

1R - 426-29

WORKPLANS

Date:
4-11-12

Rice Environmental Consulting & Safety

P.O. Box 5630 Hobbs, NM 88241

Phone 575.393.4411 Fax 575.393.0293

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2012 APR 13 A 10:43

April 11th, 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: ICP Report and Corrective Action Plan (CAP)
Rice Operating Company – BD SWD System
BD G-16 vent (1R426-29): UL/G sec. 16 T22S 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.

Background and Previous Work

The site is located approximately 3 miles south of Eunice, New Mexico at UL/G sec. 16 T22S R37E as shown on the Site Location Map (Figure 1). Groundwater at this site is located approximately 96 +/- feet below ground surface (bgs).

In 2002, ROC initiated work on the former BD G-16 vent. The site was delineated using a backhoe and soil samples were screened at regular intervals for both hydrocarbons and chlorides. The excavation reached dimensions of 16 x 16 x 16 feet bgs where composite samples were taken for laboratory verification. Laboratory tests of the site showed gasoline range organics (GRO) that were non-detect and diesel range organics (DRO) that were non-detect, with the exception of the remediated backfill which was 11.0 mg/kg. Laboratory chloride readings at the site were 3,240 mg/kg for the bottom composite, 3,640 mg/kg on the sidewall composite, and the remediated backfill had a reading of 144 mg/kg. At 16 feet bgs, a 1 ft clay layer was installed to inhibit further chloride migration. The soils were blended on site and the remediated backfill was returned to the excavation to bring it back to ground surface. 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. A junction box is no longer needed at the site. NMOCD was notified of potential groundwater impact on January 31st, 2003, and a junction box

disclosure report was submitted to NMOCD with all the 2002 junction box closures and disclosures.

An Investigation and Characterization Plan (ICP) was submitted to the NMOCD on July 2nd, 2010 and approved on July 19th, 2010. The plan proposed additional investigation of the soils surrounding the former junction box, and the installation of monitoring well(s) to delineate groundwater quality if warranted.

ICP Investigative Results

Per the ICP, nine soil bores were advanced through the former junction box site on September 13th and 14th, 2010 (Figure 2). ROC personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID). Representative samples from the bore were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers (Appendix A). Laboratory readings in SB-3, SB-5, SB-6, SB-7, SB-8, and SB-9 exhibited chloride concentrations that decreased with depth. SB-3 decreased from 5,680 mg/kg at 20 ft to 2,720 mg/kg at 75 ft, SB-5 decreased from 3,800 mg/kg at 30 ft to 2,600 mg/kg at 75 ft, SB-6 decreased from 4,240 mg/kg at 20 ft to 1,090 mg/kg at 50 ft, SB-7 decreased from 3,160 mg/kg at 20 ft to 576 mg/kg at 75 ft, SB-8 decreased from 2,240 mg/kg at 55 ft to 1,760 mg/kg at 75 ft, and SB-9 decreased from 3,040 mg/kg at 30 ft to 1,380 mg/kg at 60 ft. SB-1 increased with depth from 2,320 mg/kg at 35 ft to 6,640 mg/kg at 75 ft, SB-2 increased with depth from 2,920 mg/kg at 45 ft to 3,680 mg/kg at 75 ft, and SB-4 increased with depth from 2,000 mg/kg at 65 ft to 3,840 mg/kg at 75 ft. Laboratory readings for GRO, DRO, and BTEX showed non-detect throughout all bores, except SB-7 where the GRO was 10.6 mg/kg at 20 ft and 12.5 mg/kg at 75 ft.

On January 13th, 2011, a monitor well was installed 26 ft southeast of the former junction box site (Figure 4). As the well was being installed, ROC personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID). Representative samples from the well were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers (Appendix A). Laboratory readings showed chloride numbers of 4,480 mg/kg at 10 ft bgs, 4,160 mg/kg at 75 ft bgs, and 1,390 mg/kg at 80 ft bgs. GRO and DRO readings were non-detect in all three samples.

On March 21st, 2011, an additional five soil bores (SB-10 through SB-15) were installed at the site (Figure 3). ROC personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID). Representative samples from SB-11, SB-13, SB-14, and SB-15 were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers (Appendix A). Laboratory chloride readings significantly decreased with depth. SB-11 decreased from 1,060 mg/kg at 10 ft to 208 mg/kg at 35 ft, SB-13 decreased from 2,400 mg/kg at 5 ft to 160 mg/kg at 40 ft, SB-14 decreased from 7,360 mg/kg at 5 ft to 160 mg/kg at 40 ft, and SB-15 decreased from 688 mg/kg at 15 ft to 128 mg/kg at 30 ft. GRO and DRO readings for all laboratory samples showed non-detect.

The monitor well has been sampled quarterly since its installation (Figure 4). The most recent (October 21, 2011) groundwater samples tested 64 mg/L in the near-source well (MW-1) (Appendix B). Five quarters of monitoring well sampling data have been collected, and each sampled constituent has remained below WQCC standards.

Recommendations

Based on the activities conducted during the Investigation and Characterization phase of delineation at the BD G-16 vent site, RECS submits the following as a Corrective Action Plan:

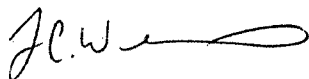
Five quarters of monitoring well sampling show no impact to groundwater above WQCC standards; as such ROC proposes to plug and abandon the near-source well (MW-1) with a 1-3% bentonite/concrete slurry with a 3 ft concrete cap.

The site has an existing clay liner measuring 16 ft x 16 ft at 16 ft bgs. ROC proposes to place a 20-mil, reinforced poly liner at 4-5 ft bgs that will measure 96 ft x 98 ft (Figure 5). The liner will cover all the soil bore points and extend past the farthest soil bores in each direction by five feet. 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 measurement below 100 ppm. Excavated soil will be evaluated for use as backfill, and any soil requiring disposal will be properly disposed of at a NMOCD approved facility. The surface soils over and surrounding the site will be prepared with soil amendments as needed and then seeded with a native vegetative mix. 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.

Upon completion of the CAP work elements, we anticipate ROC will submit a written report which will include a request for "remediation termination" and the closure of the regulatory file.

ROC 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

Attachments:

- Figure 1 – Site Location map
- Figure 2 – Soil Bore Installation (SB 1 – 9)
- Figure 3 – Soil Bore Installation (SB 10 – 15)
- Figure 4 – MW Installation and Sampling plat
- Figure 5 – Proposed Liner
- Appendix A – Soil Bore Logs and Laboratory Confirmation
- Appendix B – Monitor Well Sampling Analysis



Figures

RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

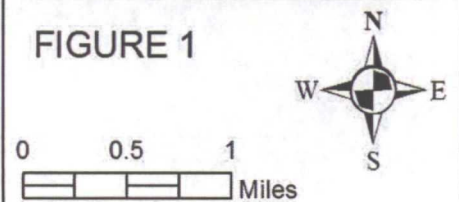
Site Location



BD G-16 vent

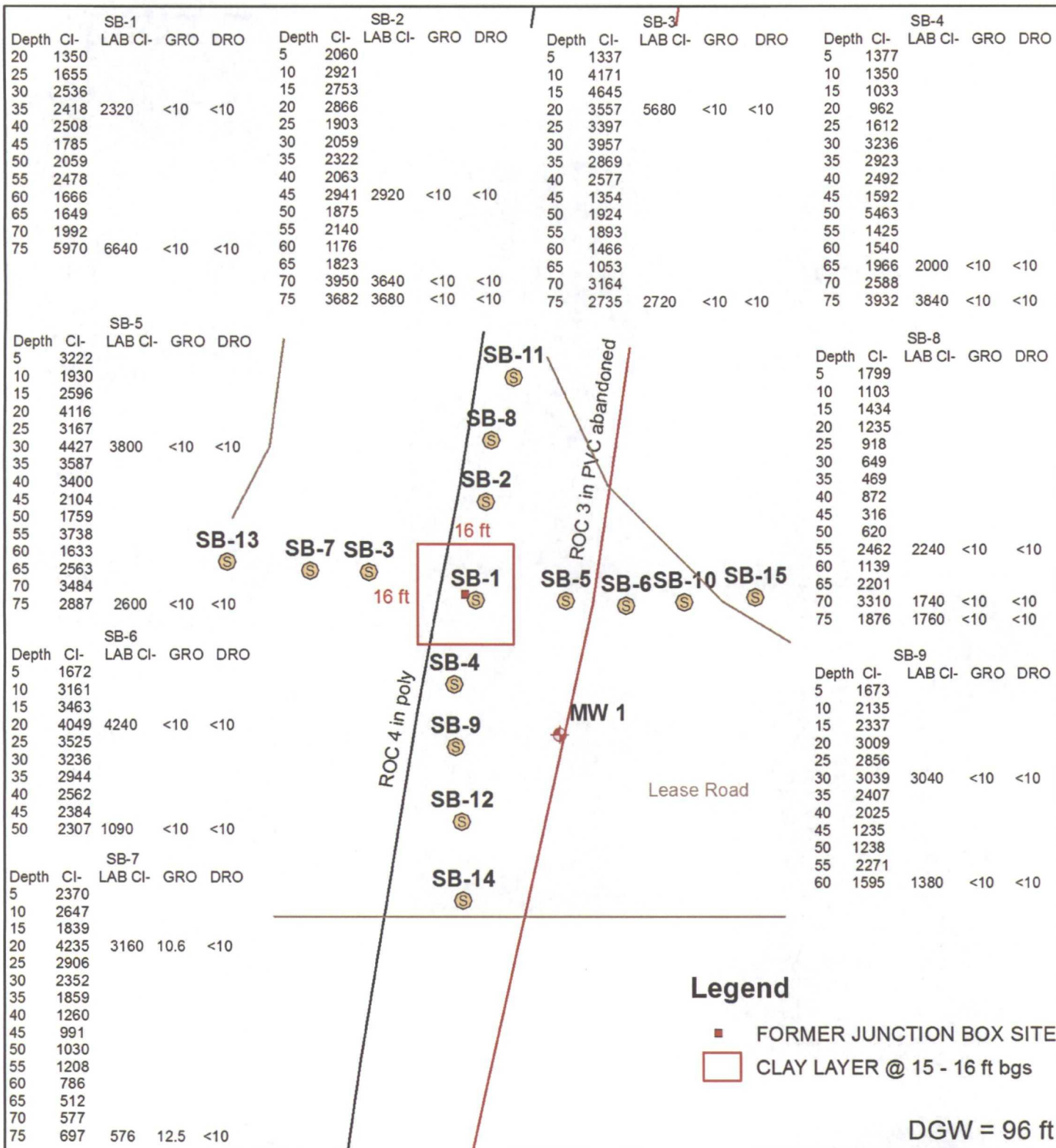
Legals: UL/G sec. 16
T22S R37E
NMOCD Case #: 1R426-29

