1R - 427-283

REPORTS

DATE:

1-16-12

Rice Environmental Consulting & Safety
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

CERTIFIED MAIL
RETURN RECEIPT NO. 7008 1140 0001 3070 6204

January 16th, 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 Termination Request**
Rice Operating Company – EME SWD System
EME jct. P-27 (1R427-283): UL/P sec. 27 T19S R36E

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 EME Salt Water Disposal (SWD) system. ROC is the service provider (agent) for the EME 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 4 miles west of Monument, New Mexico at UL/P sec. 27 T19S R36E as shown on the Site Location Map (Figure 1). Soil bore installation conducted at the site found groundwater at a depth of +/- 17.5 ft bgs.

In 2007, ROC initiated work on the former EME P-27 junction box. The site was delineated using a backhoe to form a 30 ft x 30 ft x 12 ft deep excavation and soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation, the four-wall composite, the bottom composite and the backfill were taken to a commercial laboratory for analysis. Laboratory tests of the four-wall composite showed a chloride reading of 912 mg/kg and non-detect for gasoline range organics (GRO) and diesel range organics (DRO). The bottom composite showed a chloride laboratory reading of 1,020 mg/kg and GRO and DRO readings of non-detect. The excavated soil was blended on site and returned to the excavation up to 6 ft bgs. At 6 ft bgs, a shelf was excavated extending 5 ft out from the north, south and east walls. At approximately 6-5 ft bgs, a 1 ft clay layer was installed throughout the excavation. Laboratory analysis of the blended backfill showed a chloride reading of 608 mg/kg and GRO and DRO readings of non-detect. The site was backfilled with the blended soil and topped with clean, imported soil that was contoured to the surrounding area.

The area was 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 July 16th, 2008 and a junction box disclosure report was submitted to NMOCD with all the 2008 junction box closures and disclosures.

ICP Investigative Results

As part of the Investigation and Characterization Plan (ICP) approved by NMOCD on November 17th, 2011, six soil bores were installed at the site on December 13th and 15th, 2011 (Figure 2). SB-1 was installed on December 13th to check for the presence of groundwater at the site. Red bed clay, which delineates the bottom of the aquifer, was encountered at 18 ft bgs. Since no groundwater was evidenced during boring, the bore was advanced to 40 ft bgs to allow any groundwater present to accumulate within the bore. SB-1 was packed open for 48 hours and then gauged for groundwater by Harrison & Cooper, Inc. Groundwater was found in SB-1 at a depth of 17.5 ft bgs. The aquifer beneath the site was determined to be exceptionally thin, since the red bed clay that delineates the bottom of the aquifer and depth to groundwater were located within 6 inches of each other (Figure 3). Sampling was not conducted on SB-1, since no samples could be attained between the bottom of the junction box excavation of 12 ft bgs and the top of the capillary fringe.

Since groundwater was discovered at the site, SB-2 through SB-6 was subsequently advanced at the site on December 15th. RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector for hydrocarbons. Representative samples from the bores were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers (Appendix A). In SB-2 through SB-6, chloride laboratory readings decreased with depth from a high at 6-9 ft bgs to a low at the capillary fringe below or near 250 mg/kg, except for SB-5 which decreased to a chloride reading of 752 mg/kg at 15 ft bgs. GRO and DRO readings were non-detect for all samples (Figure 2).

Given the relatively low chloride concentrations across the site, it is reasonably assumed that the former junction box will in no way contribute to the degradation of groundwater. The site has an existing 40x35 ft clay layer installed at 6-5 ft bgs, which will impede migration of the residual chlorides and hydrocarbons. Vegetation has rebounded at the site (Figure 3), so no re-vegetation efforts are needed. Therefore, RECS requests "remediation termination" status of the regulatory file.

