1R - 427-95

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. 7008 1140 0001 3070 5733

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 I-13 EOL (1R427-95): UL/I sec. 13 T19S R36E
(formerly EME P-13 EOL)

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 P-13 EOL. To reflect the geographical location of the site, the name has been changed to the EME I-13 EOL. All correspondences will reference EME I-13 EOL.

Background and Previous Work

The site is located approximately 3 miles north-west of Monument, New Mexico at UL/I sec. 13 T19S R36E as shown on the Site Location Map (Figure 1). Groundwater at this site is located at an approximate depth of 51 +/- feet bgs.

In 2002, ROC initiated work on the former EME I-13 EOL junction box. The site was delineated using a backhoe to form a 30 ft x 30 ft x 13 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 1,360 mg/kg, a gasoline range organics (GRO) reading of 1,380 and a diesel range organics (DRO) reading of 2,130 mg/kg. The benzene reading for the four-wall composite was non-detect. The toluene reading was 0.248 mg/kg, the ethyl benzene reading was 0.153, and the total xylene reading was

1.161. The bottom composite showed a chloride laboratory reading of 1,740 mg/kg, a GRO reading of 632 mg/kg and a DRO reading of 64.6 mg/kg. The benzene reading of the bottom composite showed a reading of non-detect. The toluene reading was 0.0355, the ethyl benzene reading was 0.0978 mg/kg and the total xylene reading was 0.803. At the bottom of the excavation, a foot clay barrier was installed to impede vertical migration of chlorides. The soil taken from the excavation was blended and returned to the excavation. Laboratory analysis of the blended backfill showed a chloride reading of non-detect, a GRO reading of non-detect and a DRO reading of 354 mg/kg. BTEX readings of the backfill were non-detect for each constituent. The area was contoured to the surrounding landscape and an identification plate was placed on the surface of the site to mark its location for future environmental considerations. NMOCD was notified of potential groundwater impact on January 31st, 2003 and a junction box disclosure report was submitted to NMOCD with all the 2002 junction box closures and disclosures.

ROC proposed additional investigative work at the site to determine if there was a potential for groundwater degradation from residual chlorides and/or 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, five soil bores (SB-1 through SB-5) were advanced through the former junction box site on June 7th, 2011 (Figure 2). RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID). Representative samples from the bores were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers (Appendix A). Laboratory readings showed chloride numbers ranging from a high of 1,300 mg/kg at 10 ft bgs in soil bore #5 to a low of 64 mg/kg at 30 ft bgs in soil bore #1. Laboratory readings for GRO showed non-detect in all soil bores. DRO readings showed non-detect in soil bores #1 and

#2. In soil bores #3 through #5, DRO readings ranged from a high of 64.9 mg/kg at 20 ft bgs in soil bore #5 to a low of non-detect in both samples of soil bore #1 and soil bore #2, 20 ft bgs in soil bore #4 at 10 ft bgs in soil bore #5.

Recommendations

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

- ROC proposes to install a 20-mil, reinforced poly liner at the site. The liner will measure 55' x 57' and be placed at 4-5' bgs (Figure 2). The liner will cover all the soil bore points and will extend 10 feet out from the farthest sample in each direction The liner will provide a barrier that will inhibit the downward migration of chlorides to groundwater. The soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID measurement below 100 ppm. Excavated soil will be evaluated for use as backfill, and any soil requiring disposal will be properly disposed of at a NMOCD approved facility.

- After the liner is placed and the excavation backfilled, the site will be seeded. The surface soils over and surrounding the site will be prepared with soil amendments as needed and then seeded with a native vegetative mix. Vegetation above the liner will also provide a natural infiltration barrier for the site since plants capture water through their roots thereby reducing the volume of water moving through the vadose zone to groundwater.