FIGURE 1



Drawing date: 6/30/2010
Drafted by: L. Weinheimer

Soil Bore Installation

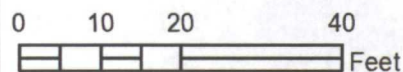


BD G-16 vent

NMOCD Case #: 1R426-29

Legals: UL/G sec. 16
T22S R37E

Figure 2



Drawing date: 2-8-12
Drafted by: L. Weinheimer

Soil Bore Information

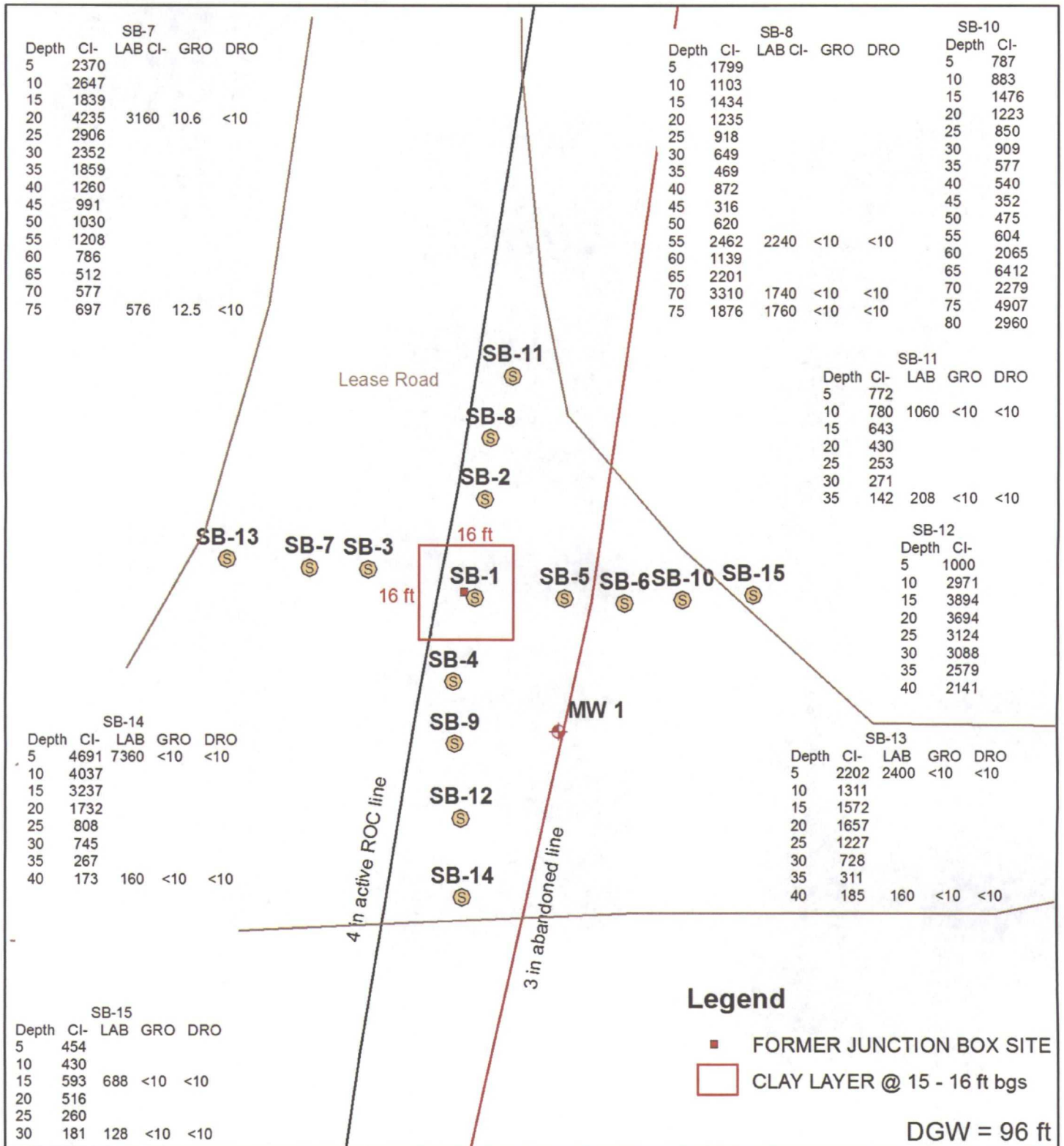
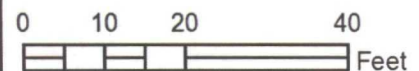


Figure 3



Drawing date: 2-8-12
Drafted by: L. Weinheimer



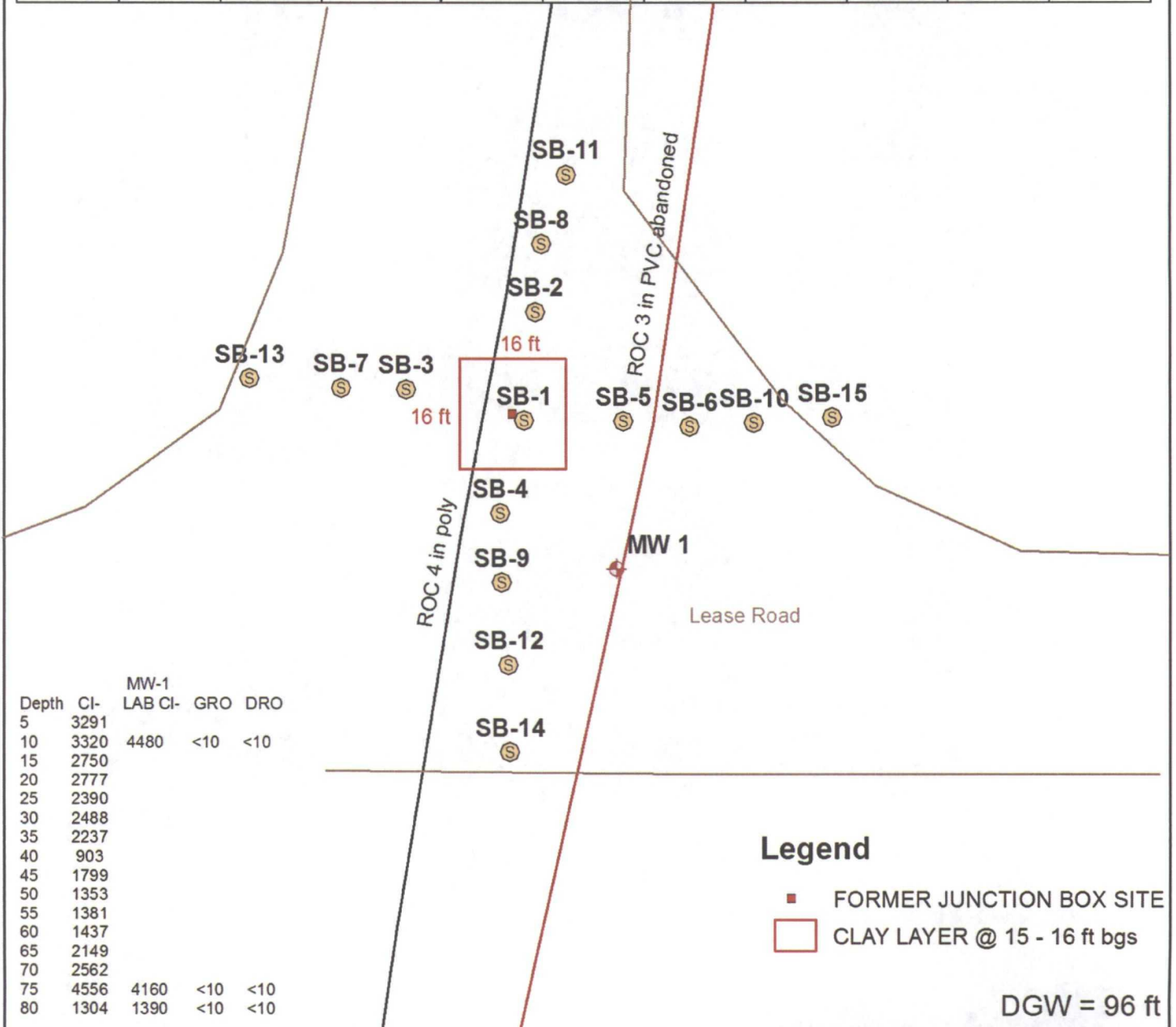
BD G-16 vent

NMOCD Case #: 1R426-29

Legals: UL/G sec. 16
T22S R37E

MW Installation and Sampling

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
MW-1	96.48	100.51	2/8/2011	160	674	<0.001	<0.001	<0.001	<0.003	86.5
	96.47	100.51	4/20/2011	60	501	<0.001	<0.001	<0.001	<0.003	85.6
	96.47	100.51	4/20/2011	60	501	<0.001	<0.001	<0.001	<0.003	85.6
	96.7	100.51	7/27/2011	172	652	<0.050	<0.050	<0.050	<0.150	102
	96.86	100.51	10/21/2011	64	410	<0.001	<0.001	<0.001	<0.003	87.3