RECS 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

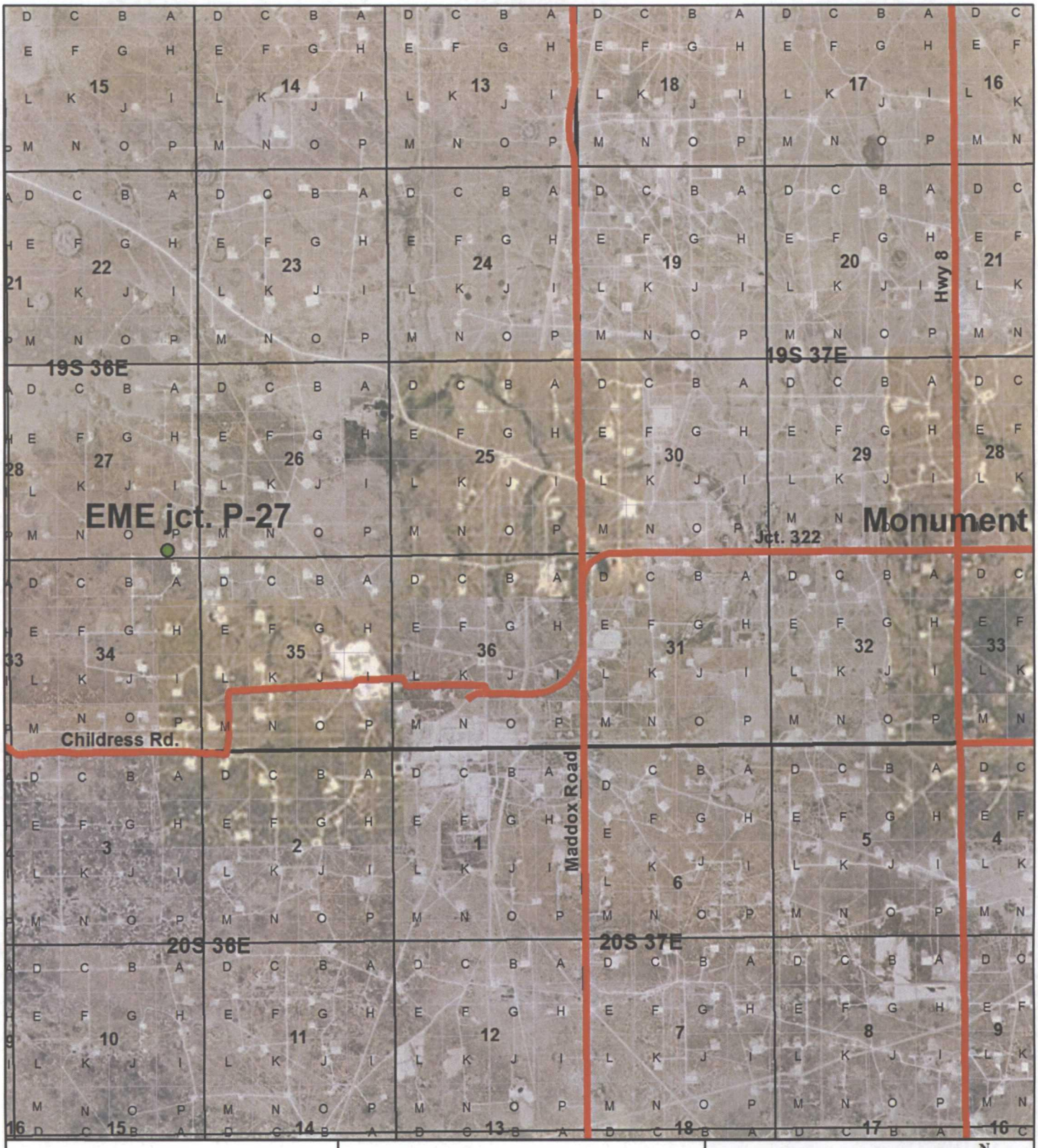
Attachments:

- Figure 1 – Site Location Map
- Figure 2 – Soil Bore Installation Map
- Figure 3 – Site Photo
- Appendix A – Soil Bore Logs and Laboratory Confirmation
- Appendix B – Groundwater Confirmation Letter

Figures

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

Site Location



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME jct. P-27

LEGALS: UL/P sec. 27
T-19-S R-36-E

NMOCD Case #: 1R427-283

Figure 1

N
W E
S

0 0.2 0.4 0.8
Miles

Drawing date: 10/31/11
Drafted by: L. Weinheimer

Soil Bore Installation

SB-2

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	201	0.2			
3	346	0.1			
6	430	0.6			
9	444	0.5	640	<10	<10
12	332	0.7			
15	181	0.6	160	<10	<10

SB-3

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	185	0			
3	145	0.2			
6	247	0			
9	337	0.1	320	<10	<10
12	285	0			
15	209	0	256	<10	<10