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

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

Sincerely,

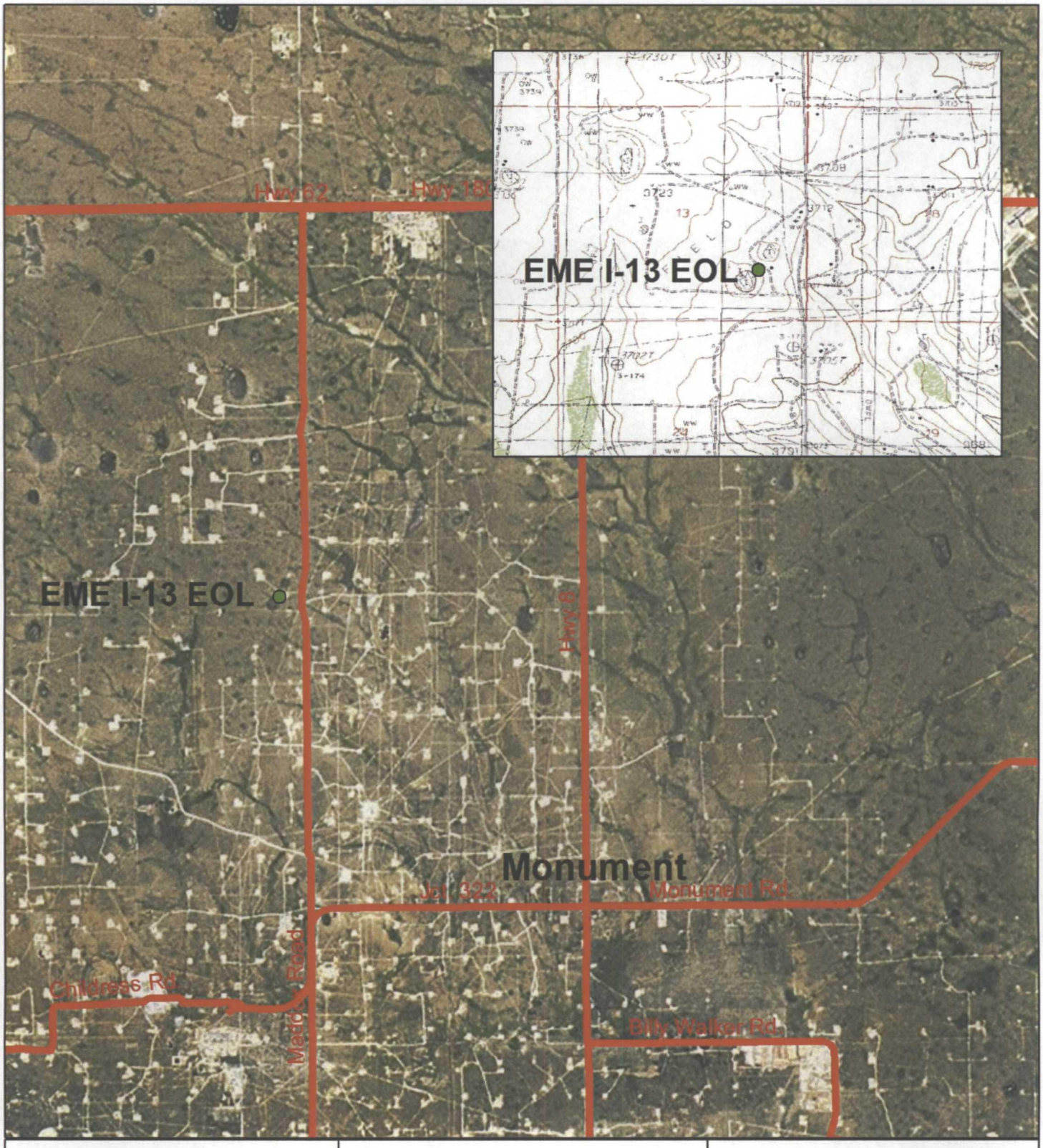
Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

Figure 1 – Site location map
Figure 2 – Soil bore data and proposed liner plat
Appendix A – ICP soil bores and laboratory confirmation