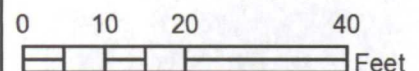


BD G-16 vent

NMOCD Case #: 1R426-29

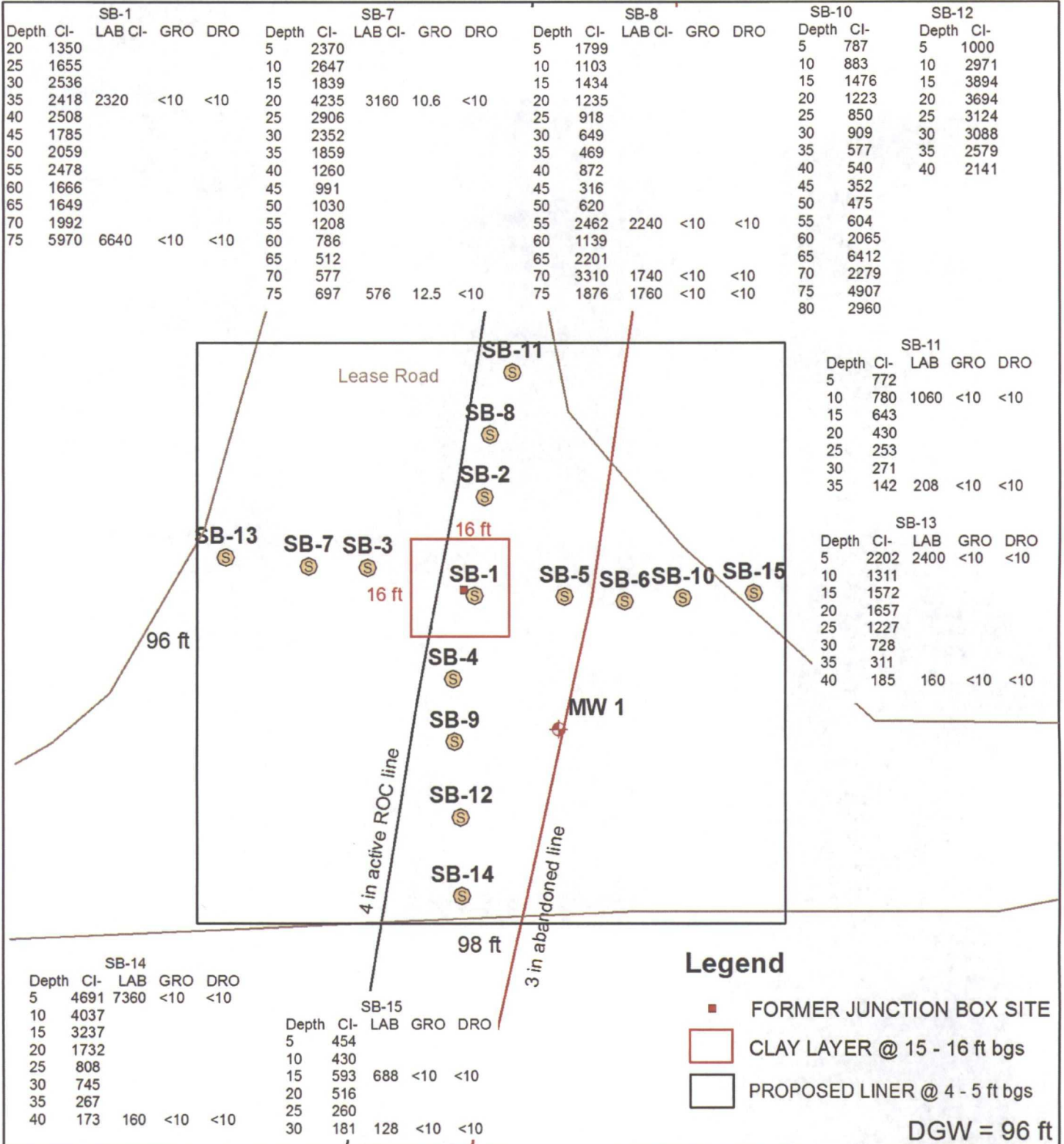
Legals: UL/G sec. 16
T22S R37E

Figure 4



Drawing date: 2-8-12
Drafted by: L. Weinheimer

Proposed Liner

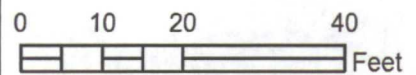


BD G-16 vent

NMOCD Case #: 1R426-29

Legals: UL/G sec. 16
T22S R37E

Figure 5



Drawing date: 2-8-12
Drafted by: L. Weinheimer



Appendix A

Soil Bore Logs and Laboratory Confirmation

RICE Environmental Consulting and Safety (RECS)





P.O. Box 5630 Hobbs, NM 88241

Phone 575.393.4411 Fax 575.393.0293

Logger:	Lara Weinheimer			
Driller:	Harrison & Cooper Inc. Drilling			
Drilling Method:	Air Rotary		Project Name:	Well ID:
Start Date:	9/13/2010		BD G-16 vent	SB-1
End Date:	9/13/2010	Project Consultant: RECS		
Comments: Located at the source of the former junction box site.		Location: UL/G sec. 16 T22S R37E		
Drafted by: Lara Weinheimer		Lat: 32°23'36.578"N		
TD = 75 ft		Long: 103°9'53.815W		
GW = 82 ft		County: LEA		
		State: NM		

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Light orangey brown very fine sand with caliche particles. Dry. No odor.		
20 ft	1350		0.2			
				Light orangey brown very fine sand. Dry. No odor.		
25 ft	1655		0.2			
30 ft	2536		1			
35 ft	2418	CI-2320	0.7			
		GRO <10		Orangey brown very fine sand. Slightly moist. No odor.		
		DRO <10				
40 ft	2508		0.3			
45 ft	1785		0.3			
50 ft	2059		0.4			
				Tan very fine sand. Slightly moist. No odor.		
55 ft	2478		0.4			
60 ft	1666		0.3			

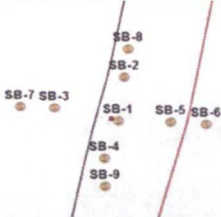

bentonite seal

Depth (feet)	chloride field tests	LAB	PID	Description		Lithology		Well Construction		
				Orangey brown very fine sand. Slightly moist. No odor.						
65 ft	1649		0.1							
70 ft	1992		0.1							
75 ft	5970	Cl- 6640	0.2							
		GRO <10								
		DRO <10								

Logger:	Lara Weinheimer				
Driller:	Harrison & Cooper Inc. Drilling				
Drilling Method	Air Rotary			Project Name:	Well ID:
Start Date:	9/13/2010			BD G-16 vent	SB-2
End Date:	9/13/2010	Project Consultant: RECS		Location: UL/G sec. 16 T22S R37E	
Comments: Located 15 ft north of the former junction box site.		Lat: 32°23'36.739"N		County: LEA	
Drafted by Lara Weinheimer		Long: 103°9'53.794"W		State: NM	
TD = 75 ft		GW = 82 ft			

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
5 ft	2060		1.2	Light orangey brown very fine sand with caliche. Dry. No odor.		
10 ft	2921		0.1			
15 ft	2753		0.3	Orangey brown very fine sand. Dry. No odor.		
20 ft	2866		0.0			
25 ft	1903		0	Light orangey brown very fine sand with consolidated rock. Dry. No odor.		
30 ft	2059		0.1			
35 ft	2322		0.7	Light orangey brown very fine sand with consolidated rock. Dry. No odor.		
40 ft	2063		0			
45 ft	2941	CI-2920	0			bentonite seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
		GRO <10		Orangey brown very fine sand with consolidated rock. Slightly moist. No odor.		
		DRO <10				
50 ft	1875		0			
				Light brown very fine sand. Slightly moist. No odor.		
55 ft	2140		0.2			
				Light orangey brown very fine sand. Slightly moist. No odor.		
60 ft	1176		0.2			
				Orangey brown very fine sand. Slightly moist. No odor.		
65 ft	1823		0.2			
70 ft	3950	CI- 3640	0.2			
		GRO <10				
		DRO <10				
75 ft	3682	CI- 3680	0.2			
		GRO <10				
		DRO <10				







Logger:	Lara Weinheimer			
Driller:	Harrison & Cooper Inc. Drilling			
Drilling Method	Air rotary		Project Name:	Well ID:
Start Date:	9/13/2010		BD G-16 vent	SB-3
End Date:	9/13/2010	Project Consultant: RECS		
Comments: Located 16 ft west of the former junction box site.			Location: UL/G sec. 16 T22S R37E	
Drafted by Lara Weinheimer			Lat: 32°23'36.626"N	
TD = 75 ft			Long: 103°9'54.022"W	
GW = 82 ft			County: LEA	
			State: NM	

