1R - 425-46

WORKPLANS

Date:

10-22-13

Rice Environmental Consulting & Safety
P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

CERTIFIED MAIL
RETURN RECEIPT NO. 7007 2560 0000 4569 8333

October 22nd, 2013

Mr. Edward Hansen
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RE: **ICP Report and Corrective Action Plan (CAP)**
Rice Operating Company – Vacuum SWD System
Vacuum St. H-35 EOL (1R425-46): UL/G sec. 35 T17S R34E

Mr. Hansen:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site in the Abandoned Vacuum Salt Water Disposal (SWD) system. ROC is the service provider (agent) for the Vacuum SWD System and has no ownership of any portion of the pipeline, well, or facility. The system is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

Background and Previous Work

The site is located approximately 2 miles southwest of Buckeye, New Mexico at UL/G sec. 35 T17S R34E as shown on the Site Location Map and Geographical Location Map (Figure 1 and Figure 2). NM OSE records indicate that groundwater would be encountered at a depth of approximately 95 +/- feet.

In 2005, ROC initiated work on the former Vacuum St. H-35 EOL junction as part of the system abandonment. The site was delineated using a backhoe to form a trench and soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation trench, the 12 ft bgs sample was collected for laboratory verification. Laboratory tests of the site showed gasoline range organics (GRO) and diesel range organics (DRO) results of non-detect. However, chloride concentrations from the trench did not relent with depth with the 12 foot sample testing at 5,840 ppm. The area was contoured to the surrounding landscape, seeded, and an identification plate was placed on the surface of the site to mark its location for future environmental considerations. NMOCD was notified of potential groundwater impact on March 7th, 2008 and a junction box disclosure report was submitted to NMOCD with all the 2007 junction box closures and disclosures.

As part of the Investigation and Characterization Plan (ICP) submitted to NMOCD on August 10th, 2010 and approved on August 30th, 2010, a total of 8 soil bores were installed at the site on October 7th and 8th, 2010, November 16th, 2010 and February 13th, 2013 (Figure 3). As the bores were being advanced, soil samples were taken at regular intervals and field tested for chlorides and hydrocarbons. Representative samples from each bore were taken to a commercial laboratory for field testing confirmation. SB-1 returned a laboratory chloride reading of 5,360 mg/kg at 35 ft bgs, which decreased to 64 mg/kg at 75 ft bgs. SB-2 returned a laboratory chloride reading of 6,400 mg/kg at 10 ft bgs, which decreased to 208 mg/kg at 65 ft bgs. SB-3 returned a laboratory chloride reading of 1,440 mg/kg at 10 ft bgs, which decreased to 208 mg/kg at 55 ft bgs. SB-4 returned a laboratory chloride reading of 2,440 mg/kg at 5 ft bgs, which decreased to 83.3 mg/kg at 35 ft bgs. SB-5 returned a laboratory chloride reading of 5,120 mg/kg at 10 ft bgs, which decreased to 176 mg/kg at 95 ft bgs. SB-6 returned a laboratory chloride reading of 3,440 mg/kg at 15 ft bgs, which decreased to 240 mg/kg at 80 ft bgs. SB-7 returned a laboratory chloride reading of 3,640 mg/kg at 25 ft bgs, which decreased to 512 mg/kg at 90 ft bgs. SB-8 retuned a laboratory chloride reading of 3,400 mg/kg at 10 ft bgs, which decreased to 208 mg/kg at 65 ft bgs. GRO and DRO readings returned non-detect in all bores at all depths except for in SB-2 where the DRO reading was 54.1 mg/kg (Appendix A).

Surface samples were taken at the site on February 15th, 2012. The samples were taken to a commercial laboratory for analysis of chlorides and hydrocarbons. The surface sample at SB-2 returned a laboratory reading of 64 mg/kg, the surface sample at SB-3 returned a laboratory reading of 256 mg/kg, the surface sample at SB-4 returned a laboratory chloride reading of 192 mg/kg and the surface sample at SB-6 returned a laboratory chloride reading of 32 mg/kg. In all four samples, the GRO and DRO readings were non-detect, except for SB-4 where the surface sample returned a DRO reading of 30.4 mg/kg (Appendix A).

Corrective Action Plan

As the bores were advanced through the vadose zone, the chloride readings dropped precipitously. To determine if the residual chlorides in the vadose zone pose a threat to groundwater quality, ROC ran the U.S. Environmental Protection Agency Exposure Assessment Multimedia Model (MULTIMED Version 1.5, 2005). With the proposed infiltration barrier measuring 36 ft x 44 ft, data inputs and model outputs are included in Appendix B. The model output concludes that the peak concentration of chlorides in groundwater contributed by the vadose zone soils would be approximately 59.16 mg/L in 275 years. Since the estimated increase in chloride concentrations in groundwater from residual chloride migration is below the WQCC standard of 250 mg/L, no further action will be warranted for the groundwater at this site.

To further mitigate the affect the residual chlorides may have on groundwater beneath the site, RECS recommends that ROC install 20-mil reinforced poly liner measuring 36 ft x 44 ft at a depth of approximately 3 ft bgs, due to the presence of hard rock in the area (Figure 3). The liner will provide a barrier that will inhibit the downward migration of

chlorides to groundwater. The soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID reading below 100 ppm. Excavated soils will be evaluated for use as backfill and any soils requiring disposal will be properly disposed of at a NMOCD approved facility. Upon completion of backfilling, the site will be seeded with a native vegetative mix and soil amendments will be added as necessary. Vegetation above the liner will also provide a natural infiltration barrier for the site since plants capture water through their roots thereby reducing the volume of water moving through the vadose zone to groundwater.

Once the CAP activities have been completed, ROC will submit a report detailing the CAP activities and a request for 'remediation termination' or similar closure status of the regulatory file.

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

Sincerely,

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

- Figure 1 – Site Location Map
- Figure 2 – Geographical Location Map
- Figure 3 – Soil Bore Installation and Proposed Liner
- Appendix A – Soil Bore Installation Documentation
- Appendix B – Multimed Documentation

Figures

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

Site Location Map

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

Vacuum St H-35 EOL

Legals: UL/G sec. 35
T17S R34E
LEA COUNTY, NM

NMOCD Case #: 1R425-46

Figure 1

N
W E
S

0 0.25 0.5
Miles

Drawing date: 8/16/13
Drafted by: L. Weinheimer

Geographical Location Map

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

Vacuum St H-35 EOL

Legals: UL/G sec. 35
T17S R34E
LEA COUNTY, NM

NMOCD Case #: 1R425-46

Figure 2

N
W E
S

0 435 870
Feet

Drawing date: 8/16/13
Drafted by: L. Weinheimer

Soil Bore Installation and Proposed Liner

SB-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO
15	1633	1.0			
20	540	0.8			
25	3873	0.8			
30	2516	0.7			
35	5278	0.6	5360	<10	<10
40	4099	0.5			
45	3895	0.4			
50	1882	0.8			
55	997	0.7			
60	766	0.7			
65	457	0.5			
70	284	0.7			
75	171	0.6	64	<10	<10

SB-3

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS			256	<10	<10
5	796	6.1			
10	1229	2.9	1440	<10	<10
15	721	2.3			
20	264	1.8			
25	608	1.5			
30	214	1.3			
35	720	1.9			
40	906	1.3			
45	858	1.0			
50	701	1.1			
55	258	1.0	208	<10	<10

SB-2

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS			64	<10	<10
10	6425	9.4	6400	<10	54.1
15	4873	6.0			
20	1469	6.0			
25	4276	4.0			
30	3096	3.2			
35	4719	2.2			
40	359	1.5			
45	3739	1.3			
50	1379	1.1			
55	643	0.8			
60	438	0.7			
65	303	0.8	208	<10	<10

SB-4

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS			192	<10	30.4
5	1889	1.2	2440	<10	<10
10	1482	1.0			
15	609	0.8			
20	1225	0.6			
25	266	0.6			
30	157	0.5			
35	174	0.5	83.3	<10	<10

SB-5

Depth	Cl-	PID	LAB Cl-	GRO	DRO
5	1340	1.0			
10	5443	1.0	5120	<10	<10
15	2980	0.8			
20	2097	0.7			
25	2404	0.6			
30	1671	0.9			
35	3224	0.6			
40	2235	0.5			
45	2273	0.5			
50	2526	0.4			
55	1315	0.3			
60	1362	0.3			
65	1402	0.4			
70	1066	0.3			
75	496	0.6			
80	849	0.4			
85	878	0.4			
90	554	0.3			
95	260	0.5	176	<10	<10

