

1R - 426-29

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# 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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RETURN RECEIPT NO. 7008 1140 0001 3070 5801

**April 11<sup>th</sup>, 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 31<sup>st</sup>, 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 2<sup>nd</sup>, 2010 and approved on July 19<sup>th</sup>, 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 13<sup>th</sup> and 14<sup>th</sup>, 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 13<sup>th</sup>, 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 21<sup>st</sup>, 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:

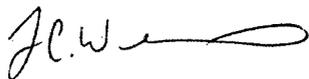
Five quarters of monitoring well sampling show no impact to groundwater above WQCC standards; as such ROC proposes to plug and abandon the near-source well (MW-1) with a 1-3% bentonite/concrete slurry with a 3 ft concrete cap.

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.

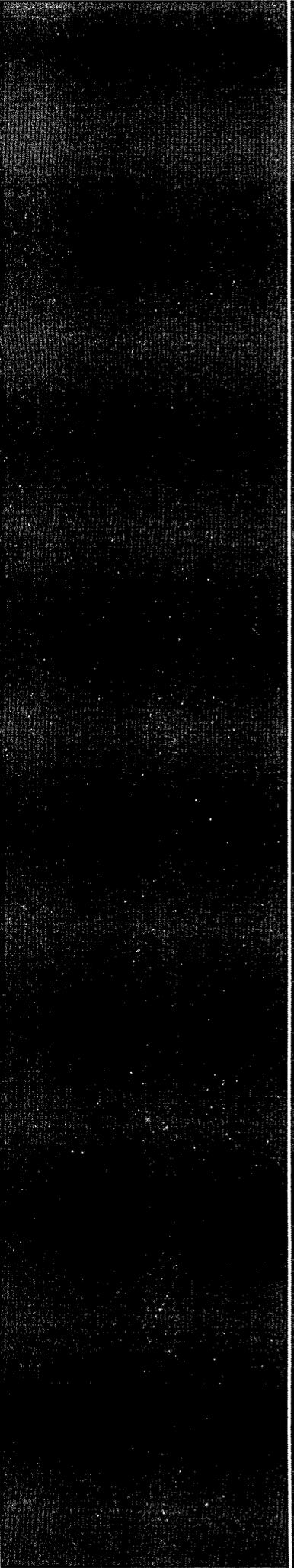
Sincerely,



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

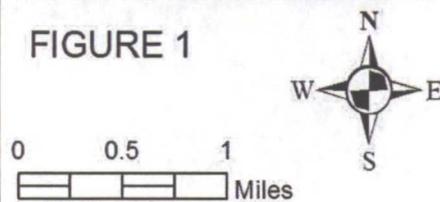
# Site Location



## *BD G-16 vent*

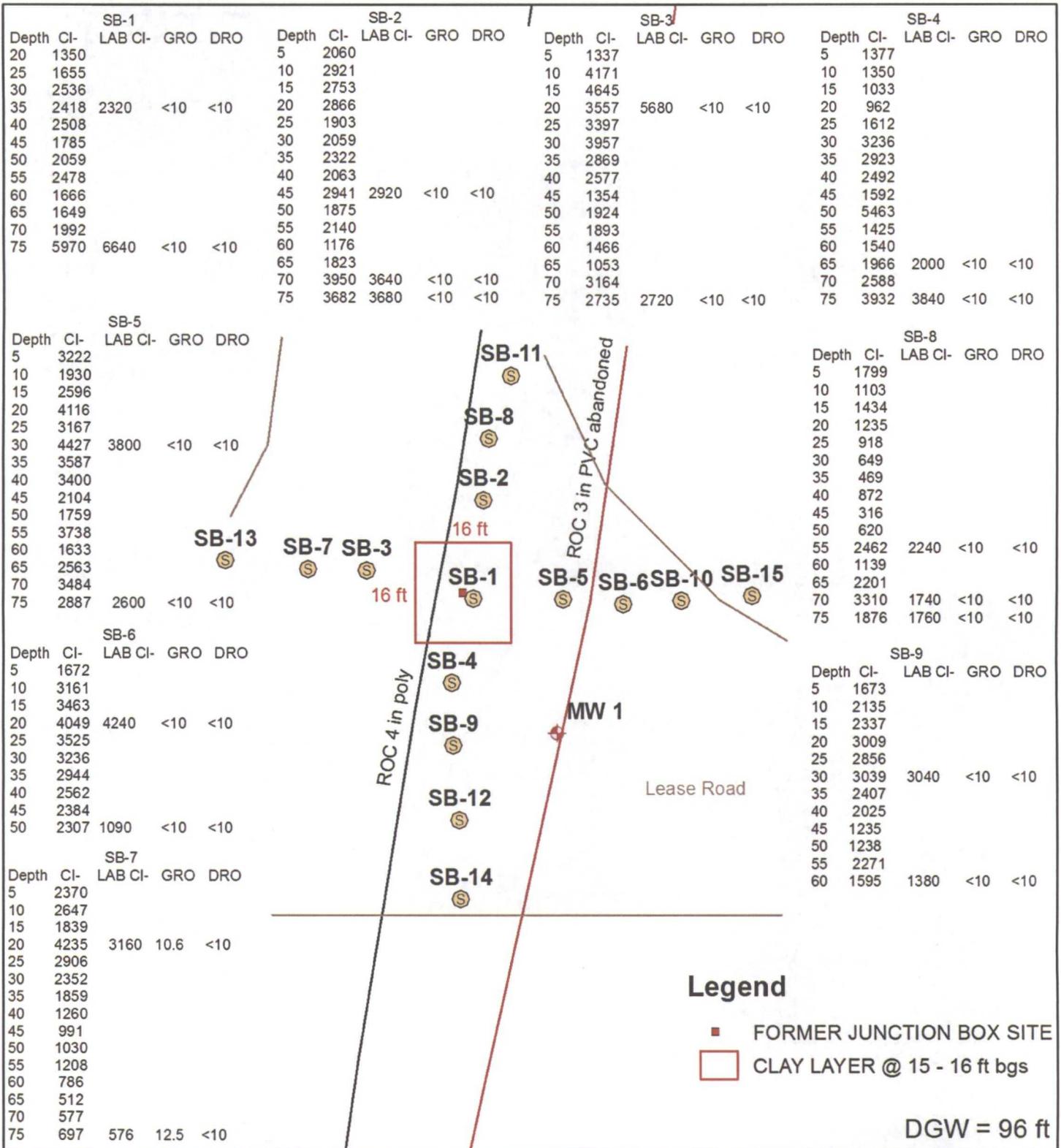
Legals: UL/G sec. 16  
T22S R37E  
NMOCD Case #: 1R426-29