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Light orangey brown very fine sand with caliche. Dry. No odor.		
5 ft	1,337		0.9			
10 ft	4,171		0.1	Light orangey brown very fine sand. Dry. No odor.		
15 ft	4,645		0.3			
20 ft	3,557	CI-5680	0.2			
		GRO <10				
		DRO <10				
25 ft	3,397		0.9			
30 ft	3,957		1.8			
				Light orangey brown very fine sand with sandstone. Dry. No odor.		bentonite seal
35 ft	2,869		0.5			
40 ft	2,577		0.3	Orangey brown very fine sand with sandstone particles. Slightly moist. No odor.		
45 ft	1,354		0.4			

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
50 ft	1,924		0.1			
55 ft	1,893		0			
60 ft	1,466		0.1			
65 ft	1,053		0.4			
70 ft	3,164		0.2			
75 ft	2,735	Cl- 2720	0.1			
		GRO <10				
		DRO <10				

Logger:	Jordan Woodfin					
Driller:	Harrison & Cooper Inc. Drilling					
Drilling Method:	Air rotary		Project Name:	Well ID:		
Start Date:	9/13/2010		BD G-16 vent	SB-4		
End Date:	9/13/2010	Project Consultant: RECS				
Comments: Located 15 ft south of the former junction box site. Drafted by Lara Weinheimer TD = 75 ft GW = 82 ft			Location: UL/G sec. 16 T22S R37E Lat: 32°23'36.44"N County: LEA Long: 103°9'53.858"W State: NM			
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown sand and caliche (excavation)		
5 ft	1377		0			
10 ft	1350		0			
				Dark Red Clay		
15 ft	1033		0			
20 ft	962		0.8			
				Very fine tan sand		
25 ft	1612		0.8			
30 ft	3236		0.9			
35 ft	2923		0			
40 ft	2492		0.1			
45 ft	1592		0			

bentonite
seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Very fine tan sand with caliche rubble		
50 ft	5463		0			
				Very fine white sand		
55 ft	1425		0			
				reddish brown very fine sand		
60 ft	1540		0			
65 ft	1966	Cl- 2000	0			
		GRO <10				
		DRO <10				
70 ft	2588		0			
75 ft	3932	Cl- 3840	0			
		GRO <10				
		DRO <10				

Logger:	Jordan Woodfin				
Driller:	Harrison & Cooper Inc. Drilling				
Drilling Method:	Air rotary			Project Name:	Well ID:
Start Date:	9/13/2010			BD G-16 vent	SB-5
End Date:	9/13/2010	Project Consultant: RECS		Location: UL/G sec. 16 T22S R37E	
Comments: Located 16 ft east of the former junction box site.		Lat: 32°23'36.576"N		County: LEA	
Drafted by Lara Weinheimer		Long: 103°9'53.639"W		State: NM	
TD = 75 ft		GW = 82 ft			

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
5 ft	3222		0	Tan very fine sand		
10 ft	1930		0	Reddish brown very fine sand with caliche rubble		
15 ft	2596		0	Tan very fine sand		
20 ft	4116		0	Tan very fine sand		
25 ft	3167		0	Tan very fine sand		
30 ft	4427	CI-3800	0	Tan very fine sand		
		GRO <10				
		DRO <10				
35 ft	3587		0	Tan very fine sand		
40 ft	3400		0	Tan very fine sand		bentonite seal
45 ft	2104		0	Brownish red very fine sand		


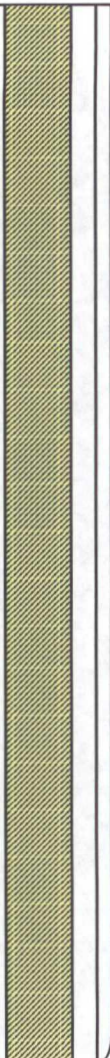
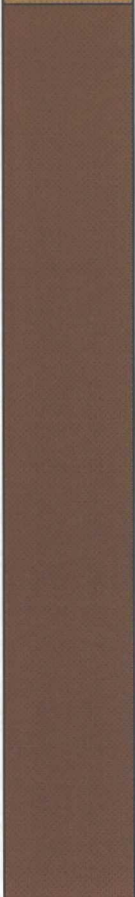
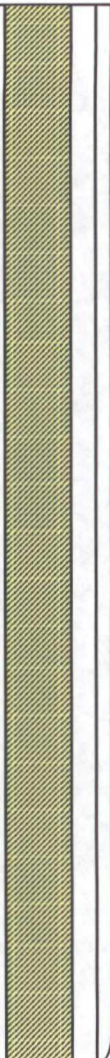
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
50 ft	1759		0			
				Light tan very fine sand		
55 ft	3738		0			
				Tan very fine sand		
60 ft	1633		0			
65 ft	2563		0			
70 ft	3484		0			
75 ft	2887	CI- 2600	0			
		GRO <10				
		DRO <10				

Logger:	Jordan Woodfin					
Driller:	Harrison & Cooper Inc. Drilling					
Drilling Method:	Air rotary					
Start Date:	9/13/2010					
End Date:	9/13/2010	Project Name: BD G-16 vent Well ID: SB-6 Project Consultant: RECS				
Comments: Located 25 ft east of the former junction box site. Drafted by: Lara Weinheimer TD = 50 ft GW = 82 ft		Location: UL/G sec. 16 T22S R37E Lat: N32°23'36.566" County: LEA Long: W103°9'53.523" State: NM				
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan very fine sand with caliche mix		
5 ft	1672		0			
				Red very fine sand with caliche mix		
10 ft	3161		0			
15 ft	3463		0			
20 ft	4049	CI-4240	0			
		GRO <10		Very fine tan sand		
		DRO <10				
25 ft	3525		0			
30 ft	3236		0			
35 ft	2944		0			
40 ft	2562		0			
45 ft	2384		0	Very fine tan sand with caliche rubble		

bentonite
seal

Depth (feet)	chloride field tests	LAB	PID	Description		Lithology		Well Construction		
				Reddish brown very fine sand						
50 ft	2307	CI-1090	0							
		GRO <10								
		DRO <10								

Logger:	Jordan Woodfin						
Driller:	Harrison & Cooper Inc. Drilling						
Drilling Method	Air rotary		Project Name:	Well ID:			
Start Date:	9/13/2010		BD G-16 vent	SB-7			
End Date:	9/13/2010	Project Consultant: RECS					
Comments: Located 28 ft west of the former junction box site. Drafted by: Lara Weinheimer TD = 75 ft GW = 82 ft			Location: UL/G sec. 16 T22S R37E Lat: N32°23'36.631" County: LEA Long: W103°9'54.138" State: NM				
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction	
				Very fine sand with tan caliche			
5 ft	2370		0				
				Very fine red sand with caliche			
10 ft	2647		0				
				Very fine white sand with caliche			
15 ft	1839		0				
20 ft	4235	CI-3160	0	Very fine tan sand with caliche rubble			
		GRO 10.6					
		DRO <10					
25 ft	2906		0				
30 ft	2352		0				
35 ft	1859		0	Brown to tan very fine sand with caliche rubble			
40 ft	1260		0				bentonite seal
45 ft	991		0				

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown to tan very fine sand with caliche rubble		
50 ft	1030		0			
				Brown fine sand		
55 ft	1208		0			
60 ft	786		0			
65 ft	512		0			
70 ft	577		0			
75 ft	697	CI- 576	0			
		GRO 12.5				
		DRO <10				

Logger:	Lara Weinheimer			
Driller:	Harrison & Cooper Inc. Drilling			
Drilling Method	Air rotary		Project Name:	Well ID:
Start Date:	9/14/2010		BD G-16 vent	SB-8
End Date:	9/14/2010	Project Consultant: RECS		
Comments: Located 26 ft north of the former junction box site.		Location: UL/G sec. 16 T22S R37E		
Drafted by: Lara Weinheimer		Lat: 32°23'36.841"N		
TD = 75 ft		County: LEA		
GW = 82 ft		Long: 103°9'53.781"W		
State: NM				





Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction	
				Light orangey brown very fine sand with consolidated rock. Dry. No odor.			
5 ft	1799		0				
				Light orangey brown very fine sand with caliche. Dry. No odor.			
10 ft	1103		0				
				Orangey brown very fine sand. Dry. No odor.			
15 ft	1434		0				
				Orangey brown very fine sand with consolidated rock. Dry. No odor.			
20 ft	1235		0				
				Orangey brown very fine sand with consolidated rock. Dry. No odor.			
25 ft	918		0				
				Orangey brown very fine sand with consolidated rock. Dry. No odor.			
30 ft	649		0				
				Orangey brown very fine sand with consolidated rock. Dry. No odor.			
35 ft	469		0				
				Orangey brown very fine sand with consolidated rock. Dry. No odor.			
40 ft	872		0				
				Orangey brown very fine sand with consolidated rock. Dry. No odor.			
45 ft	316		0				

bentonite seal









Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Orangey brown very fine sand. Dry. No odor.		
50 ft	620		0			
				Light orangey tan very fine sand. Slightly moist. No odor.		
55 ft	2462	CI- 2240	0			
		GRO <10		Light orangey brown very fine sand. Slightly moist. No odor.		
		DRO <10				
60 ft	1139		0			
65 ft	2201		0	Orangey brown very fine sand. Slightly moist. No odor.		
70 ft	3310	CI- 1740	0.2			
		GRO <10				
		DRO <10				
75 ft	1876	CI- 1760	0			
		GRO <10				
		DRO <10				