Figures

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



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

EME I-13 EOL

LEGALS: UL/I sec. 13
T19S R36E

NMOCD Case #: 1R427-95

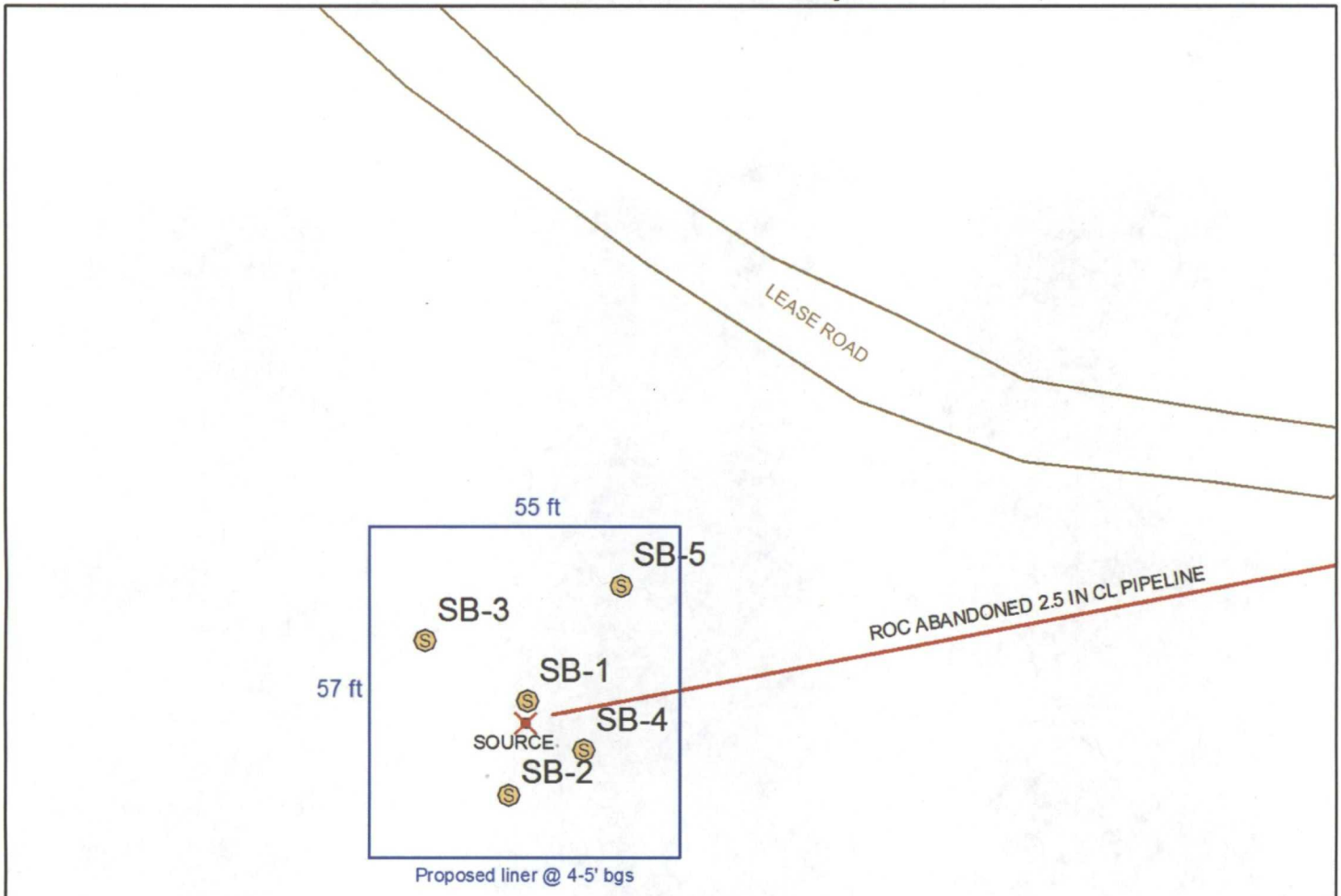
Figure 1

N
W E
S

0 2,300 4,600 9,200
Feet

Drawing date: 4-15-11
Drafted by: L. Weinheimer

Soil bore data and Proposed liner



SB-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO
15	454	37.7	448	<10	<10
20	178	9.6			
25	178	6.8			
30	147	5.5	64	<10	<10

SB-2

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	87	0			
5	1059	1.2			
10	1097	2.9	1200	<10	<10
15	293	1.2			
20	197	3.4	176	<10	<10

DGW = 51 ft

SB-3

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	110	0.2			
5	735	2.4	688	<10	40.5
10	571	0.4			
15	418	5.6			
20	181	0.8	176	<10	40

SB-4

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	88	0.2			
5	435	3.4			
10	891	0.6	1020	<10	40.2
15	288	0.7			
20	165	0.5	96	<10	<10

SB-5

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	84	0			
5	492	1.3			
10	1263	1.1	1300	<10	<10
15	419	0.6			
20	196	0.1	144	<10	64.9