FIGURE 1



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

# Soil Bore Installation

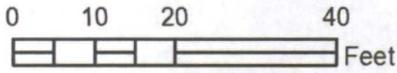


## BD G-16 vent

NMOCD Case #: 1R426-29

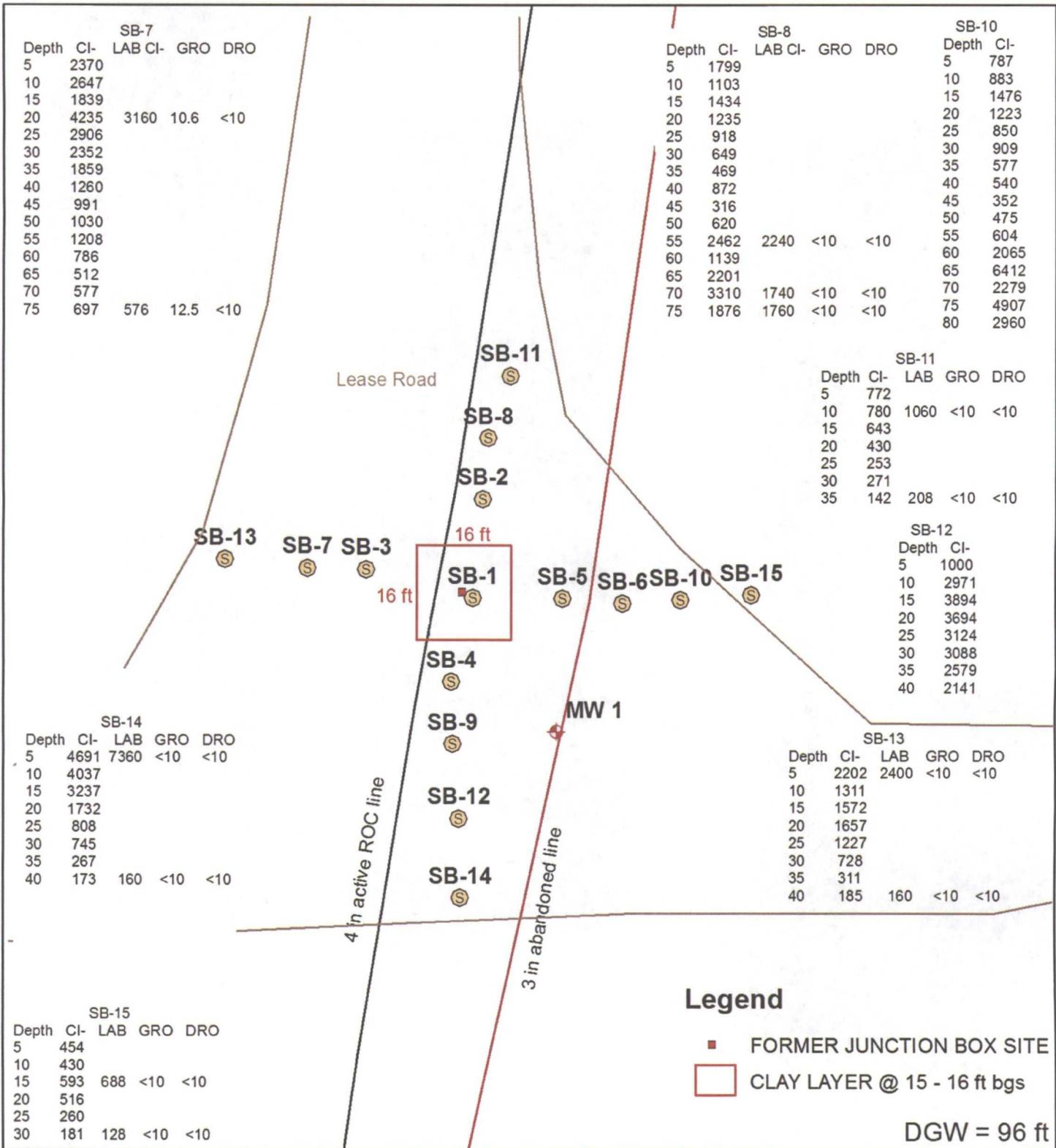
Legals: UL/G sec. 16  
T22S R37E

### Figure 2



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