SB-6

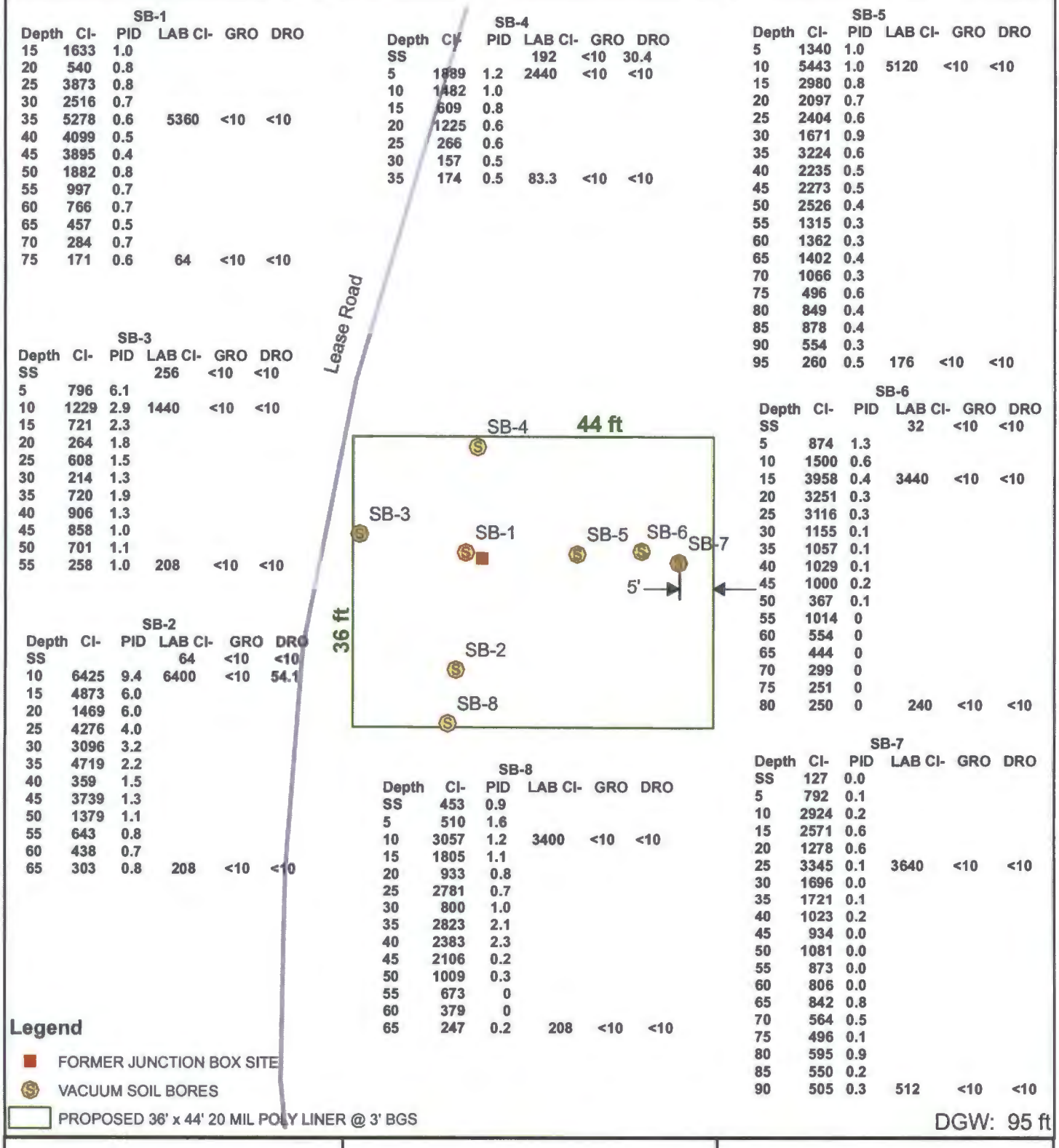
Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS			32	<10	<10
5	874	1.3			
10	1500	0.6			
15	3958	0.4	3440	<10	<10
20	3251	0.3			
25	3116	0.3			
30	1155	0.1			
35	1057	0.1			
40	1029	0.1			
45	1000	0.2			
50	367	0.1			
55	1014	0			
60	554	0			
65	444	0			
70	299	0			
75	251	0			
80	250	0	240	<10	<10

SB-8

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	453	0.9			
5	510	1.6			
10	3057	1.2	3400	<10	<10
15	1805	1.1			
20	933	0.8			
25	2781	0.7			
30	800	1.0			
35	2823	2.1			
40	2383	2.3			
45	2106	0.2			
50	1009	0.3			
55	673	0			
60	379	0			
65	247	0.2	208	<10	<10

SB-7

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	127	0.0			
5	792	0.1			
10	2924	0.2			
15	2571	0.6			
20	1278	0.6			
25	3345	0.1	3640	<10	<10
30	1696	0.0			
35	1721	0.1			
40	1023	0.2			
45	934	0.0			
50	1081	0.0			
55	873	0.0			
60	806	0.0			
65	842	0.8			
70	564	0.5			
75	496	0.1			
80	595	0.9			
85	550	0.2			
90	505	0.3	512	<10	<10



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

Vacuum St H-35 EOL

Legals: UL/G sec. 35
T17S R34E
LEA COUNTY, NM

NMOCD Case #: 1R425-46

Figure 3

N W E S

0 5 10 20 Feet

Drawing date: 8/16/2013
Drafted by: LS

Appendix A

Soil Bore Installation Documentation

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

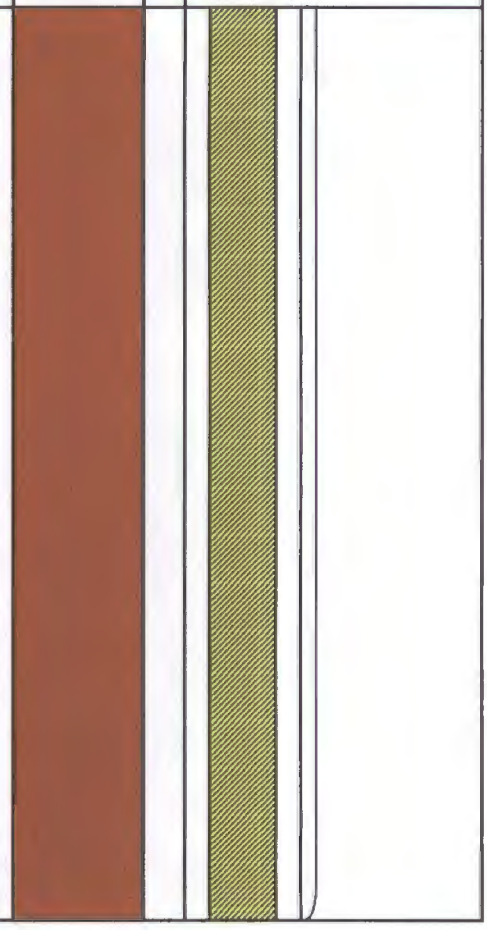
Logger:	T Grieco		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** Vac. St H-35 EOL **Well ID:** SB-1
Start Date:	10/7/2010		**Project Consultant:** RECS
End Date:	10/7/2010		

Comments: Located at the source of the former junction box site.
All samples were from cuttings.
DRAFTED BY: Lara Weinheimer
TD = 75 ft GW = 95 ft

Location: UL/G sec. 35 T17S R34E

Lat: 32°47'42.859"N **County**: LEA
Long: 103°31'41.821"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan very fine sand and silt. Scattered larger pieces (up to 3 mm) of caliche. Dry, no odor		
15 ft	1633		1.0			
20 ft	540		0.8			
25 ft	3873		0.8			
				Light reddish-tan predominantly silt. No larger pieces. Dry, no odor		
30 ft	2516		0.7			
35 ft	5278	Cl- 5360	0.6			
		GRO <10				
		DRO <10				
40 ft	4099		0.5			
						bentonite
45 ft	3895		0.4			seal
50 ft	1882		0.8			