SB-4

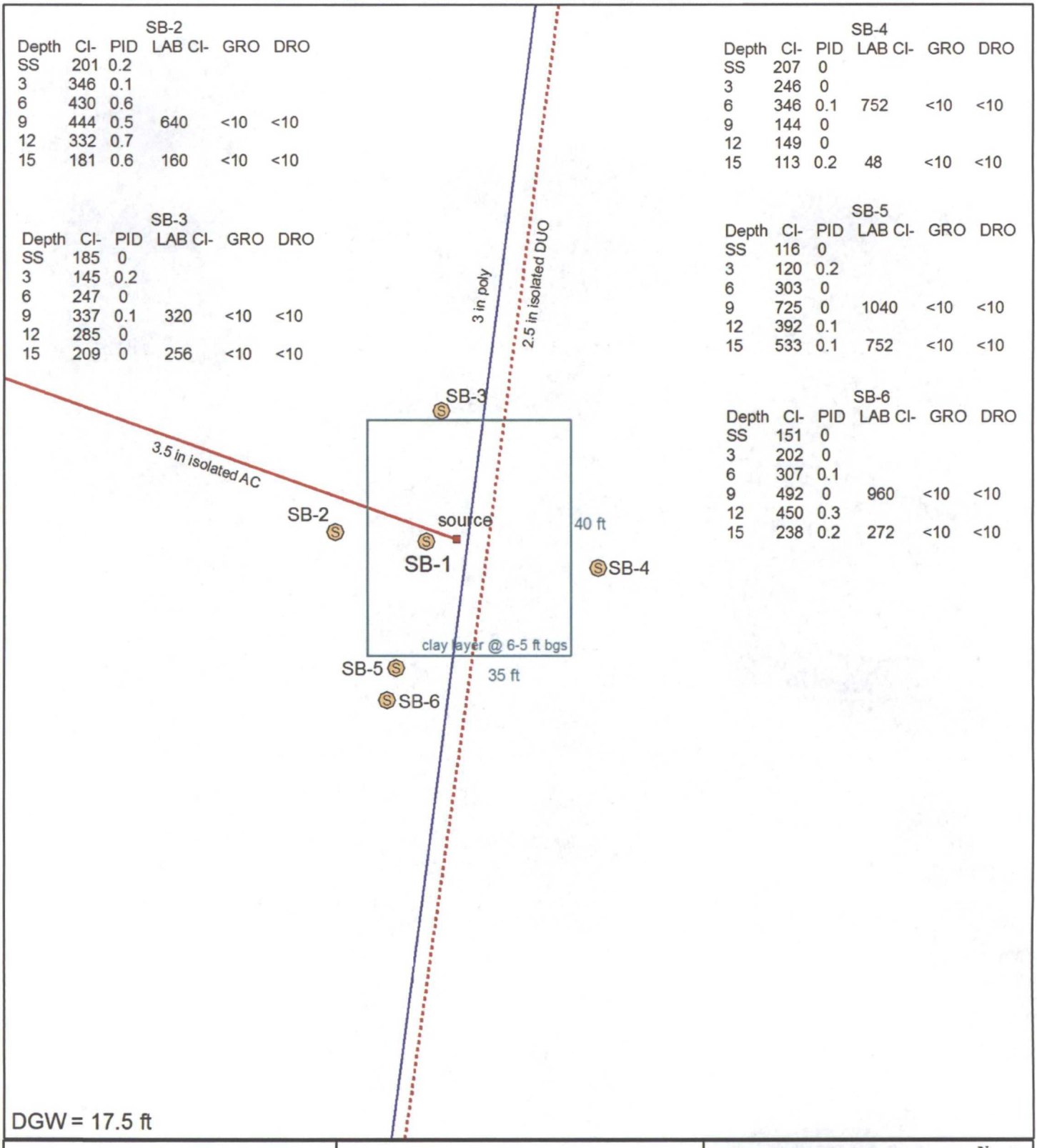
Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	207	0			
3	246	0			
6	346	0.1	752	<10	<10
9	144	0			
12	149	0			
15	113	0.2	48	<10	<10

SB-5

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	116	0			
3	120	0.2			
6	303	0			
9	725	0	1040	<10	<10
12	392	0.1			
15	533	0.1	752	<10	<10

SB-6

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	151	0			
3	202	0			
6	307	0.1			
9	492	0	960	<10	<10
12	450	0.3			
15	238	0.2	272	<10	<10



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME jct. P-27

LEGALS: UL/P sec. 27
T-19-S R-36-E

NMOCD Case #: 1R427-283

Figure 2

N W E S

0 5 10 20
Feet

Drawing date: 12/28/11
Drafted by: L. Weinheimer

EME jct. P-27

Unit P, Section 27, T19S, R36E

Site photo, facing south

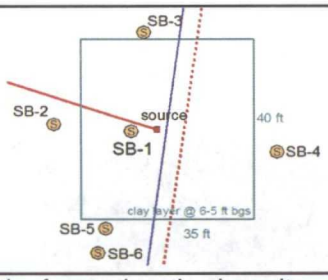
12/2/11

Figure 3

Appendix A

Soil Bore Logs and Laboratory Confirmation

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

Logger:	Kyle Norman		**Project Name:** EME jct. P-27 **Well ID:** SB-1
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	12/13/2011		
End Date:	12/13/2011		

Comments: SB-1 is located 5 ft west of the former junction box site. This bore was advanced to determine depth to groundawater.