# Soil Bore Information

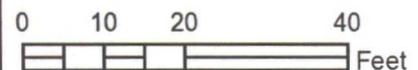


## BD G-16 vent

NMOCD Case #: 1R426-29

Legals: UL/G sec. 16  
T22S R37E

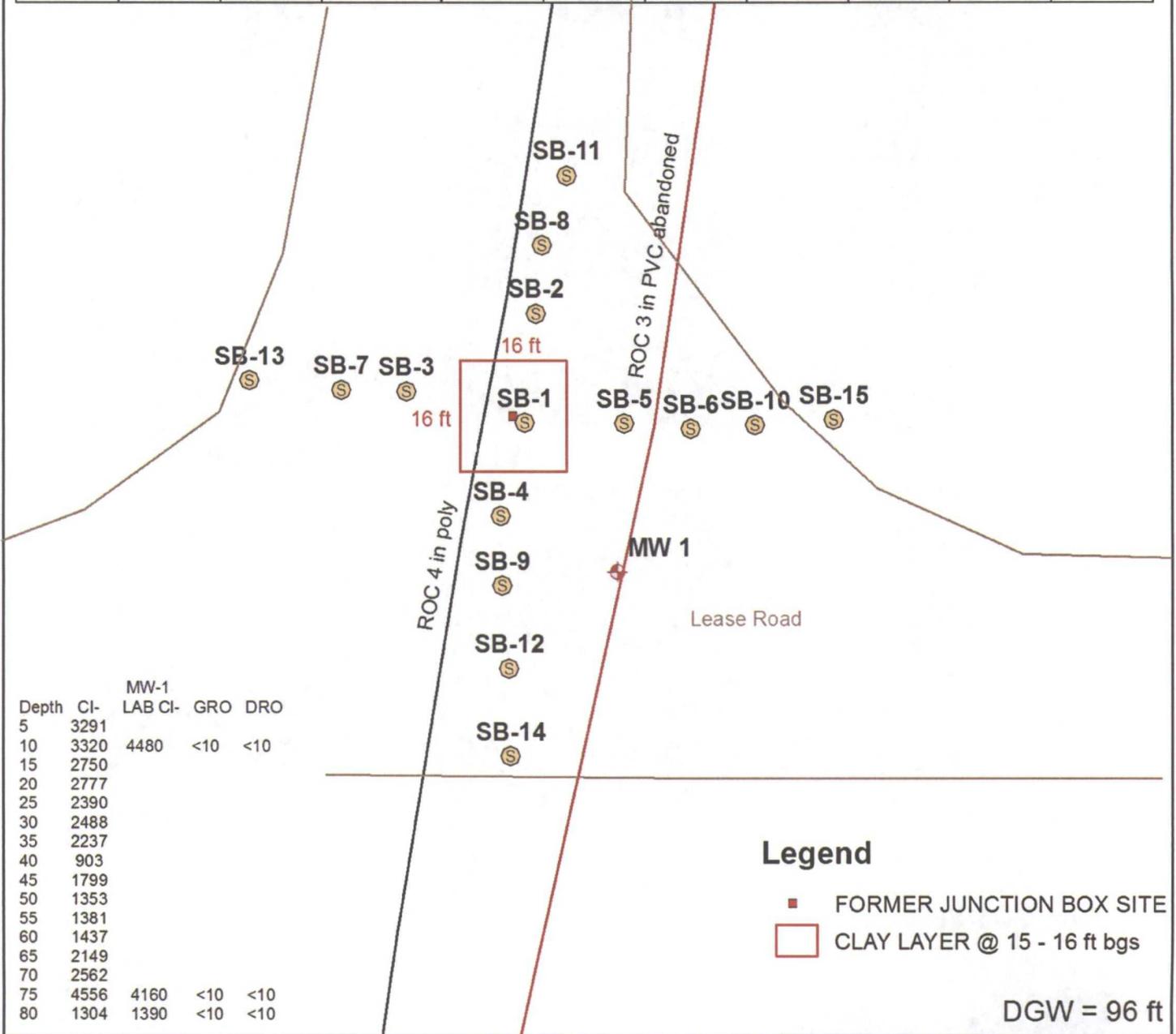
### Figure 3



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

# 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