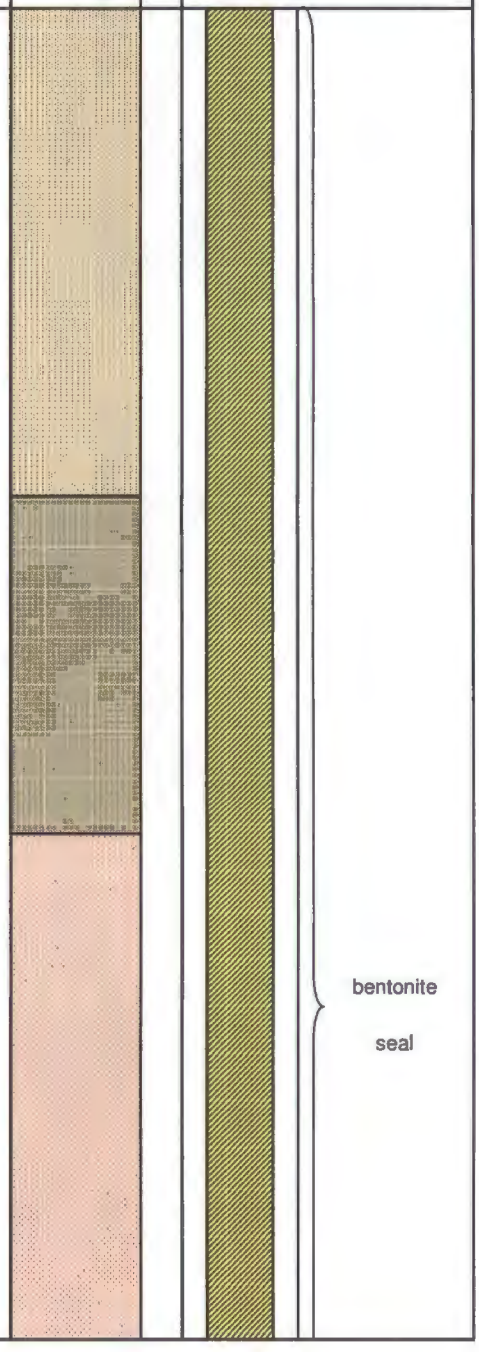
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Red, predominantly silt, Very damp, no odor		
55 ft	997		0.7			
60 ft	766		0.7			
65 ft	457		0.5			
				Red, predominantly silt, less damp, no odor.		
70 ft	284		0.7			
				Red, predominantly silt, slightly damp, no odor		
75 ft	171	Cl-64	0.6			
		GRO <10				
		DRO <10				

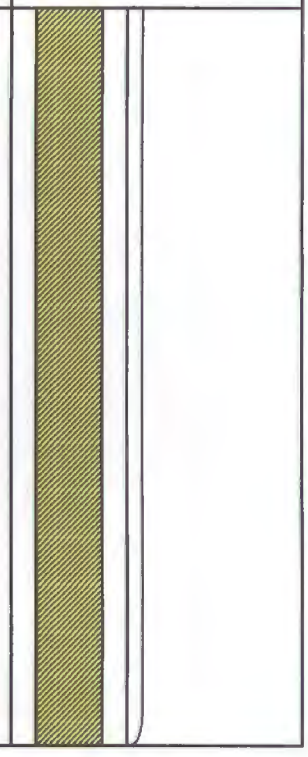
Logger:	T Grieco		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS
Driller:	Harrison & Cooper, Inc.		**Project Name:** Vac. St H-35 EOL **Well ID:** SB-2
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	10/8/2010		
End Date:	10/8/2010		

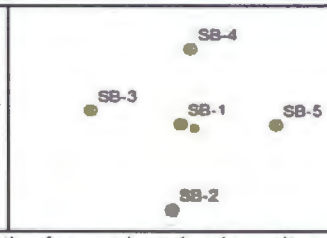
Comments: Located 14 ft south of the former junction box site.
All samples were from cuttings.
DRAFTED BY: Lara Weinheimer
TD = 65 ft GW = 95 ft

Location: UL/G sec. 35 T17S R34E
Lat: 32°47'42.716"N **County**: LEA
Long: 103°31'41.841"W **State:** NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Tan very fine sand and silt, with abundant larger particles (up to 1 cm) of caliche. Dry, no odor.
10 ft	6425	Cl- 6400	9.4	
		GRO <10		
		DRO 54.1		
15 ft	4873		6.0	
20 ft	1469		6.0	
				Tan predominantly silt, some very fine sand. Fewer larger caliche particles. Dry, no odor
25 ft	4276		4.0	
30 ft	3096		3.2	
				Light reddish-tan silt. Dry
35 ft	4719		2.2	
40 ft	359		1.5	
45 ft	3739		1.3	

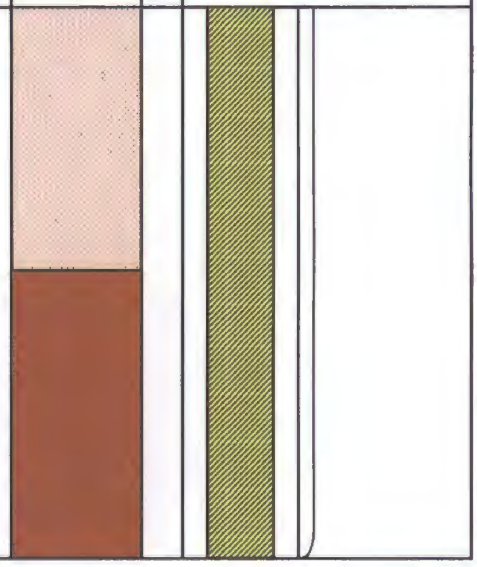


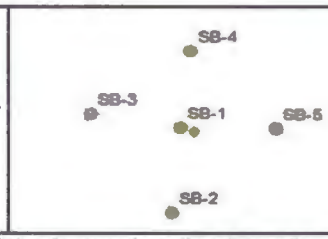
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Light reddish-tan silt. Slightly damp		
50 ft	1379		1.1			
				Red silt, damp, no odor		
55 ft	643		0.8			
				Red silt, no odor. Increasing dampness		
60 ft	438		0.7			
65 ft	303	Cl-208	0.8			
		GRO <10				
		DRO <10				

Logger:	T Grieco		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS
Driller:	Harrison & Cooper, Inc.		**Project Name:** Vac. St H-35 EOL — **Well ID:** SB-3
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	10/8/2010		
End Date:	10/8/2010		
Comments: Located 15 ft west of the former junction box site. All samples were from cuttings. **DRAFTED BY: Lara Weinheimer**			**Location:** UL/G sec. 35 T17S R34E
TD = 55 ft	GW = 95 ft		**Lat:** 32°47'42.88"N — **County:** LEA; **Long:** 103°31'41.976"W — **State:** NM

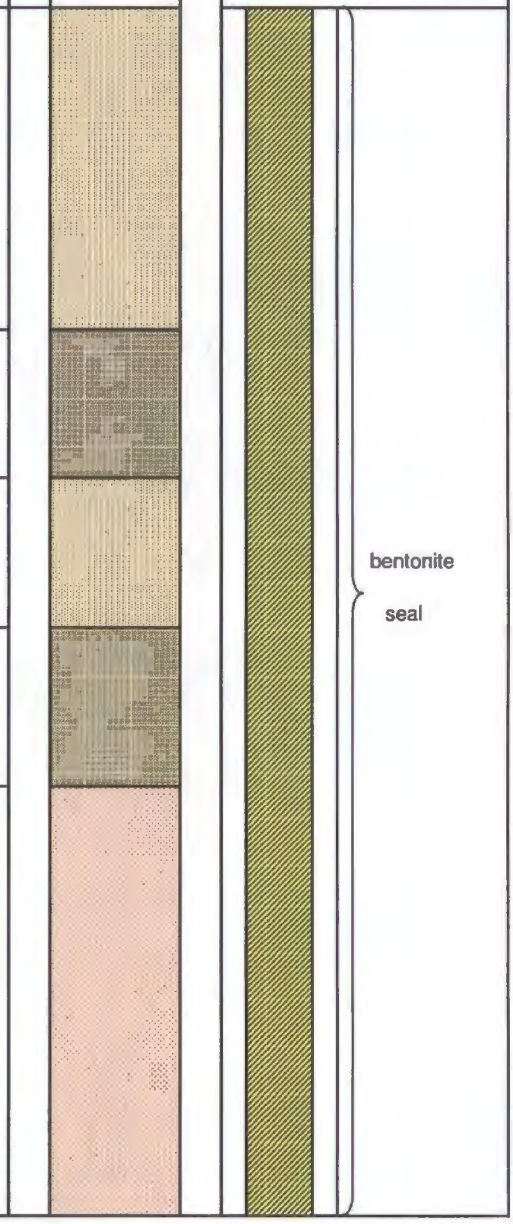
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan very fine sand and silt with abundant larger particles (up to 1 cm) of caliche. Dry, no odor		
5 ft	796		6.1			
10 ft	1,229	Cl- 1440	2.9			
		GRO <10				
		DRO <10				
15 ft	721		2.3			
				Increase in amount of larger caliche to approx 25% by volume		
20 ft	264		1.8			
				Tan predominantly silt with some very fine sand. Fewer larger caliche particles. Dry, no odor		
25 ft	608		1.5			
				Tan predominantly silt with some very fine sand. Fewer larger caliche particles. Dry, no odor.		
30 ft	214		1.3			
				Light reddish-tan silt. Dry.		
35 ft	720		1.9			
40 ft	906		1.3			

bentonite seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
						
45 ft	858		1.0			
50 ft	701		1.1			
				Red silt, damp, no odor		
55 ft	258	Cl-208	1.0			
		GRO <10				
		DRO <10				