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC (RECS)

EME I-13 EOL

LEGALS: UL/I sec. 13
T19S R36E

NMOCD Case #: 1R427-95

Figure 2

N W E S

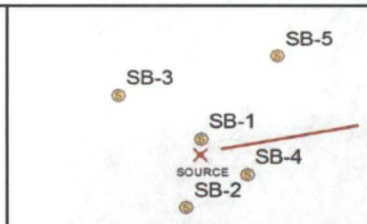
0 12.5 25 50 Feet

Drawing date: 6-28-11
Drafted by: L. Weinheimer

Appendix A

ICP soil bores 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		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME I-13 EOL **Well ID:** SB-1
Start Date:	6/7/2011		
End Date:	6/7/2011		**Project Consultant:** RECS

Comments: Located 3 ft north of the former junction box site. All samples were from cuttings.

DRAFTED BY: L. Weinheimer

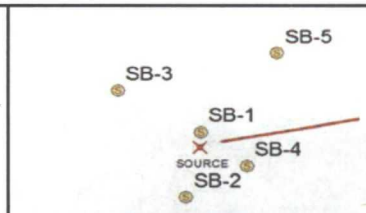
TD = 30 ft GW = 51 ft

Location: UL/P sec. 13 T19S R36E

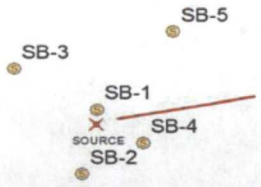
Lat: 32°39'24.528"N **County**: Lea

Long: 103°18'9.39"W **State**: NM

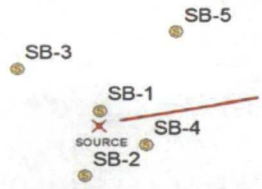
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan very fine silt with ground up sandstone (hard drilling)		
15 ft	454	Cl- 448	37.7			
		GRO <10		Tan very fine silt (hard drilling)		bentonite seal
		DRO <10				
20 ft	178		9.6			
25 ft	178		6.8			
30 ft	147	Cl- 64	5.5			
		GRO <10				
		DRO <10				

Logger:	Jordan Woodfin		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME I-13 EOL **Well ID:** SB-2
Start Date:	6/7/2011		**Project Consultant:** RECS
End Date:	6/7/2011		
Comments: Located 12 ft south of the former junction box site. All samples were from cuttings. **DRAFTED BY: L. Weinheimer** TD = 20 ft GW = 51 ft			**Location:** UL/P sec. 13 T19S R36E **Lat:** 32°39'24.367"N **Long:** 103°18'9.422"W **County**: Lea **State**: NM

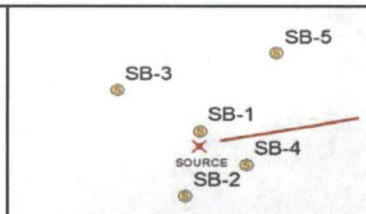
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown very fine sand		
SS	87		0			
				Tan very fine silt (hard drilling)		
5 ft	1059		1.2			
10 ft	1097	Cl- 1200	2.9			bentonite seal
		GRO <10		Tan very fine silt with ground sandstone (hard drilling)		
		DRO <10				
15 ft	293		1.2			
20 ft	197	Cl- 176	3.4	Tan very fine silt (hard drilling)		
		GRO <10				
		DRO <10				

Logger:	Jordan Woodfin		**Project Name:** EME I-13 EOL **Well ID:** SB-3
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	6/7/2011		
End Date:	6/7/2011		
Comments: Located 22 ft north-northwest of the former junction box site. All samples were from cuttings. **DRAFTED BY: L. Weinheimer** TD = 20 ft GW = 51 ft			**Location:** UL/I sec. 13 T19S R36E **Lat:** 32°39'24.633"N **Long:** 103°18'9.592"W **County**: Lea **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown very fine sand		
SS	110		0.2			
				Tan very fine silt (hard drilling)		
5 ft	735	Cl- 688	2.4			
		GRO <10				
		DRO 40.5				
10 ft	571		0.4			bentonite seal
				Tan very fine silt with ground sandstone (hard drilling)		
15 ft	418		5.6			
				Tan very fine silt (hard drilling)		
20 ft	181	Cl- 176	0.8			
		GRO <10				
		DRO 40.0				

