1R - 427-39

WORKPLANS

Date:

7-15-11

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

CERTIFIED MAIL
RETURN RECIEPT NO. 7007 2560 0003 0323 9155

July 15th, 2011

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**
Rice Operating Company – EME SWD System
EME jct. O-30 (1R427-319): UL/O sec. 30 T19S R37E
(formerly EME jct. I-30)

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/usage basis.

The site was previously referred to as the EME jct. I-30. To reflect the geographical location of the site, the name has been changed to the EME jct. O-30 (Figure 1). All correspondences will reference EME jct. O-30.

Background and Previous Work
The site is located approximately 3 miles north-west of Monument, New Mexico at UL/O sec. 30 T19S R37E as shown on the Site Location Map (Figure 2).

In 2008, ROC initiated work on the former EME O-30 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 160 mg/kg, negligible gasoline range organics (GRO) readings and a diesel range organics (DRO) reading of 160 mg/kg. The bottom composite showed a chloride laboratory reading of 544 mg/kg, negligible GRO and a DRO reading of 70.7 mg/kg. Clean soil was imported into the site and blended with soil from the excavation. Laboratory analysis of the blended backfill showed a

chloride reading of 144 mg/kg, negligible GRO and a DRO reading of 172 mg/kg. The site was backfilled to 5 feet bgs where a 1 foot clay layer was installed across the excavation. A clay density test was performed on February 5th, 2009. The remaining soil was returned to the excavation bringing it up to ground surface. 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 June 17th, 2009 and a junction box disclosure report was submitted to NMOCD with all the 2009 junction box closures and disclosures.

ROC proposed additional investigative work at the site to determine if there is potential for groundwater degradation from residual chlorides and hydrocarbons at the site.

Proposed Work Elements

1. Conduct vertical and lateral delineation of residual soil hydrocarbons and chlorides from samples taken using a drill rig, hand auger, and/or backhoe
    a. Vertical sampling will be conducted until the following criteria are met in the field.
        i. Three samples in which the chloride concentration decreases and the third sample has a chloride concentration of $\leq$ 250 ppm; and,
        ii. Three samples in which PID readings decrease and the third sample has a PID reading of $\leq$ 100 ppm; or,
        iii. The sampling reaches the capillary fringe.
    b. Lateral sampling will be conducted until the following criteria are met in the field.
        i. A decrease is observed in chloride concentrations between lateral bores at similar depths; and,
        ii. A chloride concentration of $\leq$ 250 ppm is observed in a lateral surface sample; or,
        iii. Safety concerns impede further lateral delineation.
2. If warranted, install a monitor well to provide direct measurement of the potential groundwater impact at the site. (All monitor wells will be installed by EPA, NMOCD, and industry standards.)
3. Evaluate the risk of groundwater impact based on the information obtained.

ICP Investigative Results

As part of the Investigation and Characterization Plan approved by NMOCD on May 19th, 2011, one soil bore was advanced through the former junction box site to a depth of 40 ft bgs with samples collected to a depth of 21 ft bgs on May 27th, 2011 (Figure 3). ROC personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID). Representative samples from the bore (18 ft bgs and 21 ft bgs) were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers. Laboratory readings showed chloride numbers of 272 mg/kg at 18 ft bgs and 128 mg/kg at 21 ft bgs. Laboratory readings for GRO and DRO showed non-detect in both samples, except for at 18 ft bgs where the DRO reading was 174 mg/kg (Appendix A).

The bore was continued to 40 ft bgs to confirm depth to groundwater. The bore was drilled 22 ft into the clay bed and left open to allow any water at the site to rebound into the bore. On June

7th, 2011, ARC Environmental checked the bore for accumulated water using a Solinist Water Level Meter. The meter indicated no water within the borehole to a depth of 40.03 ft (Appendix B).

Corrective Action Plan

RECS submits the following as a Corrective Action Plan based on the data collected during the Investigation and Characterization phase of delineation.

Since there is no groundwater at the site, the former junction box will in no way contribute to the degradation of groundwater. The site has an existing 30 ft x 30 ft clay barrier installed from 5-4 ft bgs, which will impede migration of residual chlorides and hydrocarbons. As such, RECS recommends that ROC scrape the site of all rock, down to approximately 6 inches to 1 foot, and backfill with clean soil to bring the site back up to the surrounding area. Soil amendments will be added as necessary to promote vegetative growth and the site will be seeded with native vegetation. The site will be expected to return to normal vegetative capacity. Vegetation will act as an evapo-transpiration barrier which will also inhibit the downward movement of chlorides and hydrocarbons. Plants capture water through their roots and so reduce the amount of water infiltrating below the root zone.

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

ROC appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-9174 or me if you have any questions or wish to discuss the site.