Logger:	Lara Weinheimer			
Driller:	Harrison & Cooper Inc. Drilling			
Drilling Method	Air rotary		Project Name:	Well ID:
Start Date:	9/14/2010		BD G-16 vent	SB-9
End Date:	9/14/2010	Project Consultant: RECS		
Comments: Located 24 ft south of the former junction box site.		Location: UL/G sec. 16 T22S R37E		
Drafted by: Lara Weinheimer		Lat: 32°23'36.34"N		
TD = 60 ft		Long: 103°9'53.858"W		
GW = 82 ft		County: LEA		
		State: NM		

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Light brown very fine sand with caliche. Dry. No odor.		
5 ft	1673		0			
				Light orangey brown very fine sand with caliche particles. Dry. No odor.		
10 ft	2135		0			
15 ft	2337		0			
				Light orangey brown very fine sand with consolidated rock. Dry. No odor.		
20 ft	3009		0			
25 ft	2856		0.1			
				Light orangey brown very fine sand. Dry. No odor.		
30 ft	3039	CI-3040	0.1			bentonite seal
		GRO <10		Orangey brown very fine sand. Slightly moist. No odor.		
		DRO <10				
35 ft	2407		0.2			
				Light orangey brown very fine sand. Slightly moist. No odor.		
40 ft	2025		0			
				Light orangey brown very fine sand with consolidated rock. Slightly moist. No odor.		
45 ft	1235		0.2			

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Orangey brown very fine sand with consolidated rock. Slightly moist. No odor.		
50 ft	1238		0.1			
				Light orangey brown very fine sand. Slightly moist. No odor.		
55 ft	2271		0			
60 ft	1595	CI-1380	0			
		GRO <10				
		DRO <10				

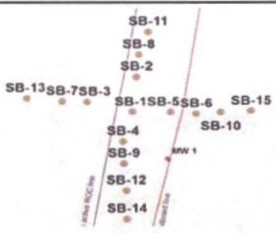

Logger:	Jordan Woodfin					
Driller:	Harrison & Cooper, Inc.					
Drilling Method:	Air rotary		Project Name:	Well ID:		
Start Date:	3/21/2011		BD G-16 vent	SB-10		
End Date:	3/21/2011	Project Consultant: RECS		Location: UL/G sec. 16 T22S R37E		
Comments: All samples are from cuttings. Located 35 ft east of the former junction box site. No labs taken for this soil bore. DRAFTED BY: L. Weinheimer TD = 80 ft GW = 82 ft			Lat: 32°23'36.566"N County: LEA Long: 103°9'53.402"W State: NM			
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
5 ft	787		1.9	Tan silty fine caliche		
10 ft	883		1.7			
15 ft	1476		1.9			
20 ft	1223		1.6	Tan fine silty sand		
25 ft	850		1.9	Tan to red fine silty sand		
30 ft	909		1.7			
35 ft	577		1.5			
40 ft	540		0.9			
						bentonite seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
45 ft	352		1.9			
50 ft	475		1.9			
55 ft	604		1.9	Tan to brown fine silty sand with grey gravel		
60 ft	2065		2.5			
65 ft	6412		1.7	Yellowish very fine sand		
70 ft	2279		1.6			
				Brownish red very fine sand (moist)		
75 ft	4907		0			
80 ft	2960		0			

Logger:	Jordan Woodfin						
Driller:	Harrison & Cooper, Inc.						
Drilling Method:	Air rotary		Project Name:	Well ID:			
Start Date:	3/21/2011		BD G-16 vent	SB-11			
End Date:	3/21/2011		Project Consultant: RECS				
Comments: All samples are from cuttings. Located 38 feet north of the former junction box site. DRAFTED BY: L. Weinheimer TD = 35 ft GW = 82 ft		Location: UL/G sec. 16 T22S R37E Lat: 32°23'36.943"N County: LEA Long: 103°9'53.732"W State: NM					
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction	
				Tan very fine caliche			
5 ft	772		5.9				
				Tan very fine sand			
10 ft	780	CI-1060	6.1				
		GRO <10					
		DRO <10		Tan well consolidated caliche			
15 ft	643		4.1				
20 ft	430		4.7				
				Brownish red very fine sand			
25 ft	253		6.9				
30 ft	271		7.7				
35 ft	142	CI-208	5.1	Tan to red fine sand with some caliche			
		GRO <10					
		DRO <10					

Logger:	Jordan Woodfin			
Driller:	Harrison & Cooper, Inc.			
Drilling Method:	Air rotary		Project Name:	Well ID:
Start Date:	3/21/2011		BD G-16 vent	SB-12
End Date:	3/21/2011	Project Consultant: RECS		Location: UL/G sec. 16 T22S R37E
Comments: All samples are from cuttings. Located 37 ft south of the former junction box site. No labs taken for this soil bore.		Lat: 32°23'36.218"N		County: LEA
DRAFTED BY: L. Weinheimer		Long: 103°9'53.845"W		State: NM
TD = 40 ft		GW = 82 ft		

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown fine sand and caliche		
5 ft	1,000		0.0			
				Tan very fine silty sand with caliche		
10 ft	2,971		0.0			
15 ft	3,894		0.0			
				Light brown very fine silty sand		
20 ft	3,694		0.0			
25 ft	3,124		0.0			
30 ft	3,088		0.0			
				Light brown very fine silty sand		
35 ft	2,579		0.0			
40 ft	2,141		0.0			

Logger:	Jordan Woodfin			
Driller:	Harrison & Cooper, Inc.			
Drilling Method:	Air rotary		Project Name:	Well ID:
Start Date:	3/21/2011		BD G-16 vent	SB-13
End Date:	3/21/2011		Project Consultant: RECS	
Comments: All samples are from cuttings. Located 42 ft west of the former junction box site. DRAFTED BY: L. Weinheimer TD = 40 ft GW = 82 ft			Location: UL/G sec. 16 T22S R37E Lat: 32°23'36.647"N County: LEA Long: 103°9'54.298"W State: NM	

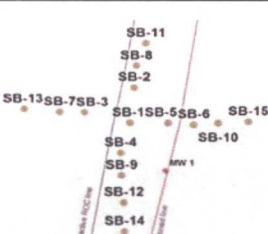


Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
5 ft	2202	CI-2400	0.3	Tan silty caliche		
		GRO <10				
		DRO <10				
10 ft	1311		0.6			
15 ft	1572		0.3	Tan fine sand and caliche		
20 ft	1657		0.2			
25 ft	1227		0.2			
30 ft	728		0.1	Tan to red fine sand with some caliche		
35 ft	311		0.1			
40 ft	185	CI-160	0.1			
		GRO <10				
		DRO <10				

bentonite seal

Logger:	Jordan Woodfin			
Driller:	Harrison & Cooper, Inc.			
Drilling Method:	Air rotary		Project Name:	Well ID:
Start Date:	3/21/2011		BD G-16 vent	SB-14
End Date:	3/21/2011	Project Consultant: RECS		Location: UL/G sec. 16 T22S R37E
Comments: All samples are from cuttings. Located 50 ft south of the former junction box site. DRAFTED BY: L. Weinheimer TD = 40 ft GW = 82 ft			Lat: 32°23'36.085"N	County: LEA
			Long: 103°9'53.847"W	State: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan to red silty caliche		
5 ft	4691	CI-7360 GRO <10 DRO <10	0.3			
				Red sand and caliche		
10 ft	4037		0.2			
				Tan to red fine sand with caliche		
15 ft	3237		0.2			
20 ft	1732		0.2			
25 ft	808		0.6			
30 ft	745		0.4			
				Reddish brown very fine sand		
35 ft	267		0.5			
40 ft	173	CI-160 GRO <10 DRO <10	0.5			

bentonite seal

Logger:	Jordan Woodfin					
Driller:	Harrison & Cooper, Inc.		Project Name: BD G-16 vent		Well ID: SB-15	
Drilling Method:	Air rotary		Project Consultant: RECS			
Start Date:	3/21/2011		Location: UL/G sec. 16 T22S R37E			
End Date:	3/21/2011	Lat: 32°23'36.579"N		County: LEA		
Comments: All samples are from cuttings. Located 47 ft east of the former junction box site.		Long: 103°9'53.27"W		State: NM		
DRAFTED BY: L. Weinheimer						
TD = 30 ft		GW = 82 ft				
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan fine caliche		
5 ft	454		0.6			
				Tan very fine sand		
10 ft	430		0.3			
				Tan very fine sand with caliche		
15 ft	593	CI-688	0.5			
		GRO <10		Tan very fine sand with caliche		
		DRO <10				
20 ft	516		0.6			
				Light brown very fine sand		
25 ft	260		0.5			
30 ft	181	CI-128	0.6			
		GRO <10				
		DRO <10				

Logger:	Jordan Woodfin					
Driller:	Harrison & Cooper, Inc.					
Drilling Method:	Air rotary		Project Name:	Well ID:		
Start Date:	1/13/2011		BD G-16 vent	MW-1		
End Date:	1/13/2011	Project Consultant: RECS		Location: UL/G sec. 16 T22S R37E		
Comments: Located 26 ft south east of the former junction box site.			Lat: 32°23'36.358"N			
DRAFTED BY: L. Weinheimer			County: LEA			
TD = 97 ft			Long: 103°9'53.663"W			
GW = 82 ft			State: NM			
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
5 ft	3291			Tan very fine silty sand		
10 ft	3320	CI-4480				
		GRO <10				
		DRO <10				
15 ft	2750			Light brown very fine silty sand		2 in. PVC
20 ft	2777					
25 ft	2390					
30 ft	2488					
35 ft	2237					
40 ft	903					
						bentonite seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
45 ft	1799					
50 ft	1353					
55 ft	1381					
60 ft	1437			Tannish yellow very fine silty sand		
65 ft	2149					
70 ft	2562			Brown very fine moist sand		
75 ft	4556	Cl- 4160				
		GRO <10				
		DRO <10				
80 ft	1304	Cl- 1390				
		GRO <10				
		DRO <10		NO SAMPLES TAKEN		
85 ft						
90 ft						
95 ft						
97 ft						

sand
pack

September 20, 2010

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

RE: BD G-16 VENT

Enclosed are the results of analyses for samples received by the laboratory on 09/14/10 9:16.