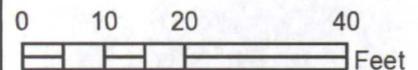


**BD G-16 vent**

NMOCD Case #: 1R426-29

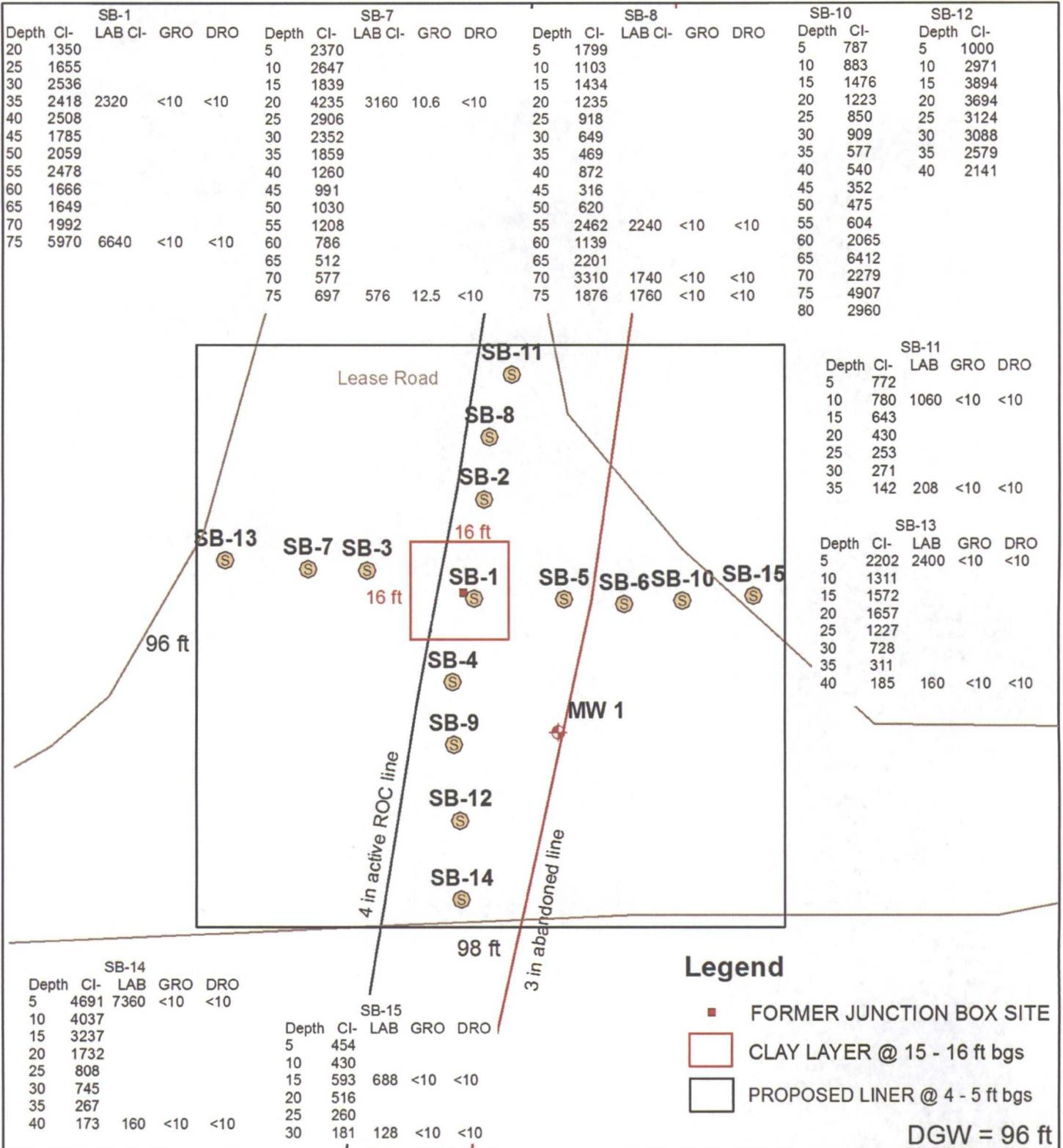
Legals: UL/G sec. 16  
T22S R37E

**Figure 4**

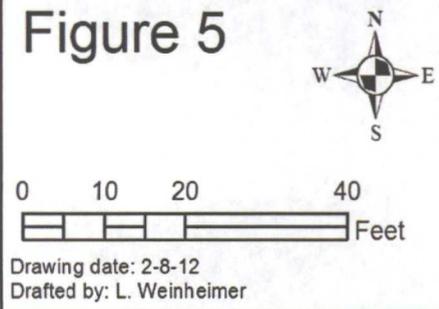


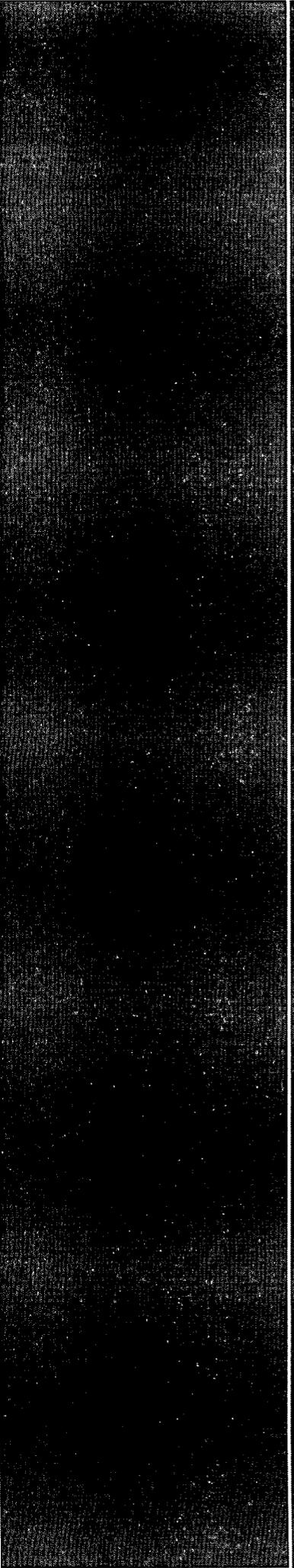
Drawing date: 2-8-12  
Drafted by: L. Weinheimer