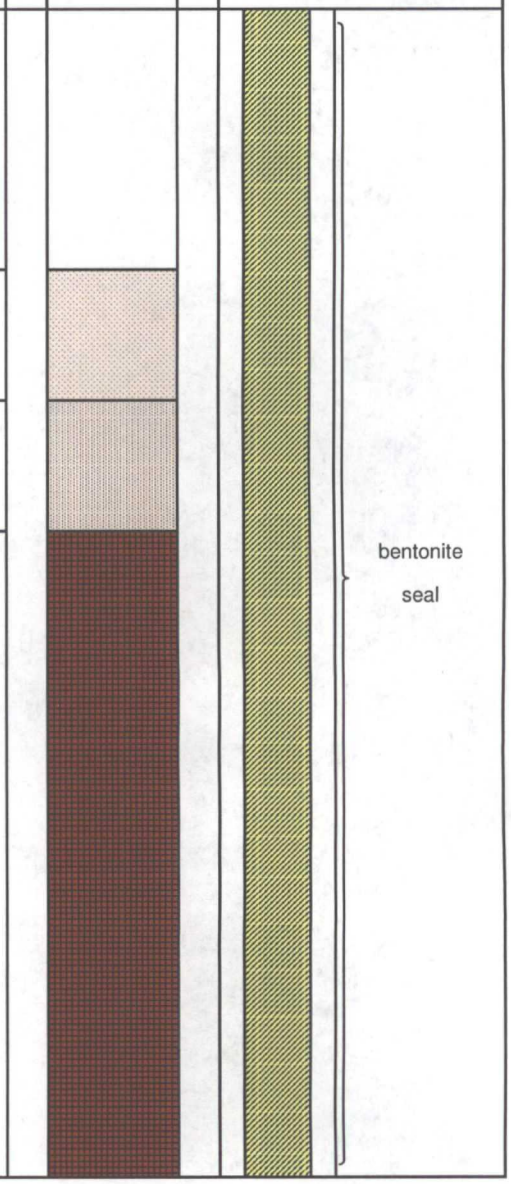
DRAFTED BY: L. Weinheimer

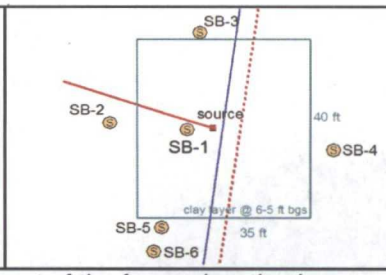
TD = 40 ft GW = 17.5 ft

Location: UL/P sec. 27 T19S R36E

Lat: 32°37'28.597"N **Long:** 103°20'11.231"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Regolith
SS				
3 ft				
				Tan Sand
10 ft				
				Tan Sand With Some Caliche
15 ft				
				RED BED CLAY ENCOUNTERED AT 18 FT BGS
20 ft				
25 ft				
30 ft				
35 ft				
40 ft				



Logger:	Kyle Norman		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME jct. P-27 **Well ID:** SB-2
Start Date:	12/15/2011		**Project Consultant:** RECS
End Date:	12/15/2011		**Location:** UL/P sec. 27 T19S R36E

Comments: SB-2 is located 21 ft west of the former junction box site. All samples were from cuttings.

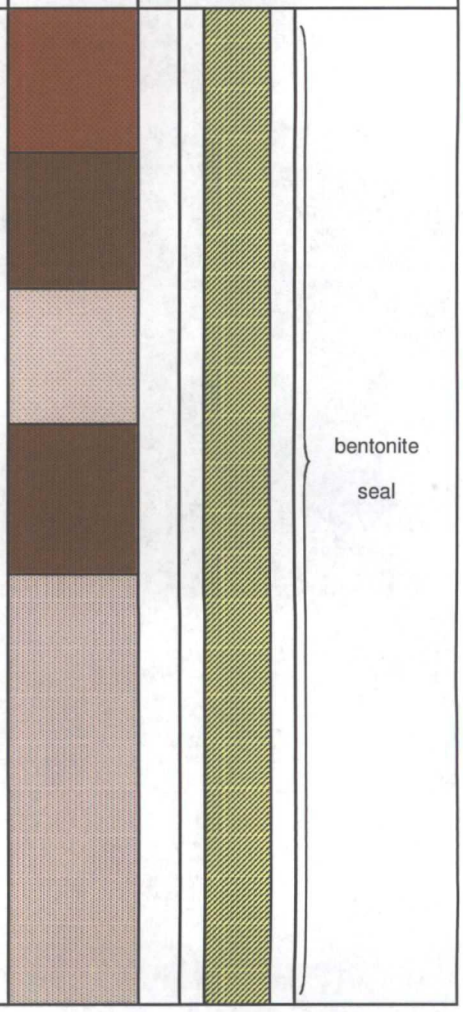
DRAFTED BY: L. Weinheimer

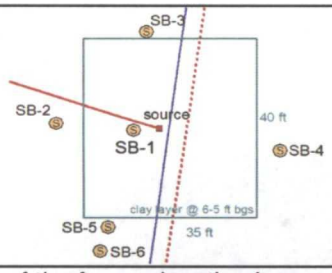
TD = 15 ft GW = 17.5 ft

Lat: 32°37'28.618"N **County**: Lea

Long: 103°20'11.419"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Redish Brown Sand
SS	201		0.2	
				Brown Sand With Caliche
3 ft	346		0.1	
				Tan Sand
6 ft	430		0.6	
				Brown Sand With Some Caliche
9 ft	444	Cl- 640	0.5	
		GRO <10		Tan Sand With Caliche
		DRO <10		
12 ft	332		0.7	
15 ft	181	Cl- 160	0.6	
		GRO <10		
		DRO <10		



Logger:	Kyle Norman		**Project Name:** EME jct. P-27 **Well ID:** SB-3
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	12/15/2011		
End Date:	12/15/2011		

Comments: SB-3 is located 22 ft north of the former junction box site. All samples were from cuttings.