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.

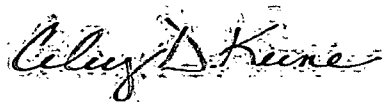
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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: 09/14/2010
Reported: 09/20/2010
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 09/13/2010
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: SB-1 @ 35' (H020841-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2320	16.0	09/14/2010	ND	448	112	400	3.51		
TPH 8015M		mg/kg		Analyzed By: AB						A-01a
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65		
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18		
Surrogate: 1-Chlorooctane		89.3 %	70-130							
Surrogate: 1-Chlorooctadecane		134 %	70-130							

Sample ID: SB-1 @ 75' (H020841-02)

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6640	16.0	09/14/2010	ND	448	112	400	3.51		
TPH 8015M		mg/kg	Analyzed By: AB							A-01a
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65		
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18		
Surrogate: 1-Chlorooctane		96.5 %	70-130							
Surrogate: 1-Chlorooctadecane		152 %	70-130							

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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: 09/14/2010
Reported: 09/20/2010
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 09/13/2010
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: SB-2 @45' (H020841-03)

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
Chloride	2920	16.0	09/14/2010	ND	448	112	400	3.51			
TPH 8015M		mg/kg		Analyzed By: AB							A-01a
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65			
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18			

Surrogate: 1-Chlorooctane 92.2 % 70-130

Surrogate: 1-Chlorooctadecane 131 % 70-130

Sample ID: SB-2 @ 70' (H020841-04)

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3640	16.0	09/14/2010	ND	448	112	400	3.51		
TPH 8015M		mg/kg		Analyzed By: AB						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65		
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18		

Surrogate: 1-Chlorooctane 87.3 % 70-130

Surrogate: 1-Chlorooctadecane 117 % 70-130

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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: 09/14/2010
Reported: 09/20/2010
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 09/13/2010
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: SB- 2 @ 75' (H020841-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3680	16.0	09/14/2010	ND	448	112	400	3.51		
TPH 8015M		mg/kg		Analyzed By: AB						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65		
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18		

Surrogate: 1-Chlorooctane 97.4 % 70-130

Surrogate: 1-Chlorooctadecane 122 % 70-130

Sample ID: SB-3 @ 15' (H020841-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5680	16.0	09/14/2010	ND	448	112	400	3.51		
TPH 8015M		mg/kg		Analyzed By: AB						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65		
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18		

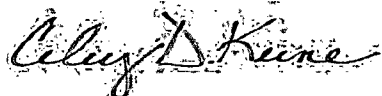
Surrogate: 1-Chlorooctane 87.0 % 70-130

Surrogate: 1-Chlorooctadecane 99.1 % 70-130

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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: 09/14/2010
Reported: 09/20/2010
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 09/13/2010
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: SB-3 @ 75' (H020841-07)

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2720	16.0	09/14/2010	ND	448	112	400	3.51		
TPH 8015M		mg/kg	Analyzed By: AB							A-01
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65		
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18		
Surrogate: 1-Chlorooctane		88.1 %	70-130							
Surrogate: 1-Chlorooctadecane		137 %	70-130							

Sample ID: SB #4 @ 65' (H020841-08)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2000	16.0	09/14/2010	ND	448	112	400	3.51	
TPH 8015M		mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65	
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18	
Surrogate: 1-Chlorooctane		86.2 %	70-130						
Surrogate: 1-Chlorooctadecane		130 %	70-130						

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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: 09/14/2010
Reported: 09/20/2010
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 09/13/2010
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: SB #4 @ 75' (H020841-09)

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3840	16.0	09/14/2010	ND	448	112	400	3.51		
TPH 8015M		mg/kg	Analyzed By: AB							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65		
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18		
Surrogate: 1-Chlorooctane		86.1 %	70-130							
Surrogate: 1-Chlorooctadecane		133 %	70-130							

Sample ID: SB #5 30' (H020841-10)

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3800	16.0	09/14/2010	ND	448	112	400	3.51	
TPH 8015M		mg/kg	Analyzed By: AB						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65	
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18	
Surrogate: 1-Chlorooctane	86.7 %	70-130							
Surrogate: 1-Chlorooctadecane	126 %	70-130							

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: 09/14/2010
Reported: 09/20/2010
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 09/13/2010
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: SB #5 75' (H020841-11)

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2600	16.0	09/14/2010	ND	448	112	400	3.51		
TPH 8015M		mg/kg	Analyzed By: AB							A-01a

GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65	
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18	

Surrogate: 1-Chlorooctane 85.3 % 70-130

Surrogate: 1-Chlorooctadecane 145 % 70-130

Sample ID: SB #6 20' (H020841-12)

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4240	16.0	09/14/2010	ND	416	104	400	3.77		
TPH 8015M		mg/kg	Analyzed By: AB							A-01a

GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65	
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18	

Surrogate: 1-Chlorooctane 87.5 % 70-130

Surrogate: 1-Chlorooctadecane 137 % 70-130

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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: 09/14/2010
Reported: 09/20/2010
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 09/13/2010
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: SB #6 50' (H020841-13)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
Chloride	1090	16.0	09/14/2010	ND	416	104	400	3.77			
TPH 8015M		mg/kg		Analyzed By: AB							A-01a
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<10.0	10.0	09/17/2010	ND	159	79.5	200	1.65			
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18			

Surrogate: 1-Chlorooctane 87.5 % 70-130

Surrogate: 1-Chlorooctadecane 134 % 70-130

Sample ID: SB #7 20' (H020841-14)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3160	16.0	09/14/2010	ND	416	104	400	3.77		
TPH 8015M		mg/kg		Analyzed By: AB						A-01a
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	10.6	10.0	09/17/2010	ND	159	79.5	200	1.65		
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18		

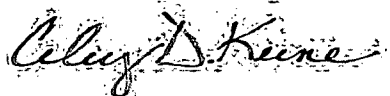
Surrogate: 1-Chlorooctane 88.9 % 70-130

Surrogate: 1-Chlorooctadecane 134 % 70-130

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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: 09/14/2010
Reported: 09/20/2010
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 09/13/2010
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: SB #7 75' (H020841-15)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
Chloride	576	16.0	09/14/2010	ND	416	104	400	3.77			
TPH 8015M			mg/kg		Analyzed By: AB						A-01a
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	12.5	10.0	09/17/2010	ND	159	79.5	200	1.65			
DRO >C10-C28	<10.0	10.0	09/17/2010	ND	166	82.9	200	1.18			

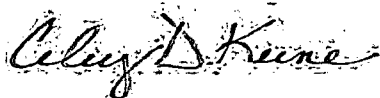
Surrogate: 1-Chlorooctane 88.0 % 70-130

Surrogate: 1-Chlorooctadecane 153 % 70-130

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

A-01a	Surrogate outside historical limits.
A-01	Surrogate outside historical limits
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





CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

NEED SAMPLES BACK, PLEASE



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

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

#26

September 20, 2010

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

RE: BD G-16 VENT

Enclosed are the results of analyses for samples received by the laboratory on 09/14/10 16:10.

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: 09/14/2010
 Reported: 09/20/2010
 Project Name: BD G-16 VENT
 Project Number: NONE GIVEN
 Project Location: BD G-16 VENT

 Sampling Date: 09/14/2010
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SB - 8 @ 55' (H020851-01)

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2240	16.0	09/16/2010	ND	416	104	400	3.77	
TPH 8015M		mg/kg	Analyzed By: AB						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/18/2010	ND	165	82.5	200	2.83	
DRO >C10-C28	<10.0	10.0	09/18/2010	ND	164	82.1	200	0.607	
Surrogate: 1-Chlorooctane	90.4 %	70-130							
Surrogate: 1-Chlorooctadecane	124 %	70-130							

Sample ID: SB - 8 @ 70' (H020851-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1740	16.0	09/16/2010	ND	416	104	400	3.77	
TPH 8015M		mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/18/2010	ND	165	82.5	200	2.83	
DRO >C10-C28	<10.0	10.0	09/18/2010	ND	164	82.1	200	0.607	
Surrogate: 1-Chlorooctane	91.8 %	70-130							
Surrogate: 1-Chlorooctadecane	125 %	70-130							

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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: 09/14/2010
Reported: 09/20/2010
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 09/14/2010
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SB - 8 @ 75' (H020851-03)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1760	16.0	09/16/2010	ND	416	104	400	3.77		
TPH 8015M		mg/kg		Analyzed By: AB						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/18/2010	ND	165	82.5	200	2.83		
DRO >C10-C28	<10.0	10.0	09/18/2010	ND	164	82.1	200	0.607		
Surrogate: 1-Chlorooctane	92.2 %	70-130								
Surrogate: 1-Chlorooctadecane	114 %	70-130								