Logger:	T Grieco		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** Vac. St H-35 EOL **Well ID:** SB-4
Start Date:	10/8/2010		
End Date:	10/8/2010		**Project Consultant:** RECS
Comments: Located 13 ft north of the former junction box site. All samples were from cuttings. **DRAFTED BY: Lara Weinheimer**			**Location:** UL/G sec. 35 T17S R34E
TD = 35 ft		GW = 95 ft	**Lat:** 32°47'42.985"N **County:** LEA **Long:** 103°31'41.804"W **State:** NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Tan very fine sand an silt with abundant larger particles of caliche (up to 1 cm). Dry, no odor
5 ft	1889	Cl- 2440	1.2	
		GRO <10		
		DRO <10		
10 ft	1482		1.0	
				Tan predominantly silt, fewer large caliche particles. Dry, no odor
15 ft	609		0.8	
				Tan silt and very fine sand with abundant large caliche particles (up to 1 cm). Dry, no odor
20 ft	1225		0.6	
				Tan predominantly silt, few larger caliche particles. Dry, no odor
25 ft	266		0.6	
				Light reddish-tan silt, dry, no odor
30 ft	157		0.5	
35 ft	174	Cl- 83.3	0.5	
		GRO <10		
		DRO <10		



Logger:	T Grieco		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** Vac. St H-35 EOL **Well ID:** SB-5
Start Date:	10/8/2010		
End Date:	10/8/2010		**Project Consultant:** RECS
Comments: Located 11 ft east of the former junction box site. All samples were from cuttings. **DRAFTED BY: Lara Weinheimer** TD = 95 ft GW = 95 ft			**Location:** UL/G sec. 35 T17S R34E **Lat:** 32°47'42.854"N **County:** LEA **Long:** 103°31'41.661"W **State:** NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan very fine sand and silt with abundant larger particles of caliche (up to 1 cm). Dry, no odor.		
5 ft	1340		1.0			
				Tan very fine sand and silt with fewer, smaller caliche particles.		
10 ft	5443	Cl- 5120	1.0			
		GRO <10		Tan very fine sand and silt with an increase in coarser caliche particles.		
		DRO <10				
15 ft	2980		0.8			
				Tan very fine sand and silt with few caliche particles.		
20 ft	2097		0.7			
				Tan very fine sand and silt with no caliche particles.		
25 ft	2404		0.6			
				Light reddish-tan silt. Dry, no odor.		
30 ft	1671		0.9			
35 ft	3224		0.6			
40 ft	2235		0.5			

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
45 ft	2273		0.5			
50 ft	2526		0.4			
				Red silt, damp. Dry, no odor.		
55 ft	1315		0.3			
60 ft	1362		0.3			
65 ft	1402		0.4			
70 ft	1066		0.3			
75 ft	496		0.6			
80 ft	849		0.4			
85 ft	878		0.4			
90 ft	554		0.3			
95 ft	260	Cl- 176	0.5			
		GRO <10				
		DRO <10				

bentonite seal

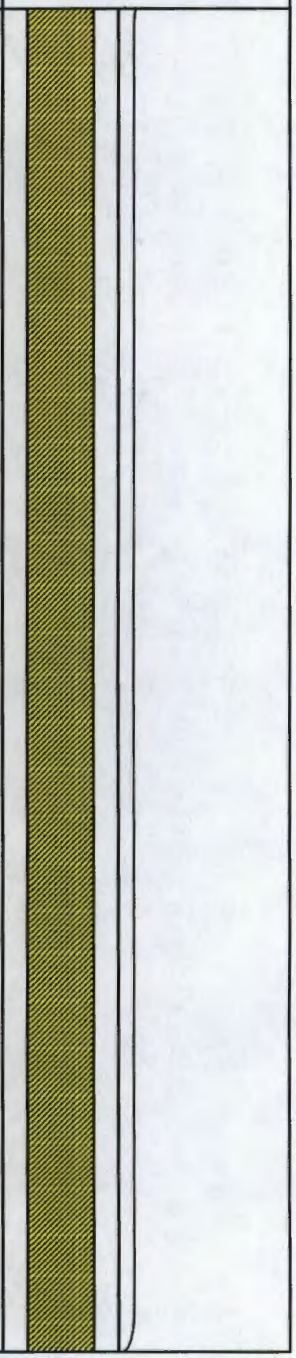
Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** Vacuum St H-35 EOL **Well ID:** SB-6
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	11/16/2010		
End Date:	11/16/2010		

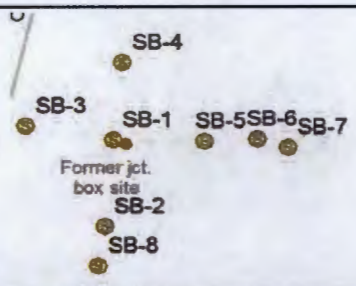
Comments: Located 20 ft east of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer
TD = 80 ft GW = 95 ft

Location: UL/G sec. 35 T17S R34E

Lat: 32°47'42.859"N **County**: LEA
Long: 103°31'41.566"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
5 ft	874		1.3	
				White silty sand and caliche fragments (hard)
10 ft	1500		0.6	
15 ft	3958	Cl- 3440	0.4	
		GRO <10		
		DRO <10		
20 ft	3251		0.3	
				Tan to light brown very fine sand
25 ft	3116		0.3	
30 ft	1155		0.1	
35 ft	1057		0.1	
				Light brown very fine sand
40 ft	1029		0.1	

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
						
45 ft	1000		0.2			
50 ft	367		0.1			
55 ft	1014		0			
				Light brown very fine sand (moist)		
60 ft	554		0			
65 ft	444		0			
70 ft	299		0			
				Light brown very fine sand		
75 ft	251		0			
80 ft	250	Cl- 240	0			
		GRO <10		Light brown silty sand (moist)		
		DRO <10				

Logger:	Kyle Norman		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** Vacuum St. H-35 EOL **Well ID:** SB-7
Start Date:	2/13/2013		**Project Consultant:** RECS
End Date:	2/13/2013		

Comments: SB-7 is located 24 ft east of the former junction box site. All samples are from cuttings.

DRAFTED BY: L. Weinheimer

TD = 90 ft GW = 95 ft

Location: UL/G sec. 35 T-17-S R-34-E

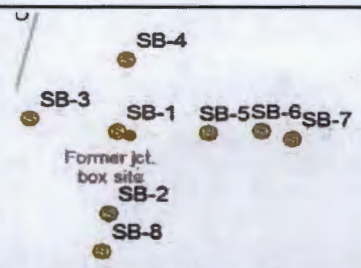
Lat: 32°47'42.842"N **Long:** 103°31'41.512"W **County:** Lea **State:** NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	127		0.0	
				Tan Sand With Some Caliche
5 ft	792		0.1	
10 ft	2924		0.2	
				Tan Sand with Sandstone
15 ft	2571		0.6	
20 ft	1278		0.6	
25 ft	3345	Cl- 3640	0.1	
		GRO <10		Red/Tan Sand
		DRO <10		
30 ft	1696		0.0	
35 ft	1721		0.1	

Lithology

Well Construction

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan Sand		bentonite seal
40 ft	1023		0.2			
45 ft	934		0.0			
50 ft	1081		0.0	Tan Moist Sand		
55 ft	873		0.1			
60 ft	806		0.0			
65 ft	842		0.8			
70 ft	564		0.5			
75 ft	496		0.1			
80 ft	595		0.9			
85 ft	550		0.2			
90 ft	505	Cl-512	0.3			
		GRO <10				
		DRO <10				

Logger:	Kyle Norman		**Project Name:** Vacuum St. H-35 EOL **Well ID:** SB-8
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	2/13/2013		
End Date:	2/13/2013		

Comments: SB-8 is located 21 ft south of the former junction box site. All samples are from cuttings.