DRAFTED BY: L. Weinheimer

TD = 15 ft GW = 17.5 ft

Location: UL/P sec. 27 T19S R36E

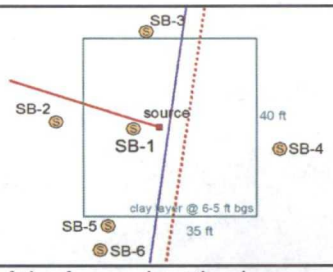
Lat: 32°37'28.819"N **Long:** 103°20'11.197"W

County: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Reddish Brown Sand
SS	185		0.0	
				Tan Sand With Some Caliche
3 ft	145		0.2	
				Tan Sand With Caliche
6 ft	247		0.0	
9 ft	337	Cl- 320	0.1	
		GRO <10		
		DRO <10		
12 ft	285		0.0	
				Red Sand With Caliche
15 ft	209	Cl- 256	0.0	
		GRO <10		
		DRO <10		

Lithology

Well Construction: bentonite seal

Logger:	Kyle Norman		RECS Rice Environmental Consulting & Safety, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME jct. P-27 **Well ID:** SB-4
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	12/15/2011		
End Date:	12/15/2011		

Comments: SB-4 is located 25 ft east of the former junction box site. All samples were from cuttings.

DRAFTED BY: L. Weinheimer

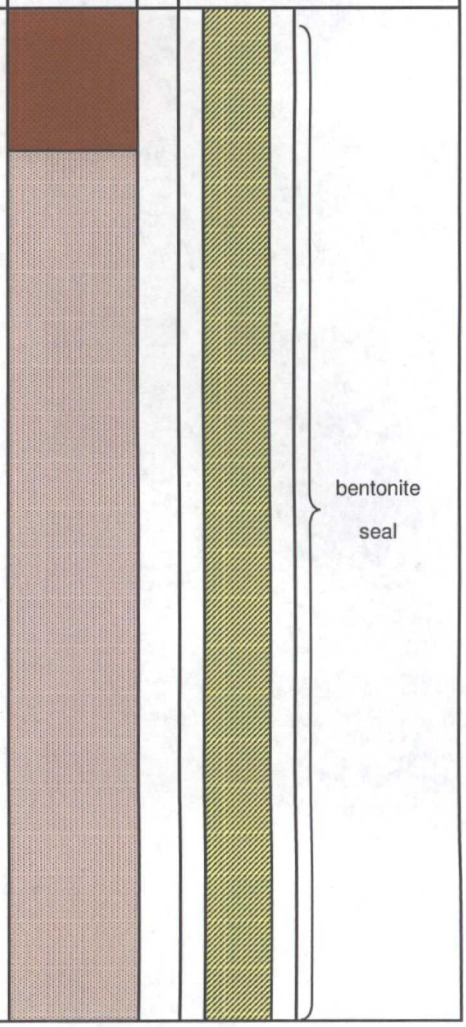
TD = 15 ft GW = 17.5 ft

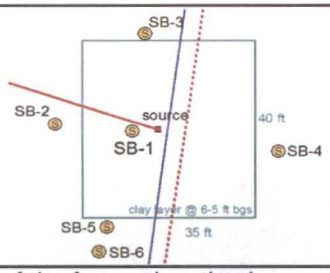
Location: UL/P sec. 27 T19S R36E

Lat: 32°37'28.556"N **County**: Lea

Long: 103°20'10.885"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Reddish Brown Sand
SS	207		0.0	
				Tan Sand With Some Caliche
3 ft	246		0.0	
				Tan Sand With Caliche
6 ft	346	Cl- 752	0.1	
		GRO <10		
		DRO <10		
9 ft	144		0.0	
12 ft	149		0.0	
15 ft	113	Cl- 48	0.2	
		GRO <10		
		DRO <10		



Logger:	Kyle Norman		**Project Name:** EME jct. P-27 **Well ID:** SB-5
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	12/15/2011		
End Date:	12/15/2011		

Comments: SB-5 is located 24 ft SSW of the former junction box site. All samples were from cuttings.