# Proposed Liner



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





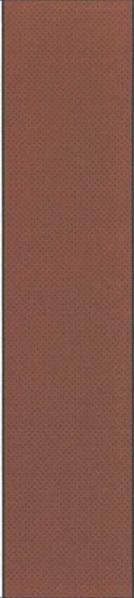
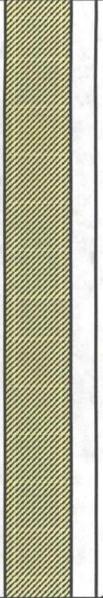
# Appendix A

Soil Bore Logs and Laboratory Confirmation

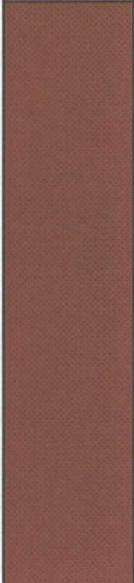
**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 5630 Hobbs, NM 88241  
Phone 575.393.4411 Fax 575.393.0293

<b>Logger:</b>	Lara Weinheimer			
<b>Driller:</b>	Harrison & Cooper Inc. Drilling			
<b>Drilling Method:</b>	Air Rotary		<b>Project Name:</b>	<b>Well ID:</b>
<b>Start Date:</b>	9/13/2010		BD G-16 vent	SB-1
<b>End Date:</b>	9/13/2010	<b>Project Consultant:</b> RECS		
<b>Comments:</b> Located at the source of the former junction box site.		<b>Location:</b> UL/G sec. 16 T22S R37E		
Drafted by: Lara Weinheimer		<b>Lat:</b> 32°23'36.578"N		
TD = 75 ft		<b>Long:</b> 103°9'53.815W		
GW = 82 ft		<b>County:</b> LEA		
		<b>State:</b> 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	Cl-2320 GRO <10 DRO <10	0.7	Orangey brown very fine sand. Slightly moist. No odor.		
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			

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				



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				



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	Orangey brown very fine sand. Slightly moist. No odor.		
65 ft	1,053		0.4			
70 ft	3,164		0.2			
75 ft	2,735	Cl- 2720	0.1			
		GRO <10				
		DRO <10				

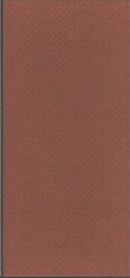


Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Very fine tan sand with caliche rubble		
50 ft	5463		0			
				Very fine white sand		
55 ft	1425		0			
60 ft	1540		0			
				reddish brown very fine sand		
65 ft	1966	Cl- 2000	0			
		GRO <10				
		DRO <10				
70 ft	2588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



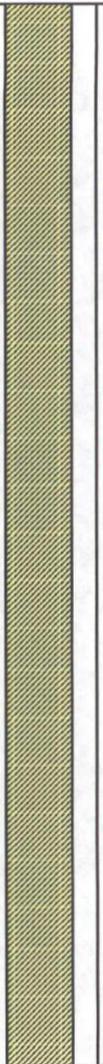
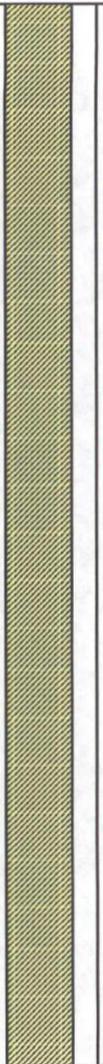
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
50 ft	1759		0			
				Light tan very fine sand		
55 ft	3738		0			
				Tan very fine sand		
60 ft	1633		0			
65 ft	2563		0			
				Brownish red very fine sand		
70 ft	3484		0			
75 ft	2887	CI-2600	0			
		GRO <10				
		DRO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



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				

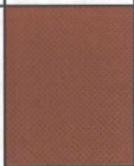
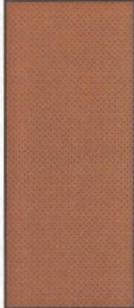
<b>Logger:</b>	Jordan Woodfin		
<b>Driller:</b>	Harrison & Cooper Inc. Drilling		
<b>Drilling Method:</b>	Air rotary		
<b>Start Date:</b> <b>End Date:</b>	9/13/2010 9/13/2010		
<b>Project Name:</b> BD G-16 vent <b>Well ID:</b> SB-7 <b>Project Consultant:</b> RECS			
Comments: Located 28 ft west of the former junction box site. TD = 75 ft Drafted by: Lara Weinheimer GW = 82 ft		<b>Location:</b> UL/G sec. 16 T22S R37E <b>Lat:</b> N32°23'36.631" <b>Long:</b> W103°9'54.138" <b>County:</b> LEA <b>State:</b> 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			
				Very fine tan sand with caliche rubble		
20 ft	4235	Cl-3160	0			
		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	Cl- 576	0			
		GRO 12.5				
		DRO <10				