DRAFTED BY: L. Weinheimer

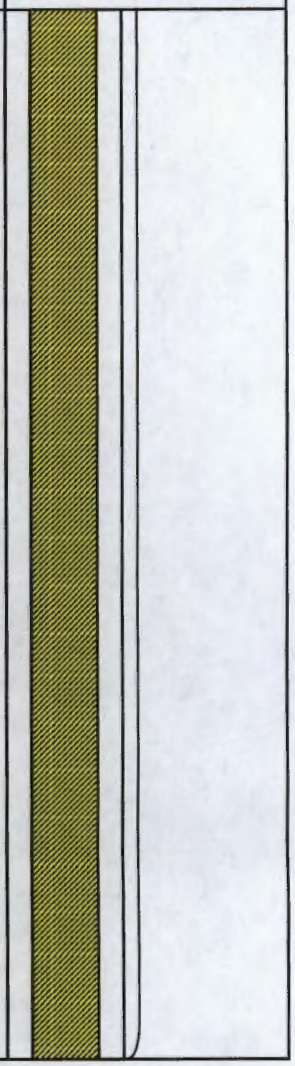
TD = 65 ft GW = 95 ft

Location: UL/G sec. 35 T-17-S R-34-E

Lat: 32°47'42.652"N **County**: Lea

Long: 103°31'41.853"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	453		0.9	
				Tan Sand with Sandstone
5 ft	510		1.6	
10 ft	3057	Cl- 3400	1.2	
		GRO <10		
		DRO <10		
15 ft	1805		1.1	
20 ft	933		0.8	
				Tan Sand
25 ft	2781		0.7	
30 ft	800		1.0	
35 ft	2823		2.1	

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan Sand		
40 ft	2383		2.3			
45 ft	2106		0.2			
50 ft	1009		0.3			
				Tan Moist Sand		
55 ft	673		0.0			
60 ft	379		0.0			
65 ft	247	Cl-208	0.2			
		GRO <10				
		DRO <10				

CARDINAL Laboratories

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

October 14, 2010

Bruce Baker

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM STATE H EOL

Enclosed are the results of analyses for samples received by the laboratory on 10/08/10 8:05.

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 Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated 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

Celey D. Keene
Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/08/2010	Sampling Date:	10/07/2010
Reported:	10/14/2010	Sampling Type:	Soil
Project Name:	VACUUM STATE H EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 35' (H021006-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**5360**	16.0	10/11/2010	ND	400	100	400	0.00	

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	10/14/2010	ND	192	96.0	200	17.6	
DRO >C10-C28	<10.0	10.0	10/14/2010	ND	181	90.6	200	8.48	

Surrogate: 1-Chlorooctane	*101 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*101 %*	*70-130*

Sample ID: SB 1 @ 75' (H021006-02)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	10/11/2010	ND	400	100	400	0.00	

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	10/14/2010	ND	192	96.0	200	17.6	
DRO >C10-C28	<10.0	10.0	10/14/2010	ND	181	90.6	200	8.48	

Surrogate: 1-Chlorooctane	*95.2 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*96.6 %*	*70-130*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene

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**
Project Manager: Bruce Baker	P.O. #:
Address: 122 W. Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: 575-393-9174 Fax #: 575-397-1471	Address:
Project #: Project Owner:	City:
Project Name: VACUUM STATE 14 EOL	State: Zip:
Project Location:	Phone #:
Sampler Name: BRUCE BAKER	Fax #:

ANALYSIS REQUEST: CHLORIDE; TPH 8015M

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	PRESERV: ACID/BASE	ICE/COOL	OTHER	SAMPLING: DATE	TIME	CHLORIDE	TPH 8015M
H21006-1	SB1 @ 35'	G	1			✓					✓		10/7/10	2:30	✓	✓
2	SB1 @ 75'	G	1			✓					✓		10/7/10	3:30	✓	✓

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

Relinquished By: Bruce Baker	Date: 10-8-10 Time: 7:00 AM	Received By: [signature]	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By: [signature]	Date: 10/8/10 Time: 8:05	Received By: Jodi Henson	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No	CHECKED BY: (Initials) [initials]	REMARKS: E-Mail Results To: KJones@RiceSwd.com BBaker " " KLegans " "

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

#26

CARDINAL Laboratories

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

October 18, 2010

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM STATE H-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 10/11/10 10:17.

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 Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated 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

Celey D. Keene
Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2010	Sampling Date:	10/08/2010
Reported:	10/18/2010	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #2 10' (H021022-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6400**	16.0	10/11/2010	ND	416	104	400	0.00	

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	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	**54.1**	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*93.6 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*114 %*	*70-130*

Sample ID: SB #2 65' (H021022-02)

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	10/11/2010	ND	416	104	400	0.00	

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	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	<10.0	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*101 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*121 %*	*70-130*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2010	Sampling Date:	10/08/2010
Reported:	10/18/2010	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #3 10' (H021022-03)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1440**	16.0	10/11/2010	ND	416	104	400	0.00	

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	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	<10.0	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*99.3 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*115 %*	*70-130*

Sample ID: SB #3 55' (H021022-04)

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	10/11/2010	ND	416	104	400	0.00	

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	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	<10.0	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*96.0 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*124 %*	*70-130*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2010	Sampling Date:	10/08/2010
Reported:	10/18/2010	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #4 5' (H021022-05)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2440**	16.0	10/11/2010	ND	416	104	400	0.00	

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	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	<10.0	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*95.6 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*112 %*	*70-130*

Sample ID: SB #4 35' (H021022-06)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**83.3**	16.0	10/11/2010	ND	416	104	400	0.00	

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	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	<10.0	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*74.7 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*88.4 %*	*70-130*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2010	Sampling Date:	10/08/2010
Reported:	10/18/2010	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #5 10' (H021022-07)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**5120**	16.0	10/11/2010	ND	416	104	400	0.00	

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	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	<10.0	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*99.1 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*121 %*	*70-130*

Sample ID: SB #5 95' (H021022-08)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**176**	16.0	10/11/2010	ND	416	104	400	0.00	

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	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	<10.0	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*93.5 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*112 %*	*70-130*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

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

Company Name: RICE OPERATING	BILL TO
Project Manager: HACK CONDER	P.O. #:
Address: 122 W TAYLOR	Company:
City: HOBBS State: NM Zip: 88240	Attn:
Phone #: 575 393 9174 Fax #: 575 3930293	Address:
Project #: Project Owner:	City:
Project Name: VACUUM STATE H-35 EOL	State: Zip:
Project Location:	Phone #:
Sampler Name: BRUCE BAKER	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST	
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	CHLORIDES	TPH 8015M
H21022-1	SB#2 10'	G	1			✓					✓		10/6/10	9:00 A	✓	✓
2	SB#2 65'	G	1			✓					✓		10/6/10	9:44 A	✓	✓
3	SB#3 10'	G	1			✓					✓		10/6/10	11:46 A	✓	✓
4	SB#3 55'	G	1			✓					✓		10/6/10	12:11 P	✓	✓
5	SB#4 5'	G	1			✓					✓		10/6/10	1:58 P	✓	✓
6	SB#4 35'	G	1			✓					✓		10/6/10	2:37 P	✓	✓
7	SB#5 10'	G	1			✓					✓		10/6/10	3:27 P	✓	✓
8	SB#5 25'	G	1			✓					✓		10/6/10	4:52 P	✓	✓

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

Relinquished By: Bruce Baker	Date: 10-11-10 Time: 10:17am	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: 10/11/10 Time: 11:30	Received By: Jodi Henson	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool: Yes ☐ No ☐ Intact: Yes ☐ No ☐	CHECKED BY: (Initials):

REMARKS: email Bbaker@riceswd.com Kjones@riceswd.com Lweinheimer@riceswd.com

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

#26

CARDINAL Laboratories

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

November 19, 2010

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM STATE H-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 11/17/10 8:13.