DRAFTED BY: L. Weinheimer

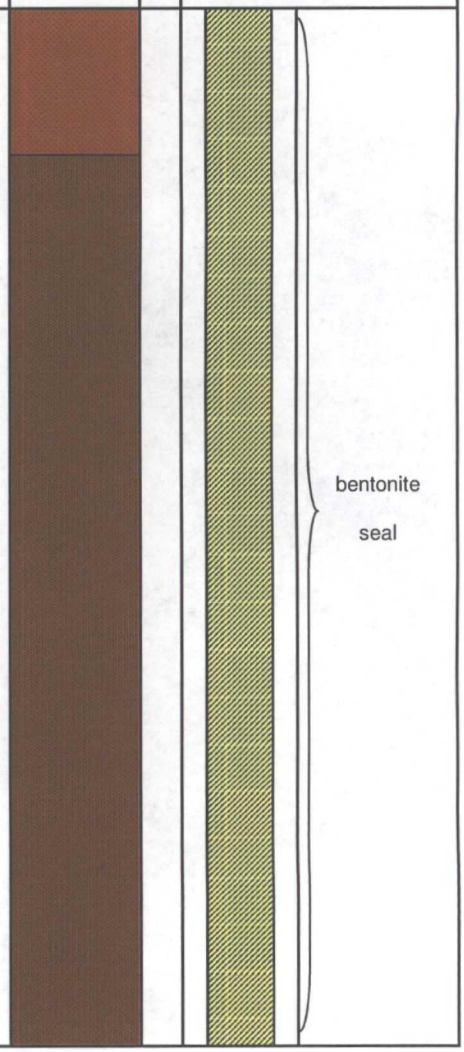
TD = 15 ft GW = 17.5 ft

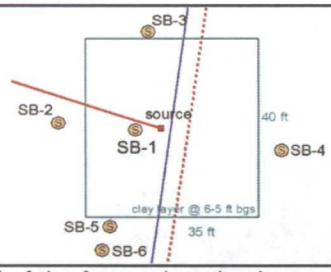
Location: UL/P sec. 27 T19S R36E

Lat: 32°37'28.39"N **County**: Lea

Long: 103°20'11.293"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Reddish Brown Sand
SS	116		0.0	
				Brown Sand With Caliche
3 ft	120		0.2	
6 ft	303		0.0	
				Brown Sand With Some Caliche
9 ft	725	Cl- 1040	0.0	
		GRO <10		
		DRO <10		
12 ft	392		0.1	
15 ft	533	Cl- 752	0.1	
		GRO <10		
		DRO <10		



Logger:	Kyle Norman		**Project Name:** EME jct. P-27 **Well ID:** SB-6
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	12/15/2011		
End Date:	12/15/2011		

Comments: SB-6 is located 30 ft SSW of the former junction box site. All samples were from cuttings.

DRAFTED BY: L. Weinheimer

TD = 15 ft GW = 17.5 ft

Location: UL/P sec. 27 T19S R36E

Lat: 32°37'28.334"N **Long:** 103°20'11.316"W

County: Lea **State:** NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Reddish Brown Sand
SS	151		0.0	
				Brown Sand With Caliche
3 ft	202		0.0	
				Tan Sand With Caliche
6 ft	307		0.1	
9 ft	492	Cl- 960	0.0	
		GRO <10		
		DRO <10		
12 ft	450		0.3	
15 ft	238	Cl- 272	0.2	
		GRO <10		
		DRO <10		

Lithology

Well Construction

bentonite seal

CARDINAL Laboratories

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

December 19, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME P-27 JCT 19S-36E

Enclosed are the results of analyses for samples received by the laboratory on 12/15/11 13:50.

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:	12/15/2011	Sampling Date:	12/15/2011
Reported:	12/19/2011	Sampling Type:	Soil
Project Name:	EME P-27 JCT 19S-36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 2 @ 9' (H102704-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**640**	16.0	12/17/2011	ND	432	108	400	0.00	

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	12/17/2011	ND	193	96.4	200	4.86	
DRO >C10-C28	<10.0	10.0	12/17/2011	ND	189	94.7	200	1.39	

Surrogate: 1-Chlorooctane	*68.8 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*81.5 %*	*57.6-158*

Sample ID: SB 2 @ 15' (H102704-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**160**	16.0	12/17/2011	ND	432	108	400	0.00	

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	12/17/2011	ND	193	96.4	200	4.86	
DRO >C10-C28	<10.0	10.0	12/17/2011	ND	189	94.7	200	1.39	

Surrogate: 1-Chlorooctane	*75.6 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*96.3 %*	*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

Analytical Results For:

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

Received:	12/15/2011	Sampling Date:	12/15/2011
Reported:	12/19/2011	Sampling Type:	Soil
Project Name:	EME P-27 JCT 19S-36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 3 @ 9' (H102704-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**320**	16.0	12/17/2011	ND	432	108	400	0.00	

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	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	

Surrogate: 1-Chlorooctane	*91.9 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*99.9 %*	*57.6-158*

Sample ID: SB 3 @ 15' (H102704-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**256**	16.0	12/17/2011	ND	432	108	400	0.00	

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	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	

Surrogate: 1-Chlorooctane	*89.4 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*97.5 %*	*57.6-158*

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:	12/15/2011	Sampling Date:	12/15/2011
Reported:	12/19/2011	Sampling Type:	Soil
Project Name:	EME P-27 JCT 19S-36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 4 @ 6' (H102704-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**752**	16.0	12/17/2011	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	

Surrogate: 1-Chlorooctane	*175 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*189 %*	*57.6-158*

Sample ID: SB 4 @ 15' (H102704-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	12/17/2011	ND	464	116	400	7.14	

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	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	

Surrogate: 1-Chlorooctane	*94.3 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*104 %*	*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

