots thereby reducing the volume of water moving through the vadose zone to groundwater.

If you have any questions or require any additional information, please contact me or Hack Conder at (575)393-2967.

Thank you.

Laura Peña
Environmental Project Assistant Manager
RICE Operating Company

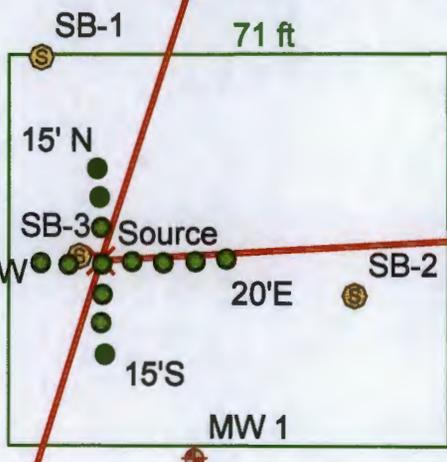
Soil Data

MW-1				Source			5'N			5'S			5'E			5'W		
Depth	Cl-	PID	LAB Cl-	Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID
5	418	1.4		8	164	23.7	8	4981	546	8	273	343	8	1969	177	8	421	83
10	630	0.2		9	515	139	9	4348	461	9	334	320	9	3788	314	9	183	65.4
15	783	0.2		10	775	308	10	6560	511	10	338	252	10	6060	367	10	513	534
20	1087	0.1		11	221	540	11	6600	653	11	468	740	11	4025	528	11	346	631
25	2567	0.4	3480	12	126	954	12	7698	528	12	490	1272	12	6121	706	12	326	715
30	1112	0.2																
35	1023	0																
40	947	0.1																
45	700	0.1																
50	401	0																
55	431	0																
60	366	0	304															

SB-1			
Depth	Cl-	PID	LAB Cl-
5	395	0.2	384
10	253	0.2	
15	230	0.2	
20	222	0.2	

SB-2			
Depth	Cl-	PID	LAB Cl-
5	1283	0.5	
10	648	0.5	1860
15	675	0.5	
20	610	0.5	

SB-3			
Depth	Cl-	PID	LAB Cl-
15	1452	86	
20	2614	127	4400
25	5615	29	
30	6307	23	
35	4706	3.8	
40	2678	7	
45	4399	3.5	
50	4203	3.7	
55	4309	0.6	
60	5304	0.6	
65	4259	---	5760



15'N			15'S			15'E			20'E		
Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID
1	885	0.7	1	105	0	1	1254	0	1	810	1.8
2	1438	0	2	162	0	2	873	0	2	978	1.5
3	1585	0	3	190	0	3	2892	0	3	855	2.3
4	4544	0	4	188	0	4	2670	0	4	932	1.2
5	5748	0	5	219	158	5	2327	0	5	1210	1.1
6	4984	0	6	269	173	6	3136	0	6	2240	2.4
7	6099	0	7	200	516	7	6352	0	7	2516	1.6
8	5958	0	8	398	325	8	4640	0	8	3259	3.9
9	9456	0	9	341	375	9	6303	0	9	3933	3.4
10	7552	0	10	518	576	10	10103	0.5	10	3524	2.4
11	5112	0	11	1129	219	11	9156	2.5	11	4413	5.4
12	3775	0	12	968	424	12	8288	2.4	12	3618	7.7

Legend

- ◆ MONITOR WELLS
 - X VACUUM REMOVED BOX
 - VACUUM SOIL BORES
 - VACUUM ABANDONED LINE
 - PROPOSED 20-MIL REINFORCED POLY LINER @ 3 ft
 - VERTICALS
- DGW = 82 ft

	Vertical Lab Data						
	Benzene	Toluene	Ethly Benzene	Xylenes	GRO	DRO	Cl-
4 wall comp	<0.025	0.128	0.624	1.85	67.3	1180	2260
Bottom Comp	0.012	0.103	0.096	0.527	127	1710	6800
Backfill					<10	1700	3600



VACUUM F-33 BOOT

LEGALS: UL/F sec. 33
T-17-S R-35-E
LEA COUNTY, NM
NMOCD CASE #: 1R425-37

Figure 2

0 30 60
Feet

Drawing date: 5/6/13
Drafted by: L. Weinheimer