Sincerely,

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

Figure 1 – Geographical site map
Figure 2 – Site location map
Figure 3 – Soil bore installation plat

Appendix A – Soil bore installation and laboratory confirmation
Appendix B – Letter of Groundwater Confirmation

Figures

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

Geographical Location Map

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

EME jct. O-30

LEGALS: UL/O sec. 30
T19S R37E

NMOCD Case #: 1R427-319

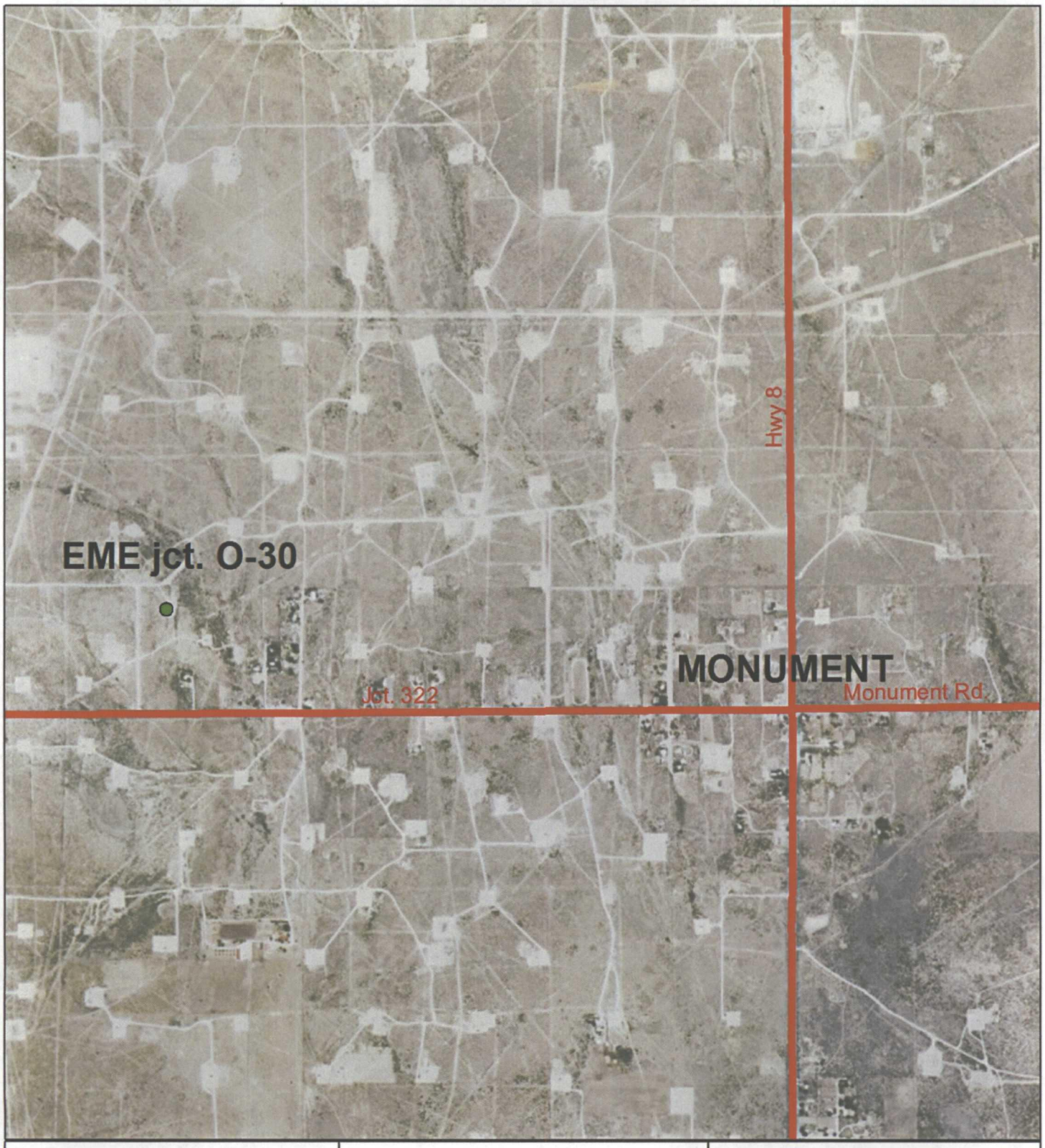
Figure 1

N
W E
S

0 135 270 540 Feet

Drawing date: 7-1-11
Drafted by: L. Weinheimer

Site Location Map



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME jct. O-30

LEGALS: UL/O sec. 30
T19S R37E

NMOCD Case #: 1R427-319

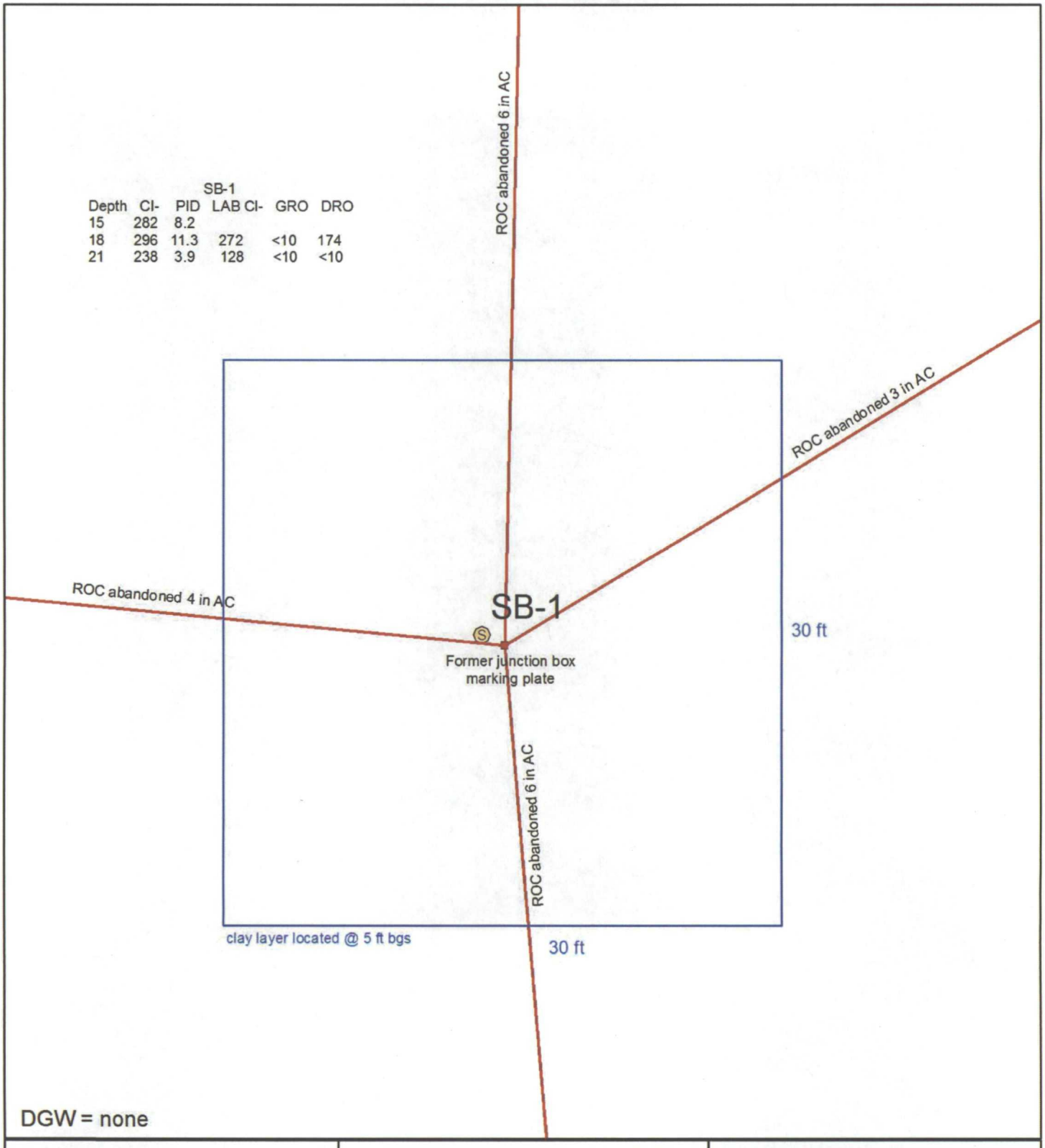
Figure 2

N
W E
S

0 550 1,100 2,200
Feet

Drawing date: 7-1-11
Drafted by: L. Weinheimer

Soil bore installation



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME jct. O-30

LEGALS: UL/O sec. 30
T19S R37E

NMOCD Case #: 1R427-319

Figure 3

N W E S

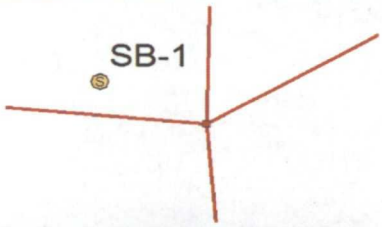
0 2.5 5 10 Feet

Drawing date: 6-10-11
Drafted by: L. Weinheimer

Appendix A

Soil bore installation and laboratory confirmation

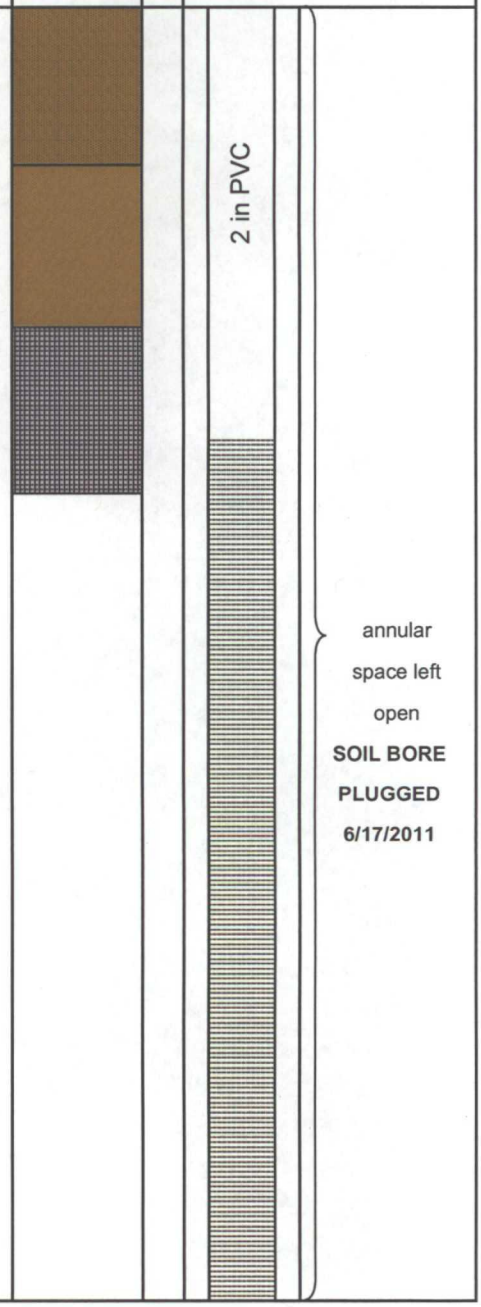
RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

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

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				



CARDINAL Laboratories