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 Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated 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

Celey D. Keene
Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/17/2010	Sampling Date:	11/16/2010
Reported:	11/19/2010	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #6 @ 15 FT. (H021313-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3440**	16.0	11/18/2010	ND	432	108	400	0.00	

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	11/18/2010	ND	163	81.3	200	3.90	
DRO >C10-C28	<10.0	10.0	11/18/2010	ND	158	79.2	200	3.14	

Surrogate: 1-Chlorooctane	*104 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*103 %*	*70-130*

Sample ID: SB #6 @ 80 FT. (H021313-02)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**240**	16.0	11/18/2010	ND	432	108	400	0.00	

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	11/18/2010	ND	163	81.3	200	3.90	
DRO >C10-C28	<10.0	10.0	11/18/2010	ND	158	79.2	200	3.14	

Surrogate: 1-Chlorooctane	*107 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*106 %*	*70-130*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

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

Company Name: Rice Operating Company		BILL TO	
Project Manager: Hack Conder		P.O. #:	
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: Vacuum St H-35 EOL		State: Zip:	
Project Location: Vacuum St H-35 EOL		Phone #:	
Sampler Name: Jordan Woodfin		Fax #:	

FOR LAB USE ONLY				MATRIX						PRESERV		SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACID/BASE	ICE/COOL	OTHER	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TPH 8015 M Extended Thru C40					
H21313-1	SB # 6 @ 15ft		1			✓					✓		11/16/10	02:00	✓	✓				✓					
-2	SB # 6 @ 80ft		1			✓					✓		11/16/10	03:00	✓	✓				✓					

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

Relinquished By: Jordan Woodfin	Date: 11/17/10 Time: 7:30	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: 11/17/10 Time: 8:15	Received By:	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool: Yes ☑ No ☐ Intact: Yes ☑ No ☐	CHECKED BY: (Initials)	REMARKS: email results Hconder@riceswd.com; jwoodfin@riceswd.com; Lweinheimer@riceswd.com kjones@riceswd.com

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

#26

NEED SAMPLES BACK, PLEASE

CARDINAL Laboratories

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

February 19, 2013

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM STATE H-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 02/13/13 15:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	02/13/2013	Sampling Date:	02/13/2013
Reported:	02/19/2013	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 7 @ 25' (H300414-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3640**	16.0	02/19/2013	ND	432	108	400	3.64	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/19/2013	ND	208	104	200	3.34	
DRO >C10-C28	<10.0	10.0	02/19/2013	ND	207	104	200	15.6	

Surrogate: 1-Chlorooctane	*68.9 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*86.9 %*	*63.6-154*

Sample ID: SB 7 @ 90' (H300414-02)

Chloride, SM4500Cl-B mg/kg **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**512**	16.0	02/19/2013	ND	432	108	400	3.64	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/19/2013	ND	208	104	200	3.34	
DRO >C10-C28	<10.0	10.0	02/19/2013	ND	207	104	200	15.6	

Surrogate: 1-Chlorooctane	*76.2 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*95.1 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	02/13/2013	Sampling Date:	02/13/2013
Reported:	02/19/2013	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 8 @ 10' (H300414-03)

Chloride, SM4500Cl-B mg/kg **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3400**	16.0	02/19/2013	ND	432	108	400	3.64	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/19/2013	ND	208	104	200	3.34	
DRO >C10-C28	<10.0	10.0	02/19/2013	ND	207	104	200	15.6	

Surrogate: 1-Chlorooctane	*69.5 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*85.9 %*	*63.6-154*

Sample ID: SB 8 @ 65' (H300414-04)

Chloride, SM4500Cl-B mg/kg **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**208**	16.0	02/19/2013	ND	432	108	400	3.64	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/19/2013	ND	208	104	200	3.34	
DRO >C10-C28	<10.0	10.0	02/19/2013	ND	207	104	200	15.6	

Surrogate: 1-Chlorooctane	*65.8 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*83.3 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

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

Company Name: Rice	BILL TO
Project Manager: Hack Conder	P.O. #:
Address:	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: Vacuum State H 35 E&L	Phone #:
Sampler Name: Kyle Norman	Fax #:

FOR LAB USE ONLY				MATRIX							PRESERV			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS						
H30044																										
1	SB 1 @ 25'	G	1			X					X		2-23-15	11:30	X	X										
2	SB 2 @ 90'	G	1			X					X		"	11:45	X	X										
3	SB 3 @ 10'	G	1			X					X		"	12:00	X	X										
4	SB 3 @ 65'	G	1			X					X		"	12:15	X	X										

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

Relinquished By:	Date: 2-23-15	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 3:55		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: email results: zconder@rice-ecs.com; Knorman@rice-ecs.com; lpena@riceswd.com; Kjones@riceswd.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com
	Time:		
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: Yes / No Intact: Yes / No	CHECKED BY: (Initials)	

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

4-26

CARDINAL Laboratories

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

February 21, 2012

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM STATE H-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 02/15/12 16:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

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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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	02/15/2012	Sampling Date:	02/15/2012
Reported:	02/21/2012	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SURFACE SAMPLE @ SB 2 (H200418-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	02/20/2012	ND	416	104	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/16/2012	ND	174	87.1	200	4.78	
DRO >C10-C28	<10.0	10.0	02/16/2012	ND	169	84.3	200	12.1	

Surrogate: 1-Chlorooctane	*85.7 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*98.8 %*	*57.6-158*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(505) 393-2326 FAX (505) 393-2476

Company Name: Rice	BILL TO
Project Manager: Kathe Jones	P.O. #:
Address:	Company:
City: State: Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: Vacuum St H-35 EOL	Phone #:
Sampler Name: J. Kaplan	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV			SAMPLING		ANALYSIS REQUEST	
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	BTEX	TPH
H200418																
-1	Surface Sample @ 5B2	G	1			✓					✓		2-13-0	2:40	✓	✓

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

Relinquished By:	Date:	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 4:30	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:		REMARKS: Bruce, Zac, Lara, Hack, Katie
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: JC

Sample Condition: Cool ☐ Yes ☐ No / Intact ☑ Yes ☐ No

CHECKED BY: (Initials) JH

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

#10

CARDINAL Laboratories

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

February 21, 2012

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

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Celey D. Keene

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Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	02/15/2012	Sampling Date:	02/15/2012
Reported:	02/21/2012	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SURFACE SAMPLE @ SB 3 (H200417-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**256**	16.0	02/20/2012	ND	416	104	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/16/2012	ND	174	87.1	200	4.78	
DRO >C10-C28	<10.0	10.0	02/16/2012	ND	169	84.3	200	12.1	

Surrogate: 1-Chlorooctane	*85.1 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*95.8 %*	*57.6-158*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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RPD	Relative Percent Difference
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***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(505) 393-2326 FAX (505) 393-2476

Company Name:	Pce
Project Manager:	Katie Jones
Address:	
City:	State: Zip:
Phone #:	Fax #:
Project #:	Project Owner:
Project Name:	
Project Location:	Vacuum SE 11-35 EOL
Sampler Name:	Kaylor

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State: Zip:	
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	TPH	CL
H20041-7																
1	Surface Sample @ SB3	G	1			✓					✓		2-15-12	3:35	✓	✓

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

Relinquished By:	Date: 2-15-12 Time: 4:30	Received By: Cody Henderson	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition: Cool: ☐ Yes ☐ No Intact: ☐ Yes ☐ No	CHECKED BY: (Initials)

REMARKS: Katie, Hack, Zack, Bruce, Lara

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

CARDINAL Laboratories

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

February 21, 2012

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM STATE H-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 02/15/12 16:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	02/15/2012	Sampling Date:	02/15/2012
Reported:	02/21/2012	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SURFACE SAMPLE @ SB4 (H200415-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**192**	16.0	02/20/2012	ND	416	104	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/16/2012	ND	174	87.1	200	4.78	
DRO >C10-C28	**30.4**	10.0	02/16/2012	ND	169	84.3	200	12.1	

Surrogate: 1-Chlorooctane	*89.7 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*103 %*	*57.6-158*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(505) 393-2326 FAX (505) 393-2476

Company Name:	Rice	BILL TO	
Project Manager:	Katie Jones	P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location:	Vacuum St. H-35 EOL	Phone #:	
Sampler Name:	J. Kendall	Fax #:	

FOR LAB USE ONLY				MATRIX						PRESERV			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE	ICE / COOL	OTHER :	DATE	TIME	CL	TPH									
H200415																									
	Surface Sample @ 584	G	1			✓					✓		2-15-12	3550	✓	✓									

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

Relinquished By:	Date: 2-15-12	Received By:	Phone Result: ☐ Yes ☐ No	Add'l Phone #:	
	Time: 5:30	Jodi Henson	Fax Result: ☐ Yes ☐ No	Add'l Fax #:	
Relinquished By:	Date:	Received By:	REMARKS: Katie, Hack, Bruce, Zac, Dan		
	Time:				
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)		

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

CARDINAL Laboratories

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

February 21, 2012

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: VACUUM STATE H-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 02/15/12 16:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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Method EPA 524.2	Total Trihalomethanes (TTHM)
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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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	02/15/2012	Sampling Date:	02/15/2012
Reported:	02/21/2012	Sampling Type:	Soil
Project Name:	VACUUM STATE H-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SURFACE SAMPLE @ SB 6 (H200416-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	02/20/2012	ND	416	104	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/16/2012	ND	174	87.1	200	4.78	
DRO >C10-C28	<10.0	10.0	02/16/2012	ND	169	84.3	200	12.1	

Surrogate: 1-Chlorooctane	*87.0 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*97.0 %*	*57.6-158*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(505) 393-2326 FAX (505) 393-2476