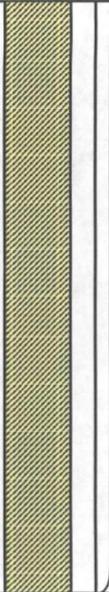
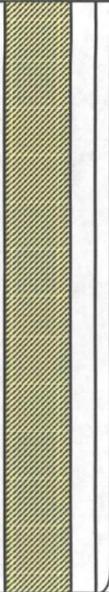
<b>Logger:</b>	Lara Weinheimer		
<b>Driller:</b>	Harrison & Cooper Inc. Drilling		
<b>Drilling Method:</b>	Air rotary		
<b>Start Date:</b> <b>End Date:</b>	9/14/2010 9/14/2010		
<b>Project Name:</b> BD G-16 vent <b>Well ID:</b> SB-8 <b>Project Consultant:</b> RECS		<b>Location:</b> UL/G sec. 16 T22S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

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
5 ft	1799		0	Light orangey brown very fine sand with consolidated rock. Dry. No odor.		
10 ft	1103		0	Light orangey brown very fine sand with caliche. Dry. No odor.		
15 ft	1434		0			
20 ft	1235		0	Orangey brown very fine sand. Dry. No odor.		
25 ft	918		0			
30 ft	649		0	Orangey brown very fine sand with consolidated rock. Dry. No odor.		
35 ft	469		0			
40 ft	872		0			
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			
				Orangey brown very fine sand. Slightly moist. No odor.		
65 ft	2201		0			
70 ft	3310	CI-1740	0.2			
		GRO <10				
		DRO <10				
75 ft	1876	CI-1760	0			
		GRO <10				
		DRO <10				

<b>Logger:</b>	Lara Weinheimer		
<b>Driller:</b>	Harrison & Cooper Inc. Drilling		
<b>Drilling Method:</b>	Air rotary		
<b>Start Date:</b>	9/14/2010		<b>Project Name:</b> BD G-16 vent
<b>End Date:</b>	9/14/2010		<b>Well ID:</b> SB-9
<b>Comments:</b> Located 24 ft south of the former junction box site.			<b>Project Consultant:</b> RECS
Drafted by: Lara Weinheimer			<b>Location:</b> UL/G sec. 16 T22S R37E
TD = 60 ft			<b>Lat:</b> 32°23'36.34"N
GW = 82 ft			<b>County:</b> LEA
			<b>Long:</b> 103°9'53.858"W
			<b>State:</b> 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			
				Light orangey brown very fine sand with consolidated rock. Dry. No odor.		
15 ft	2337		0			
				Light orangey brown very fine sand with consolidated rock. Dry. No odor.		
20 ft	3009		0			
				Light orangey brown very fine sand. Dry. No odor.		
25 ft	2856		0.1			
				Light orangey brown very fine sand. Dry. No odor.		
30 ft	3039	Cl-3040	0.1			
		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				



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			
75 ft	4907		0			
				Brownish red very fine sand (moist)		
80 ft	2960		0			











<b>Logger:</b>	Jordan Woodfin		
<b>Driller:</b>	Harrison & Cooper, Inc.		
<b>Drilling Method:</b>	Air rotary		
<b>Start Date:</b>	1/13/2011		
<b>End Date:</b>	1/13/2011	<b>Project Name:</b> BD G-16 vent <b>Well ID:</b> MW-1 <b>Project Consultant:</b> RECS	
<b>Comments:</b> Located 26 ft south east of the former junction box site.			<b>Location:</b> UL/G sec. 16 T22S R37E <b>Lat:</b> 32°23'36.358"N <b>Long:</b> 103°9'53.663"W <b>County:</b> LEA <b>State:</b> NM
<b>DRAFTED BY:</b> L. Weinheimer TD = 97 ft                      GW = 82 ft			

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
5 ft	3291			Tan very fine silty sand		
10 ft	3320	Cl-4480				
		GRO <10				
15 ft	2750	DRO <10		Light brown very fine silty sand		2 in. PVC
20 ft	2777					
25 ft	2390					
30 ft	2488					
35 ft	2237					
40 ft	903					

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		NO SAMPLES TAKEN		
		GRO <10				
		DRO <10				
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	
<b>Chloride</b>	<b>2320</b>	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 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	
<b>Chloride</b>	<b>6640</b>	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 96.5 % 70-130  
 Surrogate: 1-Chlorooctadecane 152 % 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-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	
<b>Chloride</b>	<b>2920</b>	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 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	
<b>Chloride</b>	<b>3640</b>	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, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>3680</b>	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, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>5680</b>	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, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>2720</b>	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		
<i>Surrogate: 1-Chlorooctane</i>	<i>88.1 %</i>	<i>70-130</i>								
<i>Surrogate: 1-Chlorooctadecane</i>	<i>137 %</i>	<i>70-130</i>								

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>2000</b>	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		
<i>Surrogate: 1-Chlorooctane</i>	<i>86.2 %</i>	<i>70-130</i>								
<i>Surrogate: 1-Chlorooctadecane</i>	<i>130 %</i>	<i>70-130</i>								

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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, SM4500CI-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							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 86.1 % 70-130  
 Surrogate: 1-Chlorooctadecane 133 % 70-130

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

Chloride, SM4500CI-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

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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, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>2600</b>	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 85.3 % 70-130  
 Surrogate: 1-Chlorooctadecane 145 % 70-130