Sample ID: SB - 9 @ 30' (H020851-04)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3040	16.0	09/16/2010	ND	416	104	400	3.77		
TPH 8015M			mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	S-04	
GRO C6-C10	<10.0	10.0	09/18/2010	ND	165	82.5	200	2.83		
DRO >C10-C28	<10.0	10.0	09/18/2010	ND	164	82.1	200	0.607		
Surrogate: 1-Chlorooctane	91.9 %	70-130								
Surrogate: 1-Chlorooctadecane	134 %	70-130								

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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: 09/14/2010
 Reported: 09/20/2010
 Project Name: BD G-16 VENT
 Project Number: NONE GIVEN
 Project Location: BD G-16 VENT

 Sampling Date: 09/14/2010
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson


Sample ID: SB - 9 @ 60' (H020851-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1380	16.0	09/16/2010	ND	464	116	400	3.51		
TPH 8015M		mg/kg		Analyzed By: AB						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/18/2010	ND	165	82.5	200	2.83		
DRO >C10-C28	<10.0	10.0	09/18/2010	ND	164	82.1	200	0.607		
Surrogate: 1-Chlorooctane	94.1 %	70-130								
Surrogate: 1-Chlorooctadecane	143 %	70-130								

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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

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. #:				<div>Chlorides</div> <div>TPH 8015 M</div> <div>BTEX</div> <div>Texas TPH</div> <div>Complete Cations/Anions</div>																															
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: DD G-11 V-11				State: Zip:																																			
Project Location: DD G-11 V-11				Phone #:																																			
Sampler Name: Lara Weinheimer				Fax #:																																			
FOR LAB USE ONLY				GRAB OR COMPO		# CONTAINERS:		MATRIX:				PRESERV		SAMPLING																									
Lab I.D.		Sample I.D.		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER		ACID/BASE		ICE/COOL		OTHER		DATE		TIME															
H20851A		20-8-0-55		✓																		12/14/99		11:35															
2		20-8-0-70		✓																				12/14/99		12:40													
3		20-8-0-75		✓																				12/14/99		12:40													
4		20-8-0-30		✓																				12/14/99		12:40													
5		20-8-0-60		✓																				12/14/99		12:40													

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Relinquished By:		Date: 12/14/99		Received By:		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Add'l Phone #:	
Time: 4:10		Date:		Received By:		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Add'l Fax #:	
Relinquished By:		Date:		Received By:		REMARKS: email results: Hconder@riceswd.com; jpurvis@riceswd.com; Lweinheimer@riceswd.com			
Time:		Date:		Received By:					
Delivered By: (Circle One) Sampler - UPS - Bus - Other:				Sample Condition Cool - Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		CHECKED BY:			

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

NEED SAMPLES BACK, PLEASE

March 28, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD G-16 VENT (SOIL)

Enclosed are the results of analyses for samples received by the laboratory on 03/22/11 8:00.

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: 03/22/2011
 Reported: 03/28/2011
 Project Name: BD G-16 VENT (SOIL)
 Project Number: NOT GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 03/21/2011
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SB 11 @ 10 FT. (H100544-01)

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1060	16.0	03/23/2011	ND	432	108	400	3.77		
TPH 8015M			mg/kg							Analyzed By: AB
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	03/25/2011	ND	214	107	200	2.22		
DRO >C10-C28	<10.0	10.0	03/25/2011	ND	216	108	200	3.48		
Surrogate: 1-Chlorooctane			105 %	70-130						
Surrogate: 1-Chlorooctadecane			101 %	70-130						

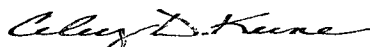
Sample ID: SB 11 @ 35 FT. (H100544-02)

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	208	16.0	03/23/2011	ND	432	108	400	3.77		
TPH 8015M			mg/kg							Analyzed By: AB
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	03/25/2011	ND	214	107	200	2.22		
DRO >C10-C28	<10.0	10.0	03/25/2011	ND	216	108	200	3.48		
Surrogate: 1-Chlorooctane			107 %	70-130						
Surrogate: 1-Chlorooctadecane			101 %	70-130						

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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: 03/22/2011
 Reported: 03/28/2011
 Project Name: BD G-16 VENT (SOIL)
 Project Number: NOT GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 03/21/2011
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SB 13 @ 5FT (H100544-03)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2400	16.0	03/23/2011	ND	432	108	400	3.77		
TPH 8015M			mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	03/26/2011	ND	214	107	200	2.22		
DRO >C10-C28	<10.0	10.0	03/26/2011	ND	216	108	200	3.48		

Surrogate: 1-Chlorooctane 103 % 70-130

Surrogate: 1-Chlorooctadecane 97.5 % 70-130

Sample ID: SB 13 @ 40 FT (H100544-04)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	03/23/2011	ND	432	108	400	3.77		
TPH 8015M			mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	03/26/2011	ND	214	107	200	2.22		
DRO >C10-C28	<10.0	10.0	03/26/2011	ND	216	108	200	3.48		

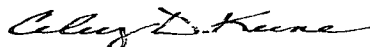
Surrogate: 1-Chlorooctane 103 % 70-130

Surrogate: 1-Chlorooctadecane 98.2 % 70-130

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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: 03/22/2011
Reported: 03/28/2011
Project Name: BD G-16 VENT (SOIL)
Project Number: NOT GIVEN
Project Location: NOT GIVEN

Sampling Date: 03/21/2011
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SB 14 @ 5 FT (H100544-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	7360	16.0	03/23/2011	ND	432	108	400	3.77		
TPH 8015M		mg/kg		Analyzed By: AB						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	03/26/2011	ND	214	107	200	2.22		
DRO >C10-C28	<10.0	10.0	03/26/2011	ND	216	108	200	3.48		
Surrogate: 1-Chlorooctane		104 %	70-130							
Surrogate: 1-Chlorooctadecane		100 %	70-130							

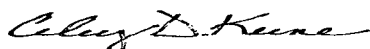
Sample ID: SB 14 @ 40 FT (H100544-06)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	03/23/2011	ND	432	108	400	3.77		
TPH 8015M			mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	03/26/2011	ND	214	107	200	2.22		
DRO >C10-C28	<10.0	10.0	03/26/2011	ND	216	108	200	3.48		
Surrogate: 1-Chlorooctane	105 %	70-130								
Surrogate: 1-Chlorooctadecane	103 %	70-130								

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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:	03/22/2011	Sampling Date:	03/21/2011
Reported:	03/28/2011	Sampling Type:	Soil
Project Name:	BD G-16 VENT (SOIL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 15 @ 15 FT (H100544-07)

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	688	16.0	03/23/2011	ND	432	108	400	3.77		
TPH 8015M			mg/kg							Analyzed By: AB
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	03/26/2011	ND	214	107	200	2.22		
DRO >C10-C28	<10.0	10.0	03/26/2011	ND	216	108	200	3.48		
Surrogate: 1-Chlorooctane			106 %	70-130						
Surrogate: 1-Chlorooctadecane			102 %	70-130						

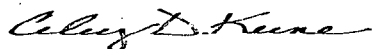
Sample ID: SB 15 @ 30 FT (H100544-08)

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	03/23/2011	ND	432	108	400	3.77		
TPH 8015M			mg/kg							Analyzed By: AB
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	03/26/2011	ND	214	107	200	2.22		
DRO >C10-C28	<10.0	10.0	03/26/2011	ND	216	108	200	3.48		
Surrogate: 1-Chlorooctane			106 %	70-130						
Surrogate: 1-Chlorooctadecane			102 %	70-130						

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Celestine D. Keene, Lab Director/Quality Manager

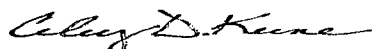
Notes and Definitions

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

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Celey D. Keene, Lab Director/Quality Manager