Analytical Results For:

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

Received:	12/15/2011	Sampling Date:	12/15/2011
Reported:	12/19/2011	Sampling Type:	Soil
Project Name:	EME P-27 JCT 19S-36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 5 @ 9' (H102704-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1040**	16.0	12/17/2011	ND	464	116	400	7.14	

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	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	

Surrogate: 1-Chlorooctane	*89.2 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*95.9 %*	*57.6-158*

Sample ID: SB 5 @ 15' (H102704-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**752**	16.0	12/17/2011	ND	464	116	400	7.14	

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	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	

Surrogate: 1-Chlorooctane	*88.4 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*95.2 %*	*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

Analytical Results For:

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

Received:	12/15/2011	Sampling Date:	12/15/2011
Reported:	12/19/2011	Sampling Type:	Soil
Project Name:	EME P-27 JCT 19S-36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 6 @ 9' (H102704-09)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**960**	16.0	12/17/2011	ND	464	116	400	7.14	

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	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	

Surrogate: 1-Chlorooctane	*82.9 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*85.3 %*	*57.6-158*

Sample ID: SB 6 @ 15' (H102704-10)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**272**	16.0	12/17/2011	ND	464	116	400	7.14	

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	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	

Surrogate: 1-Chlorooctane	*87.6 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*95.6 %*	*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

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

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: State: NM Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: EME P-27 Sec 19 T-18S R-36E	Phone #:
Sampler Name: Kyle Norman	Fax #:

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	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS
H102704-1	SB1 @ 9'	G	1			1					1		12-15-11	8:30	✓	✓				
2	SB2 @ 15'	G	1			1					1		12-15-11	9:45	✓	✓				
3	SB3 @ 9'	G	1			1					1		12-15-11	10:00	✓	✓				
4	SB3 @ 15'	G	1			1					1		12-16-11	9:30	✓	✓				
5	SB4 @ 6'	G	1			1					1		12-15-11	10:00	✓	✓				
6	SB4 @ 15'	G	1			1					1		12-15-11	10:30	✓	✓				
7	SB5 @ 9'	G	1			1					1		12-15-11	11:00	✓	✓				
8	SB5 @ 15'	G	1			1					1		12-15-11	11:30	✓	✓				
9	SB6 @ 9'	G	1			1					1		12-15-11	12:30	✓	✓				
10	SB6 @ 15'	G	1			1					1		12-15-11	12:40	✓	✓				

Relinquished By: Kyle N	Date: 12-15-11 Time: 1:50	Received By: Jodi Henson	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	

Phone Result: ☐ Yes ☑ No Add'l Phone #:
Fax Result: ☐ Yes ☑ No Add'l Fax #:
REMARKS:

email results
kjones@riceswd.com; knorman@rice-ecs.com;
Zconder@rice-ecs.com; Bbaker@rice-ecs.com;
hconder@rice-ecs.com; Lweinheimer@rice-ecs.com

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

#216

Appendix B

Groundwater Confirmation Letter

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

HARRISON & COOPER, INC.

Drilling & Pump Professionals

7414 85th Street, Lubbock, Texas 79424-4951

P.O. Box 96, Wolfforth, Texas 79382-0096

Ph: (806) 866-4026 Fax: (806) 866-4044 hcidrill.com

January 3, 2012

Rice Operating
112 W. Taylor
Hobbs, NM 88240

Attn: Lara Weinheimer

RE: Site: EME Jct. P-27

The aquifer at EME P-27 does not contain the capacity to install a submersible pump for treatment due to the lack of saturated thickness. The actual saturated thickness was approximately 6" with a static water level of approximately 17.5'

Sincerely,

Kenny Cooper

Copies: File
Email (Lara Weinheimer; Katie Jones)

From:	Katie Jones
To:	Hansen, Edward J., EMNRD
Cc:	Hack Conder; Laura Pena; Lara Weinheimer
Subject:	ROC - EME Jct. P-27 (1R427-283) ICP Report and Termination Request Addendum
Date:	Monday, March 05, 2012 9:54:59 AM
Attachments:	EME Jct. P-27 (1R427-283) Aquifer Thickness Letter.pdf

Mr. Hansen,

This email is an Addendum to the EME Jct. P-27 (1R427-283) ICP Report and Termination Request, submitted to the NMOCD on January 16, 2012. The attached letter was written by Harrison & Cooper, Inc. and will be included in the report as Appendix B, replacing the previous. If you need any further information, please let me or Hack know.

Thank you.

Katie Jones
Environmental Project Manager
RICE *Operating Company*

HARRISON & COOPER, INC.

Drilling & Pump Professionals

7414 85th Street, Lubbock, Texas 79424-4951

P.O. Box 96, Wolfforth, Texas 79382-0096

Ph: (806) 866-4026 Fax: (806) 866-4044 www.hcidrill.com

February 28, 2012

RE: Rice Operating Company
EME Jct. P-27 Soil Boring

To Whom It May Concern,

Harrison & Cooper, Inc. (HCI) was and is currently contracted by Rice Operating Company to provide drilling and sampling services for subsurface investigations.