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>4240</b>	16.0	09/14/2010	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	09/17/2010	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, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1090</b>	16.0	09/14/2010	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	09/17/2010	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, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>3160</b>	16.0	09/14/2010	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	
<b>GRO C6-C10</b>	<b>10.6</b>	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, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>576</b>	16.0	09/14/2010	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	
<b>GRO C6-C10</b>	<b>12.5</b>	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



**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





# 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				<b>BILL TO</b>				ANALYSIS REQUEST																					
Project Manager: Hack Conder				P.O. #:				Chlorides TPH 8015 M BTEX Texas TPH Complete Cations/Anions																					
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: <i>SD 16-16 West</i>				State:														Zip:											
Project Location: <i>SD 16-16 West</i>				Phone #:																									
Sampler Name: Lara Weinheimer				Fax #:																									
FOR LAB USE ONLY																													
Lab I.D.		Sample I.D.		# CONTAINERS		MATRIX												PRESERV		SAMPLING									
				GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER:		ACID/BASE:		ICE/COOL		OTHER:		DATE		TIME					
<i>H20841-1</i>		<i>SB-1 @ 25'</i>		<input checked="" type="checkbox"/>																		<i>8/14/10</i>		<i>8:30</i>					
<i>2</i>		<i>SB-1 @ 75'</i>		<input checked="" type="checkbox"/>																		<i>8/14/10</i>		<i>8:35</i>					
<i>3</i>		<i>SB-2 @ 45'</i>		<input checked="" type="checkbox"/>																		<i>8/14/10</i>		<i>9:25</i>					
<i>4</i>		<i>SB-2 @ 70'</i>		<input checked="" type="checkbox"/>																		<i>8/14/10</i>		<i>9:37</i>					
<i>5</i>		<i>SB-2 @ 75'</i>		<input checked="" type="checkbox"/>																		<i>8/14/10</i>		<i>7:58</i>					
<i>6</i>		<i>SB-2 @ 25'</i>		<input checked="" type="checkbox"/>																		<i>8/14/10</i>		<i>10:16</i>					
<i>7</i>		<i>SB-2 @ 75'</i>		<input checked="" type="checkbox"/>																		<i>8/14/10</i>		<i>10:43</i>					
<i>8</i>		<i>SB #4 @ WSP</i>		<input checked="" type="checkbox"/>																		<i>8/14/10</i>		<i>12:32</i>					
<i>9</i>		<i>SB #4 @ 75'</i>		<input checked="" type="checkbox"/>																		<i>8/14/10</i>		<i>12:45</i>					

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Relinquished By: <i>L. Weinheimer</i>	Date: <i>8/14/10</i>	Received By: <i>[Signature]</i>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
	Time: <i>7:30</i>		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By: <i>[Signature]</i>	Date: <i>8/14/10</i>	Received By: <i>Jodi Jensen</i>	REMARKS: email results: <i>jwood@r</i>	
Delivered By: (Circle One)			Hconder@riceswd.com; jpurvis@riceswd.com;	
Sampler: UPS - Bus - Other:		Sample Condition: Cool - Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Lweinheimer@riceswd.com	
		Checked By: (Initials) <i>[Initials]</i>		

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

*#26*

NEED SAMPLES BACK, PLEASE



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	Sampling Date:	09/14/2010
Reported:	09/20/2010	Sampling Type:	Soil
Project Name:	BD G-16 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	BD G-16 VENT		

**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	
<b>Chloride</b>	<b>2240</b>	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	
<b>Chloride</b>	<b>1740</b>	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

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

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1760</b>	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		
<i>Surrogate: 1-Chlorooctane</i>	<i>92.2 %</i>	<i>70-130</i>								
<i>Surrogate: 1-Chlorooctadecane</i>	<i>114 %</i>	<i>70-130</i>								

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>3040</b>	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		
<i>Surrogate: 1-Chlorooctane</i>	<i>91.9 %</i>	<i>70-130</i>								
<i>Surrogate: 1-Chlorooctadecane</i>	<i>134 %</i>	<i>70-130</i>								

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: 09/14/2010  
 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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### 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





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.

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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	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 11 @ 10 FT. (H100544-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1060</b>	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)**

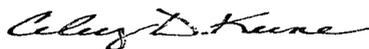
Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>208</b>	16.0	03/23/2011	ND	432	108	400	3.77		
TPH 8015M		mg/kg		Analyzed By: AB						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	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

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:	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 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	
<b>Chloride</b>	<b>2400</b>	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		

<i>Surrogate: 1-Chlorooctane</i>	103 %	70-130
<i>Surrogate: 1-Chlorooctadecane</i>	97.5 %	70-130

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

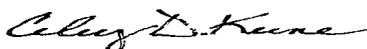
Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>160</b>	16.0	03/23/2011	ND	432	108	400	3.77		
TPH 8015M		mg/kg		Analyzed By: AB						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	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		

<i>Surrogate: 1-Chlorooctane</i>	103 %	70-130
<i>Surrogate: 1-Chlorooctadecane</i>	98.2 %	70-130

Cardinal Laboratories

\*=Accredited Analyte

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Celestine 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 14 @ 5 FT (H100544-05)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>7360</b>	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, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>160</b>	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

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:	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, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>688</b>	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, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>128</b>	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

Cardinal Laboratories

\*=Accredited Analyte

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Celestine D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

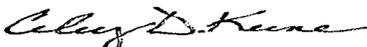
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