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

June 01, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME JCT O-30

Enclosed are the results of analyses for samples received by the laboratory on 05/27/11 15:07.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum 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:	05/27/2011	Sampling Date:	05/27/2011
Reported:	06/01/2011	Sampling Type:	Soil
Project Name:	EME JCT O-30	Sampling Condition:	** (See Notes)
Project Number:	NOT GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: SB1 @ 18' (H101100-01)

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	05/31/2011	ND	448	112	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/31/2011	ND	203	101	200	1.89	
DRO >C10-C28	**174**	10.0	05/31/2011	ND	163	81.7	200	0.0275	

Surrogate 1-Chlorooctane	*122 %*	*70-130*
Surrogate 1-Chlorooctadecane	*114 %*	*70-130*

Sample ID: SB1 @ 21' (H101100-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**128**	16.0	05/31/2011	ND	448	112	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/31/2011	ND	203	101	200	1.89	
DRO >C10-C28	<10.0	10.0	05/31/2011	ND	163	81.7	200	0.0275	

Surrogate 1-Chlorooctane	*118 %*	*70-130*
Surrogate 1-Chlorooctadecane	*123 %*	*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, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Rice	BILL TO	
Project Manager:	Mace Conder	P.O. #:	
Address:	122 W. TAYLOR	Company:	
City:	Hobbs State: NM Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:	EME JCT 0-30	State: Zip:	