During an investigation at EME Jct. P-27 near Monument, NM, HCI drilled a soil boring to 40' BGS to allow Rice Operating Company to determine if groundwater existed at that particular location. Upon reaching the desired depth, an encounter with groundwater was not apparent; however, groundwater "seeped" into the wellbore from a thin saturated interval approximately 6 inches thick from 18.0' to 18.5'. The zone did not have any indications of moisture during the drilling process.

Immediately below the thin saturated interval from 18.5' to 40' TD is dry impermeable red clay. The red clay in this region is also referred to as the "red bed". This geologic zone is an aquiclude. An aquiclude is material that allows zero permeability; therefore, at EME Jct. P-27 only 6" of saturated thickness exists because water is not permeating through the red bed. If HCI would have drilled through the saturated interval to a depth of 18.5' and stopped at the red clay, there is only 6" of saturated thickness that would not provide the specific capacity required to yield water using the smallest submersible pump.

In conclusion, the aquifer at this location does not contain the specific capacity to yield the desired amount of water due to lack of saturated thickness.

Sincerely,

Kenny Cooper
Operations Manager

KRC/ch
Copies: File

Hansen, Edward J., EMNRD

From: Laura Pena <lpena@riceswd.com>
Sent: Thursday, May 24, 2012 1:19 PM
To: Hansen, Edward J., EMNRD
Cc: Hack Conder; Katie Jones; Lara Weinheimer
Subject: EME Jct. P-27 (1R427-283) Requested Additional Information
Attachments: EME Jct. O-30 SB-1 log.pdf; EME jct. P-27 SB-1 log.pdf; EME jct. P-27 Area of No Groundwater.jpg

Mr. Hansen,

As per NMOCD request, a plat depicting the relationship of EME jct. P-27 to EME jct. O-30 is attached. The EME jct. O-30 site has no groundwater as evidenced by the soil bore log (also attached), in which red bed clay was encountered at 18 ft bgs. The EME jct. O-30 soil bore log also serves as a comparison to the EME jct. P-27 soil bore log, which shows red bed clay was encountered at 18 ft bgs and extends through the total depth of the soil bore, 40 ft bgs. Both sites have similar lithology results preceding the encountering of red bed clay. As such, the aquifer at this location does not contain the specific capacity to yield the desired amount of water due to lack of saturated thickness.

If you have any questions, or require any additional information, please contact Hack Conder at (575) 631-6432.

Thank you,
Laura Peña

Area of No Groundwater

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME jct. P-27

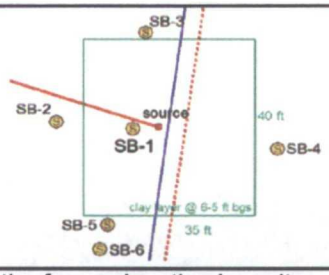
LEGALS: UL/P sec. 27
T-19-S R-36-E

NMOCD Case #: 1R427-283

N
W E
S

0 0.2 0.4 0.8
Miles

Drawing date: 10/31/11
Drafted by: L. Weinheimer

Logger:	Kyle Norman		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME jct. P-27 **Well ID:** SB-1
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	12/13/2011		
End Date:	12/13/2011		
Comments: SB-1 is located 5 ft west of the former junction box site. This bore was advanced to determine depth to groundawater. **DRAFTED BY: L. Weinheimer** TD = 40 ft GW = 17.5 ft			**Location:** UL/P sec. 27 T19S R36E **Lat:** 32°37'28.597"N **Long:** 103°20'11.231"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Regolith		bentonite seal
SS						
3 ft						
				Tan Sand		
10 ft						
				Tan Sand With Some Caliche		
15 ft						
				RED BED CLAY ENCOUNTERED AT 18 FT BGS		
20 ft						
25 ft						
30 ft						
35 ft						
40 ft						

Logger:	Jordan Woodfin	SB-1	RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME jct. O-30 **Well ID:** SB-1
Start Date:	5/27/2011		
End Date:	5/27/2011		**Project Consultant:** RECS

Comments: Located 1 ft north west of the former junction box site. All samples were from cuttings. SOIL BORE PLUGGED 6.17.11

DRAFTED BY: L. Weinheimer

TD = 40 GW = none

Location: UL/O sec. 30 T19S R37E

Lat: 32°37'37.707"N **Long:** 103°17'12.446"W **County:** Lea **State:** NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Brownish fine sand mixed with small caliche fragments
15 ft	282		8.2	
				Brownish fine sand mixed with small caliche fragments and intermittent purple clay
18 ft	296	Cl- 272	11.3	
		GRO <10		Purple clay
		DRO 174		
21 ft	238	Cl- 128	3.9	
		GRO <10		NO SAMPLES TAKEN
		DRO <10		
24 ft				
27 ft				
30 ft				
33 ft				
36 ft				
39 ft				
40 ft