Logger:	Jordan Woodfin		**Project Name:** EME I-13 EOL **Well ID:** SB-4
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	6/7/2011		
End Date:	6/7/2011		
Comments: Located 11 ft south-southeast of the former junction box site. All samples were from cuttings. **DRAFTED BY: L. Weinheimer** TD = 20 ft GW = 51 ft			**Location:** UL/P sec. 13 T19S R36E **Lat:** 32°39'24.633"N **Long:** 103°18'9.592"W **County**: Lea **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown very fine sand		
SS	88		0.2			
				Tan very fine silt with some sandstone (hard drilling)		
5 ft	435		3.4			
10 ft	891	Cl- 1020	0.6			bentonite seal
		GRO <10				
		DRO 40.2				
15 ft	288		0.7			
				Tan very fine silt (hard drilling)		
20 ft	165	Cl- 96	0.5			
		GRO <10				
		DRO <10				

Logger:	Jordan Woodfin		**Project Name:** EME I-13 EOL **Well ID:** SB-5
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	6/7/2011		
End Date:	6/7/2011		
Comments: Located 29 ft north-northeast of the former junction box site. All samples were from cuttings. **DRAFTED BY: L. Weinheimer** TD = 20 ft GW = 51 ft			**Location:** UL/I sec. 13 T19S R36E **Lat:** 32°39'24.729"N **Long:** 103°18'9.198"W **County**: Lea **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown very fine sand		
SS	84		0			
				Tan to white very fine silt		
5 ft	492		1.3			
10 ft	1263	Cl- 1300	1.1			bentonite seal
		GRO <10		Tan very fine silt with ground sandstone		
		DRO <10				
15 ft	419		0.6			
				Tan to white very fine silt		
20 ft	196	Cl- 144	0.1			
		GRO <10				
		DRO 64.9				

CARDINAL Laboratories

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

June 14, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME I-13 EOL

Enclosed are the results of analyses for samples received by the laboratory on 06/07/11 16:12.

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:	06/07/2011	Sampling Date:	06/07/2011
Reported:	06/14/2011	Sampling Type:	Soil
Project Name:	EME I-13 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME I-13 EOL		

Sample ID: SB 1 @ 15' (H101181-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**448**	16.0	06/09/2011	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/11/2011	ND	180	89.9	200	1.10	
DRO >C10-C28	<10.0	10.0	06/11/2011	ND	207	103	200	2.50	

Surrogate. 1-Chlorooctane	*116 %*	*70-130*
Surrogate 1-Chlorooctadecane	*121 %*	*70-130*

Sample ID: SB 1 @ 30' (H101181-02)

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	06/09/2011	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/11/2011	ND	180	89.9	200	1.10	
DRO >C10-C28	<10.0	10.0	06/11/2011	ND	207	103	200	2.50	

Surrogate: 1-Chlorooctane	*101 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*105 %*	*70-130*

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:	06/07/2011	Sampling Date:	06/07/2011
Reported:	06/14/2011	Sampling Type:	Soil
Project Name:	EME I-13 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME I-13 EOL		

Sample ID: SB 2 @ 10' (H101181-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1200**	16.0	06/09/2011	ND	432	108	400	3.64	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/11/2011	ND	180	89.9	200	1.10	
DRO >C10-C28	<10.0	10.0	06/11/2011	ND	207	103	200	2.50	

Surrogate. 1-Chlorooctane	*104 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*102 %*	*70-130*

Sample ID: SB 2 @ 20' (H101181-04)

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	06/09/2011	ND	432	108	400	3.64	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/11/2011	ND	180	89.9	200	1.10	
DRO >C10-C28	<10.0	10.0	06/11/2011	ND	207	103	200	2.50	

Surrogate 1-Chlorooctane	*118 %*	*70-130*
Surrogate. 1-Chlorooctadecane	*120 %*	*70-130*

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:	06/07/2011	Sampling Date:	06/07/2011
Reported:	06/14/2011	Sampling Type:	Soil
Project Name:	EME I-13 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME I-13 EOL		

Sample ID: SB 3 @ 5' (H101181-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**688**	16.0	06/09/2011	ND	432	108	400	3.64	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/11/2011	ND	180	89.9	200	1.10	
DRO >C10-C28	**40.5**	10.0	06/11/2011	ND	207	103	200	2.50	