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. #:				<div style="display: flex; flex-direction: column; align-items: center;"> <div>Chlorides</div> <div>TPH 8015 M</div> <div>BTEX</div> <div>Texas TPH</div> <div>Complete Cations/Anions</div> <div>TPH 8015 M Extended Thru C40</div> </div>																																																																																																																																																																																																					
Address: 122 West Taylor				Company:																																																																																																																																																																																																									
City: Hobbs		State: NM Zip: 88240		Attn:																																																																																																																																																																																																									
Phone #: 575-393-9174		Fax #: 575-397-1471		Address:																																																																																																																																																																																																									
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Sampler Name: Jordan Woodfin				Fax #:																																																																																																																																																																																																									
<table border="1"> <thead> <tr> <th rowspan="2">Lab I.D.</th> <th rowspan="2">Sample I.D.</th> <th rowspan="2">LAB OR (COMP)</th> <th rowspan="2"># CONTAINERS</th> <th colspan="6">MATRIX</th> <th colspan="2">PRESERV</th> <th colspan="2">SAMPLING</th> </tr> <tr> <th>GROUNDWATER</th> <th>WASTEWATER</th> <th>SOIL</th> <th>OIL</th> <th>SLUDGE</th> <th>OTHER</th> <th>ACIDBASE</th> <th>ICE / COOL</th> <th>OTHER</th> <th>DATE</th> <th>TIME</th> </tr> </thead> <tbody> <tr> <td>1100344</td> <td>SB-11 @ 10ft</td> <td>G</td> <td>1</td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> <td>3/21/11</td> <td>09:30</td> <td>✓</td> <td>✓</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>SB-11 @ 35ft</td> <td>G</td> <td>1</td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td>09:55</td> <td>✓</td> <td>✓</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>SB-13 @ 5 ft</td> <td>G</td> <td>1</td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td>10:45</td> <td>✓</td> <td>✓</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>SB-13 @ 40ft</td> <td>G</td> <td>1</td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td>11:15</td> <td>✓</td> <td>✓</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>SB-14 @ 5ft</td> <td>G</td> <td>1</td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td>01:15</td> <td>✓</td> <td>✓</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>SB-14 @ 40ft</td> <td>G</td> <td>1</td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td>01:40</td> <td>✓</td> <td>✓</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7</td> <td>SB-15 @ 15ft</td> <td>G</td> <td>1</td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td>02:00</td> <td>✓</td> <td>✓</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>8</td> <td>SB-15 @ 30ft</td> <td>G</td> <td>1</td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td>02:30</td> <td>✓</td> <td>✓</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>												Lab I.D.	Sample I.D.	LAB OR (COMP)	# CONTAINERS	MATRIX						PRESERV		SAMPLING		GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACIDBASE	ICE / COOL	OTHER	DATE	TIME	1100344	SB-11 @ 10ft	G	1			✓				✓		3/21/11	09:30	✓	✓							2	SB-11 @ 35ft	G	1			✓				✓			09:55	✓	✓						3	SB-13 @ 5 ft	G	1			✓				✓			10:45	✓	✓						4	SB-13 @ 40ft	G	1			✓				✓			11:15	✓	✓						5	SB-14 @ 5ft	G	1			✓				✓			01:15	✓	✓						6	SB-14 @ 40ft	G	1			✓				✓			01:40	✓	✓						7	SB-15 @ 15ft	G	1			✓				✓			02:00	✓	✓						8	SB-15 @ 30ft	G	1			✓				✓			02:30	✓	✓					
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Relinquished By: Jordan Woodfin		Date: 3/22/11	Received By: [Signature]		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone #:
Relinquished By: [Signature]		Date: 3/22/11	Received By: [Signature]		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Fax #:
Delivered By: (Circle One)		Sample Condition		CHECKED BY: (Initials)	
Sampler - UPS - Bus - Other:		Cool Intact		[Signature]	
		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No			

REMARKS: email results

Hconder@riceswd.com; jwoodfin@rice-ecs.com;
Lweinheimer@rice-ecs.com kjones@riceswd.com

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

NEED SAMPLES BACK, PLEASE



January 25, 2011

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

RE: BD G-16 VENT

Enclosed are the results of analyses for samples received by the laboratory on 01/14/11 8:07.

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: 01/14/2011
Reported: 01/25/2011
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 01/13/2011
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: MW 1 @ 10 FT. (H100097-01)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: LR					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4480	16.0	01/14/2011	ND	432	108	400	7.69		
TPH 8015M			mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	01/15/2011	ND	224	112	200	0.319		
DRO >C10-C28	<10.0	10.0	01/15/2011	ND	160	80.1	200	3.86		
Surrogate: 1-Chlorooctane	82.1 %	70-130								
Surrogate: 1-Chlorooctadecane	83.4 %	70-130								

Sample ID: MW 1 @ 75 FT. (H100097-02)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: LR					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4160	16.0	01/14/2011	ND	432	108	400	3.77		
TPH 8015M			mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	01/15/2011	ND	224	112	200	0.319		
DRO >C10-C28	<10.0	10.0	01/15/2011	ND	160	80.1	200	3.86		
Surrogate: 1-Chlorooctane	88.6 %	70-130								
Surrogate: 1-Chlorooctadecane	95.1 %	70-130								

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: 01/14/2011
Reported: 01/25/2011
Project Name: BD G-16 VENT
Project Number: NONE GIVEN
Project Location: BD G-16 VENT

Sampling Date: 01/13/2011
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: MW 1 @ 80 FT. (H100097-03)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1390	16.0	01/17/2011	ND	432	108	400	3.77	
TPH 8015M		mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/15/2011	ND	224	112	200	0.319	
DRO >C10-C28	<10.0	10.0	01/15/2011	ND	160	80.1	200	3.86	

Surrogate: 1-Chlorooctane 85.5 % 70-130

Surrogate: 1-Chlorooctadecane 91.3 % 70-130

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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

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Celestine D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

[illegible]

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Relinquished By: 		Date: 7/14/11		Received By: 		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone #:	
Jordan Woodfin		Time: 7:30				Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Fax #:	
Relinquished By:		Date: 7/14/11		Received By:		REMARKS:	
		Time: 8:07				email results	
Delivered By: (Circle One)		Sample Condition		CHECKED BY:		Hconder@riceswd.com; jwoodfin@riceswd.com;	
Sampler - UPS - Bus - Other:		Cool / Intact		(Initials)		Lweinheimer@riceswd.com kjones@riceswd.com	
		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					

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

NEED SAMPLES BACK, PLEASE



Appendix B

Monitor Well Sampling Analysis

RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293



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

October 31, 2011

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

RE: BD G-16 VENT

Enclosed are the results of analyses for samples received by the laboratory on 10/24/11 12:00.

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:	10/24/2011	Sampling Date:	10/21/2011
Reported:	10/31/2011	Sampling Type:	Water
Project Name:	BD G-16 VENT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Celey D. Keene
Project Location:	T22S R37E SEC 16G - LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H102304-01)

BTEX 8260B		mg/L		Analyzed By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	10/24/2011	ND	0.021	103	0.0200	3.72	
Toluene*	<0.001	0.001	10/24/2011	ND	0.020	99.8	0.0200	2.44	
Ethylbenzene*	<0.001	0.001	10/24/2011	ND	0.021	103	0.0200	1.56	
Total Xylenes*	<0.003	0.003	10/24/2011	ND	0.061	102	0.0600	1.88	

Surrogate: Dibromofluoromethane 149 % 59.8-161

Surrogate: Toluene-d8 102 % 75.2-115

Surrogate: 4-Bromofluorobenzene 78.8 % 53.7-120

Chloride, SM4500Cl-B		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	4.00	10/28/2011	ND	108	108	100	0.00	

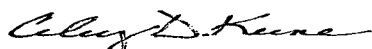
Sulfate 375.4		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate	87.3	10.0	10/28/2011	ND	20.9	104	20.0	13.8	

TDS 160.1		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS	410	5.00	10/26/2011	ND	235	97.9	240	0.00	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

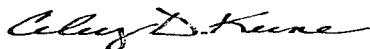
Notes and Definitions

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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

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Celest D. Keene, Lab Director/Quality Manager

101 East Marland - Hobbs, New Mexico 88240
Tel (505) 393-2328
Fax (505) 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

Project #:

Project Name: BD G-16 Vent

Project Location:

T22S R37E Sec16 G ~ Lea County New Mexico

Sampler Signature:

Rozanne Johnson (505) 637-9310
rozanne@valornet.com

LAB #

FIELD CODE

(LAB USE ONLY)

HC 01

Monitor Well #1

G

3

X

WATER

SOIL

AIR

SLUDGE

HCL (2 40ml VOA)

HNO₃

NaHSO₄

H₂SO₄

ICE (1-1 Liter HDPE)

NONE

DATE (2011)

TIME

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Hansen, Edward J., EMNRD

From: Hack Conder [hconder@riceswd.com]
Sent: Tuesday, April 17, 2012 10:10 AM
To: Hansen, Edward J., EMNRD
Cc: Katie Jones; Laura Pena
Subject: ROC - BD G-16 vent (1R426-29)
Attachments: ROC - BD G-16 vent (1R426-29) Sampling Notes.pdf

Mr. Hansen,

Attached is a description of the aquifer beneath the BD G-16 vent (1R426-29) site. If you have any questions or require any additional information, please contact me at (575)631-6432.

Thank you.

Hack Conder
Environmental Manager
RICE Operating Company

Arc Environmental

P. O. Box 1772

Lovington, New Mexico 88260

(575) 631-9310

Rozanne Johnson ~ rozanne@valornet.com

April 16, 2012

NOTES

The following summarizes the field activities at the RICE BD G-16 Vent, Lea County T22S, R37E, Sec 16 Unit Letter G:

- There is one 2-inch monitor well drilled at the site. A Solinst Water Level Meter is used during each sampling event to check the depth to water prior to pumping and bailing the well. The meter indicated on January 27, 2012 water within the well at a depth of 96.67 with the total depth of the well of 100.51 feet, giving 3.84 feet (0.61 gallons) of water within the well bore. The well is pumped at 0.25 gallons per minute until the well will no longer pump. The well is then bailed dry with a bailer. The well recovers to within 10 percent of the original depth in just over an hour and a half or about 0.04 feet per minute. Purging the well dry is done three times before allowing the well to recover for 24 hours before sampling with a bailer.
- The site is located in the eastern Eunice Plain area of Lea County, which is underlain by a hard caliche surface and is covered by a thin layer of reddish-brown dune sand. The dominant vegetation is bear grass, mesquite and grama grass. Cattle ranchers and oil production activities currently use the area.
- In this arid region the rate of recharge is very slow due to small rainfall amounts, the porosity of the formation consisting of low permeable rock and a presence of clay, which leaves sediments that are thinly saturated or dry. There is little underground flow of water in the area, again due to the formation.

Sincerely,
Arc Environmental

Rozanne Johnson
Rozanne Johnson

Electronic Copy: Hack Conder
 Katie Jones