		BILL TO	
Company Name: Rice		P.O. #:	
Project Manager: Katie Jones		Company:	
Address:		Attn:	
City:	State: Zip:	Address:	
Phone #:	Fax #:	City:	
Project #:	Project Owner:	State: Zip:	
Project Name:		Phone #:	
Project Location: Vacuum SF 11-25-FOL		Fax #:	
Sampler Name: J Kemper			

ANALYSIS REQUEST

Lab I.D. (FOR LAB USE ONLY)	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACID/BASE	ICE / COOL	OTHER	DATE	TIME	Cl	TPH
H200416																
-1	Surface Sample @ 586	g	1			✓					✓		2-15-12	3:45	✓	✓

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

Relinquished By:	Date: 2-15-12 / Time: 4:30	Received By: Jodie Henson
Relinquished By:	Date: / Time:	Received By:

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS: Katie, Hack, Zac, Bruce, Larry

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 2.0°c

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials) JH

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

Appendix B
Multimed Documentation

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

MULTIMED V1.01 DATE OF CALCULATIONS: 15-AUG-2013 TIME: 7:58:38

U. S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.50, 2005)

1
Run options
--- -------

Vacuum St H-35 EOL

(1R425-46)
Chemical simulated is Chloride

Option Chosen	Saturated and unsaturated zone models
Run was	DETERMIN

Infiltration Specified By User: 7.620E-03 m/yr
Run was transient
Well Times: Entered Explicitly
Reject runs if Y coordinate outside plume
Reject runs if Z coordinate outside plume
Gaussian source used in saturated zone model
1
1
UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)

NP	- Total number of nodal points	240
NMAT	- Number of different porous materials	1
KPROP	- Van Genuchten or Brooks and Corey	1
IMSHGN	- Spatial discretization option	1
NVFLAYR	- Number of layers in flow model	1

OPTIONS CHOSEN
------- ------
Van Genuchten functional coefficients
User defined coordinate system
1

Layer information

LAYER NO.	LAYER THICKNESS	MATERIAL PROPERTY
1	7.92	1

DATA FOR MATERIAL 1

VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Saturated hydraulic conductivity	cm/hr	CONSTANT	3.60	-999.	-999.	-999.
Unsaturated zone porosity	--	CONSTANT	0.250	-999.	-999.	-999.
Air entry pressure head	m	CONSTANT	0.700	-999.	-999.	-999.
Depth of the unsaturated zone	m	CONSTANT	7.92	0.000	0.000	0.000

DATA FOR MATERIAL 1

VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Residual water content	--	CONSTANT	0.116	-999.	-999.	-999.
Brook and Corey exponent,EN	--	CONSTANT	-999.	-999.	-999.	-999.
ALFA coefficient	1/cm	CONSTANT	0.500E-02	-999.	-999.	-999.
Van Genuchten exponent, ENN	--	CONSTANT	1.09	-999.	-999.	-999.

1

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY	- Number of different layers used		1
NTSTPS	- Number of time values concentration calc		40
DUMMY	- Not presently used		1
ISOL	- Type of scheme used in unsaturated zone		2
N	- Stehfest terms or number of increments		18
NTEL	- Points in Lagrangian interpolation		3
NGPTS	- Number of Gauss points		104
NIT	- Convolution integral segments		2
IBOUND	- Type of boundary condition		3
ITSGEN	- Time values generated or input		1
TMAX	- Max simulation time	--	0.0
WTFUN	- Weighting factor	--	1.2

OPTIONS CHOSEN

Convolution integral approach
Exponentially decaying continuous source
Computer generated times for computing concentrations

1

DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Thickness of layer	m	CONSTANT	7.92	-999.	-999.	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	-999.	-999.
Percent organic matter	--	CONSTANT	0.000	-999.	-999.	-999.
Bulk density of soil for layer	g/cc	CONSTANT	1.99	-999.	-999.	-999.
Biological decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.

1

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Solid phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Dissolved phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Overall chemical decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Acid catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Base catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Reference temperature	C	CONSTANT	25.0	-999.	-999.	-999.
Normalized distribution coefficient	ml/g	CONSTANT	0.000	-999.	-999.	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Air diffusion coefficient	cm2/s	CONSTANT	-999.	-999.	-999.	-999.
Reference temperature for air diffusion	C	CONSTANT	-999.	-999.	-999.	-999.
Molecular weight	g/M	CONSTANT	-999.	-999.	-999.	-999.
Mole fraction of solute	--	CONSTANT	-999.	-999.	-999.	-999.
Vapor pressure of solute	mm Hg	CONSTANT	-999.	-999.	-999.	-999.
Henry`s law constant	atm-m^3/M	CONSTANT	-999.	-999.	-999.	-999.
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000	0.000	0.000	1.00
Not currently used		CONSTANT	0.000	0.000	0.000	0.000
Not currently used		CONSTANT	0.000	0.000	0.000	0.000

1

SOURCE SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Infiltration rate	m/yr	CONSTANT	0.762E-02	-999.	-999.	-999.
Area of waste disposal unit	m^2	DERIVED	147.	-999.	-999.	-999.
Duration of pulse	yr	DERIVED	50.0	-999.	-999.	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	-999.	-999.
Recharge rate	m/yr	CONSTANT	0.000	-999.	-999.	-999.
Source decay constant	1/yr	CONSTANT	0.250E-01	0.000	0.000	0.000
Initial concentration at landfill	mg/l	CONSTANT	0.149E+04	-999.	-999.	-999.
Length scale of facility	m	CONSTANT	11.0	-999.	-999.	-999.
Width scale of facility	m	CONSTANT	13.4	-999.	-999.	-999.
Near field dilution		DERIVED	1.00	0.000	0.000	1.00

1

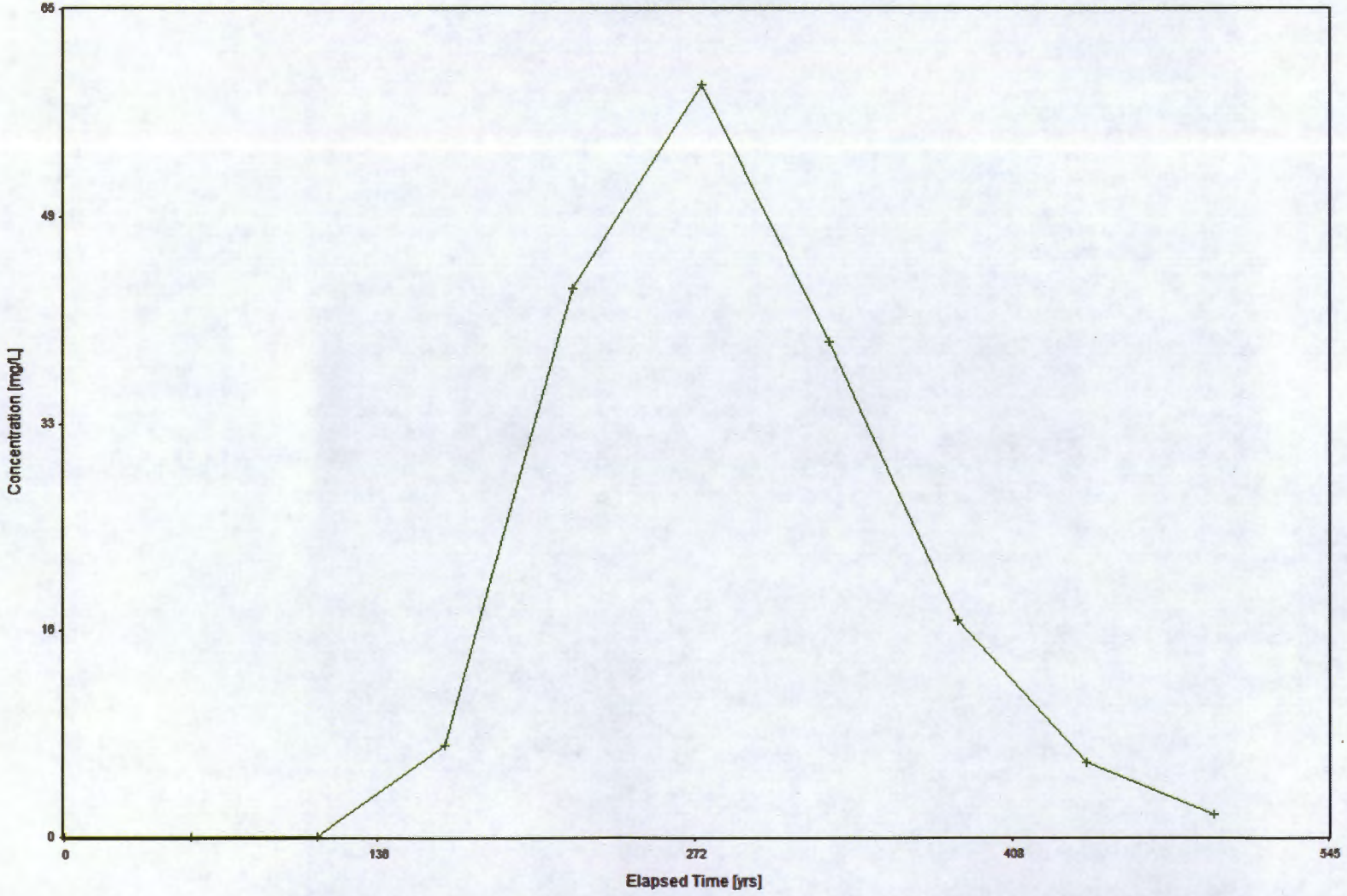
AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Particle diameter	cm	CONSTANT	-999.	-999.	-999.	-999.
Aquifer porosity	--	CONSTANT	0.300	-999.	-999.	-999.
Bulk density	g/cc	CONSTANT	1.86	-999.	-999.	-999.
Aquifer thickness	m	CONSTANT	6.10	-999.	-999.	-999.
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	-999.	-999.
Conductivity (hydraulic)	m/yr	CONSTANT	315.	-999.	-999.	-999.
Gradient (hydraulic)		CONSTANT	0.300E-02	-999.	-999.	-999.
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	-999.	-999.
Retardation coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Longitudinal dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Transverse dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Vertical dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Temperature of aquifer	C	CONSTANT	20.0	-999.	-999.	-999.
pH	--	CONSTANT	7.00	-999.	-999.	-999.
Organic carbon content (fraction)		CONSTANT	0.000	-999.	-999.	-999.
Well distance from site	m	CONSTANT	1.00	-999.	-999.	-999.
Angle off center	degree	CONSTANT	0.000	-999.	-999.	-999.
Well vertical distance	m	CONSTANT	0.000	-999.	-999.	-999.