---

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---

Celey D. Keene, Lab Director/Quality Manager

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**



**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

Company Name: Rice Operating Company		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>																			
Project Manager: Hack Conder		P.O. #:		Chlorides TPH 8015 M BTEX Texas TPH Complete Cations/Anions TPH 8015 M Extended Thru C40																			
Address: 122 West Taylor		Company:																					
City: Hobbs State: NM Zip: 88240		Attn:																					
Phone #: 575-393-9174 Fax #: 575-397-1471		Address:																					
Project #: Project Owner:		City:																					
Project Name: BD G-16 Vent		State: Zip:																					
Project Location: BD G-16 Vent		Phone #:																					
Sampler Name: Jordan Woodfin		Fax #:																					
FOR LAB USE ONLY:																							
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS											MATRIX	PRESERV	SAMPLING	DATE	TIME					
				GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER	ACID/BASE ICE / COOL OTHER																		
110544-1	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: <i>Jordan Woodfin</i>	Date: 3/22/11	Received By: <i>[Signature]</i>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone #:
	Time: 7:30		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Fax #:
Relinquished By: <i>[Signature]</i>	Date: 3/22/11	Received By: <i>[Signature]</i>	REMARKS: email results
	Time: 0:00		Hconder@riceswd.com; jwoodfin@rice-ecs.com;
Delivered By: (Circle One) <input checked="" type="checkbox"/> UPS <input type="checkbox"/> Bus <input type="checkbox"/> Other	Sample Condition: 16.5c	CHECKED BY: <i>[Signature]</i>	Lweinheimer@rice-ecs.com kjones@riceswd.com
	Cool <input checked="" type="checkbox"/> Intact <input type="checkbox"/>	(Initials)	
	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

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

#26

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, SM4500CI-B		mg/kg		Analyzed By: LR						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>4480</b>	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, SM4500CI-B		mg/kg		Analyzed By: LR						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>4160</b>	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	Sampling Date:	01/13/2011
Reported:	01/25/2011	Sampling Type:	Soil
Project Name:	BD G-16 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	BD G-16 VENT		

**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	
<b>Chloride</b>	<b>1390</b>	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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### 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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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				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>							
Project Manager: Hack Conder				P.O. #:				Chlorides TPH 8015 M BTEX Texas TPH Complete Cations/Anions TPH 8015 M Extended Thru C40							
Address: 122 West Taylor				Company:											
City: Hobbs		State: NM Zip: 88240		Attn:											
Phone #: 575-393-9174		Fax #: 575-397-1471		Address:											
Project #:		Project Owner:		City:											
Project Name: BD G-16 Vent				State:		Zip:									
Project Location: BD G-16 Vent				Phone #:											
Sampler Name: Jordan Woodfin				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			
H100597-1		MW.1 @ 10ft		1		✓		✓		1/13/11		9:00		✓ ✓	
2		MW.1 @ 75ft		1		✓		✓		1/13/11		9:15		✓ ✓	
3		MW.1 @ 80ft		1		✓		✓		1/13/11		9:20		✓ ✓	

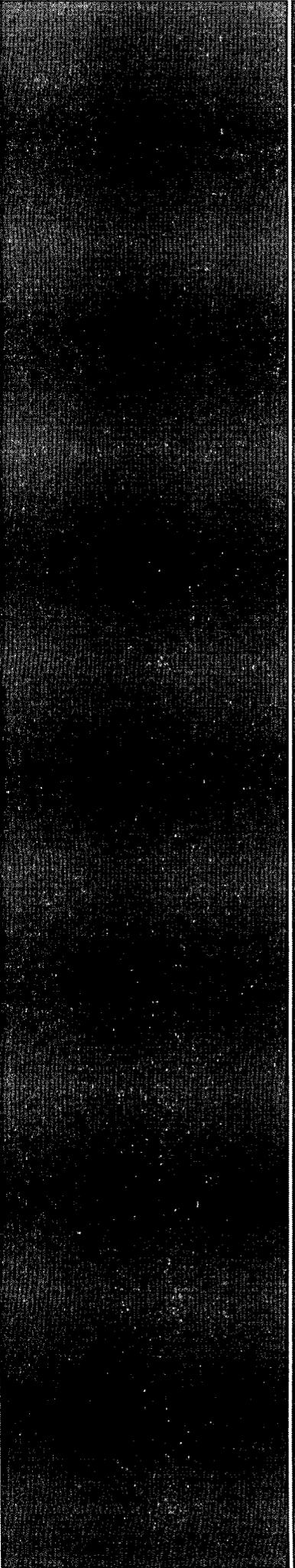
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Relinquished By: <i>Jordan Woodfin</i>		Date: 1/14/11		Received By: <i>[Signature]</i>		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone #:	
Time: 2:30						Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Fax #:	
Relinquished By: <i>[Signature]</i>		Date: 1/14/11		Received By: <i>[Signature]</i>		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 <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		(Initials)		Lweinheimer@riceswd.com kjones@riceswd.com	
		<input type="checkbox"/> Yes <input type="checkbox"/> No		<i>[Signature]</i>			

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

#26

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

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**

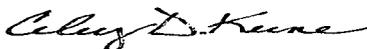
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

---

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---

Celey D. Keene, Lab Director/Quality Manager



**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