Surrogate: 1-Chlorooctane	*168 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*179 %*	*70-130*

Sample ID: SB 3 @ 20' (H101181-06)

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	06/09/2011	ND	432	108	400	3.64	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/11/2011	ND	180	89.9	200	1.10	
DRO >C10-C28	**40.0**	10.0	06/11/2011	ND	207	103	200	2.50	

Surrogate: 1-Chlorooctane	*173 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*184 %*	*70-130*

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:	06/07/2011	Sampling Date:	06/07/2011
Reported:	06/14/2011	Sampling Type:	Soil
Project Name:	EME I-13 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME I-13 EOL		

Sample ID: SB 4 @ 10' (H101181-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1020**	16.0	06/09/2011	ND	432	108	400	3.64	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/11/2011	ND	180	89.9	200	1.10	
DRO >C10-C28	**40.2**	10.0	06/11/2011	ND	207	103	200	2.50	

Surrogate: 1-Chlorooctane	*199 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*215 %*	*70-130*

Sample ID: SB 4 @ 20' (H101181-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**96.0**	16.0	06/09/2011	ND	432	108	400	3.64	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/12/2011	ND	180	89.9	200	1.10	
DRO >C10-C28	<10.0	10.0	06/12/2011	ND	207	103	200	2.50	

Surrogate 1-Chlorooctane	*171 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*183 %*	*70-130*

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:	06/07/2011	Sampling Date:	06/07/2011
Reported:	06/14/2011	Sampling Type:	Soil
Project Name:	EME I-13 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME I-13 EOL		

Sample ID: SB 5 @ 10' (H101181-09)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1300**	16.0	06/09/2011	ND	432	108	400	3.64	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/12/2011	ND	180	89.9	200	1.10	
DRO >C10-C28	<10.0	10.0	06/12/2011	ND	207	103	200	2.50	

Surrogate: 1-Chlorooctane	*117 %*	*70-130*
Surrogate. 1-Chlorooctadecane	*118 %*	*70-130*

Sample ID: SB 5 @ 20' (H101181-10)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**144**	16.0	06/09/2011	ND	432	108	400	3.64	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/12/2011	ND	180	89.9	200	1.10	
DRO >C10-C28	**64.9**	10.0	06/12/2011	ND	207	103	200	2.50	

Surrogate: 1-Chlorooctane	*117 %*	*70-130*
Surrogate· 1-Chlorooctadecane	*122 %*	*70-130*

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

Z-01	One or more surrogates above historical limits.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C.
	Samples reported on an as received basis (wet) unless otherwise noted on report

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: EME I-13 EOL	**State:** **Zip:**
Project Location: EME I-13 EOL	**Phone #:**
Sampler Name: Jordan Woodfin	**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	TPH 8015 M Extended Thru C40
H10181-																				
1	SB 1 @ 15'	G	1			✓					✓		6/7/11		✓	✓				
2	SB 1 @ 30'	G	1			✓					✓		6/7/11		✓	✓				
3	SB 2 @ 10'	G	1			✓					✓		6/7/11		✓	✓				
4	SB 2 @ 20'	G	1			✓					✓		6/7/11		✓	✓				
5	SB 3 @ 5'	G	1			✓					✓		6/7/11		✓	✓				
6	SB 3 @ 20'	G	1			✓					✓		6/7/11		✓	✓				
7	SB 4 @ 10'	G	1			✓					✓		6/7/11		✓	✓				
8	SB 4 @ 20'	G	1			✓					✓		6/7/11		✓	✓				
9	SB 5 @ 10'	G	1			✓					✓		6/7/11		✓	✓				
10	SB 5 @ 20'	G	1			✓					✓		6/7/11		✓	✓				

Relinquished By: Jordan Woodfin	**Date:** 6/7/11 **Time:** 4:12	**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

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

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

#26

NEED SAMPLES BACK, PLEASE

EME I-13 EOL
Unit I, Section 13, T19S, R36E

drilling SB-1, facing south

plugging SB-1, facing south

drilling SB-2, facing south

plugging SB-2, facing south

drilling SB-3, facing south

plugging SB-3, facing south

drilling SB-4, facing southeast

plugging SB-4, facing south

drilling SB-5, facing southeast

plugging SB-5, facing south