1

TIME	CONCENTRATION
0.000E+00	0.00000E+00
0.550E+02	0.00000E+00
0.110E+03	0.22769E-01
0.165E+03	0.71516E+01
0.220E+03	0.43121E+02
0.275E+03	0.59162E+02
0.330E+03	0.38917E+02
0.385E+03	0.16994E+02
0.440E+03	0.58678E+01
0.495E+03	0.17643E+01

Chloride Concentration At The Receptor Well
Vacuum St H-35 EOL



	General					
1	Title					Vacuum St H-35 EOL
2	Application Type					Generic
3	Run Type					Deterministic
4	Source Type					Transient
5	Aquifer Source Patch					Gaussian
6	Active Modules					Unsaturated Zone
						Saturated Zone
	Source					
7	Source Area			147.16	m^2	Area
8	Source Length	36	ft	10.97	m	Length
9	Source Width	44	ft	13.41	m	Width
10	Source Infiltration Rate	0.3	in	0.00762		Good Liner
11	Outside Recharge Rate				m/yr	0
12	Initial Leachate Concentration			1,492	mg/L	Average all bores
13	Source Duration				yrs	Derive
14	Source Decay Coefficient				1/yr	2.5%
15	Initial Spread of Source				m	Derive
	Chemical					
16	Chemical Name					Chloride
17	Dissolved Decay Coefficients				1/yr	Derive
18	Sorbed Phase Decay Coef.				1/yr	Derive
19	Overall Aquifer Decay Coef.				1/yr	Derive
20	Acid Catalyzed Rate				l/mole-yr	0
21	Neutral Rate				1/yr	0
22	Base Catalyzed Rate				l/mole-yr	0
23	Reference Temperature				deg C	25
24	Normalized Distribution Coef.				ml/g	0
25	Aquifer Distribution Coef.				ml/g	Derive
	Unsaturated Zone Flow					
26	Layer Thickness and Material Number	26	ft	7.92	m	Difference average depth and depth to GW
27	Saturated Hydraulic Conductivity				cm/hr	3.6
28	Effective Porosity				fraction	0.25
29	Air Entry Pressure Head				m	0.7
30	Residual Water Content				fraction	0.116
31	van Genuchten Alpha				1/cm	0.005
32	van Genuchten Beta				fraction	1.09
33	Brooks and Corey Exponent				fraction	-------
	Unsaturated Zone Transport					
34	Transport Layer Thickness	26	ft	7.92	m	Difference average depth and depth to GW
35	Longitudinal Dispersivity				m	Derive
36	Percent Organic Matter				%	0
37	Bulk Density				g/cm^3	1.99

38	Biological Decay Coefficient				1/yr	0
	Saturated Zone Flow					
39	Aquifer Thickness	20	ft	6.10	m	Aquifer Thickness
40	Mixing Zone Thickness				m	Derive
41	Effective Porosity				fraction	0.3
42	Bulk Density				g/cm^3	1.855
43	Saturated Hydraulic Conductivity				m/yr	315
44	Hydraulic Gradient				fraction	0.003
45	Seepage Velocity				m/yr	Derive
46	Longitudinal Dispersivity				m	Derive
47	Transverse Dispersivity				m	Derive
48	Vertical Dispersivity				m	Derive
49	Aquifer Temperature				deg C	20
50	Aquifer pH					7
51	Fraction Organic Carbon				fraction	0
52	Retardation Factor				fraction	Derive
53	Biological Decay Coefficient				1/yr	0
	Well Location and Time					
54	Radial Distance to Well				m	1
55	Angle Off Plume Axis				degree	0
56	Well Screen Depth Fraction				fraction	0
57	Time Step Option					Max Concentration
						Time Intervals
	Run Project					
						59.16 mg/L at 275 years

Vacuum St H-35 EOL (1R425-46)
Unit H, Section 35, T17S, R35E
Depth to GW: 95 ft
Impact Area: 36x44-ft

SB1

	Cl-	PID
15	1633	1.0
20	540	0.8
25	3873	0.8
30	2516	0.7
35	5278	0.6
40	4099	0.5
45	3895	0.4
50	1882	0.8
55	997	0.7
60	766	0.7
65	457	0.5
70	284	0.7
75	171	0.6

SB2

	Cl-	PID
10	6245	9.4
15	4873	6.0
20	1469	6.0
25	4276	4.0
30	3096	3.2
35	4719	2.2
40	359	1.5
45	3739	1.4
50	1379	1.1
55	643	0.8
60	438	0.7
65	303	0.8

SB3

	Cl-	PID
0	203	1.2
5	796	6.1
10	1229	2.9
15	721	2.3
20	264	1.8
25	608	1.5
30	214	1.3
35	720	1.9
40	906	1.3
45	858	1.0
50	701	1.1
55	258	1.0

SB4

	Cl-	PID
0	178	0.9
5	1889	1.2
10	1482	1.0
15	609	0.8
20	1225	0.6
25	266	0.6
30	157	0.5
35	174	0.5

SB5

	Cl-	PID
5	1340	1.0
10	5443	1.0
15	2980	0.8
20	2097	0.7
25	2404	0.6
30	1671	0.9
35	3224	0.6
40	2235	0.5
45	2273	0.5
50	2526	0.4
55	1315	0.3
60	1362	0.3
65	1402	0.4
70	1066	0.3
75	496	0.6
80	849	0.4
85	878	0.4
90	554	0.3
95	260	0.5

SB6

	Cl-	PID
5	874	1.3
10	1500	0.6
15	3958	0.4
20	3251	0.3
25	3116	0.3
30	1155	0.1
35	1057	0.1
40	1029	0.1
45	1000	0.2
50	367	0.1
55	1014	0.0
60	554	0.0
65	444	0.0
70	299	0.0
75	251	0.0
80	250	0.0

SB7

	Cl-	PID
0	127	0.0
5	792	0.1
10	2924	0.2
15	2571	0.6
20	1278	0.6
25	3345	0.1
30	1696	0.0
35	1721	0.1
40	1023	0.2
45	934	0.0
50	1081	0.0
55	873	0.1
60	806	0.0
65	842	0.8
70	564	0.5
75	496	0.1
80	595	0.9
85	550	0.2
90	505	0.3

SB8

	Cl-	PID
0	453	0.9
5	510	1.6
10	3057	1.2
15	1805	1.1
20	933	0.8
25	2781	0.7
30	800	1.0
35	2823	2.1
40	2383	2.3
45	2106	0.2
50	1009	0.3
55	673	0.0
60	379	0.0
65	247	0.2

Average Chloride concentration	1,492	mg/kg
Average Depth	69	ft
Depth to Groundwater - Average Depth	26	ft