Project Location:		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	Cl-	TPH 8015m											
H101100- 01	SB1 @ 19'	G	1			X					X		5-27-11	2:30	X	X										
02	SB1 @ 21'	G	1			X					X		"	2:35	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: 5/27/11 Time: 3:07	Received By:	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: EMAIL cweinheimer@Rice-ecd.com JWoodfin KJones HConder @ RiceSWD.com

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

#20

EME jct. O-30

Unit O, Section 30, T19S, R37E

Drilling the soil bores, facing SE 5/27/2011

Temporary well covered, facing S 5/27/2011

Inserting the 2 in casing, facing S 5/27/2011

Plugging the SB in total with bentonite 6/17/2011

Appendix B

Letter of Groundwater Confirmation

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

Arc Environmental
P. O. Box 1772
Lovington, New Mexico 88260
(575) 631-9310
Rozanne Johnson ~ rozanne@valornet.com

June 10, 2011

Mr. Hack Conder
RICE Operating Company
112 West Taylor
Hobbs, New Mexico 88240

Re: EME Junction O-30

Mr. Conder,

On Tuesday June 7, 2011 soil bore #1 at the EME Junction O-30, Lea County T19S, R37E, Sec 30 Unit Letter O was checked with a Solinist Water Level Meter for water accumulation within the borehole. The meter indicated no water within the borehole at a total depth of 40.03 feet.

Sincerely,
Arc Environmental

Rozanne Johnson
Rozanne Johnson

Electronic Copy: Hack Conder
Katie Jones


IR427-319
Rice EME Jet 0-30
UTC 2011:05:06 15:56:5
W:103 17' 12.76"
N:032 37' 37.80"