1R-427-14

WORKPLANS

Date:
11-9-11

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 5924

November 9th, 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 CAP

Rice Operating Company – EME SWD System EME D-2 boot (1R427-14): UL/D sec. 2 T20S R36E

(formerly the EME M-35-2 boot)

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. The site was previously referred to as the EME M-35-2 boot at T19S R36E. However, GIS mapping shows the site to be located within unit letter D, section 2, township 20S, and range 36E (Figure 1). To reflect the geographical location of the site, the name has been changed to the EME D-2 boot at T20S R36E. All correspondence will reference EME D-2 boot.

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 south-west of Monument, New Mexico at UL/D sec. 2 T20S R36E as shown on the Geographical Location Map (Figure 1). Groundwater at the location is determined to be approximately 49 +/- feet.

In 2003, ROC initiated work on the former EME D-2 boot junction box. 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, the bottom grab sample was taken to a commercial laboratory for analysis. Laboratory tests of the 12 ft bottom grab sample showed a chloride laboratory reading of 2,690 mg/kg and negligible GRO (gasoline range organics), DRO (diesel range organics), and BTEX readings. The trench was backfilled with the excavated soils and capped with approximately 3 feet of topsoil.

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 July 31st, 2003 and a junction box disclosure report was submitted to NMOCD with all the 2003 junction box closures and disclosures.

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

ICP Investigative Results

As part of the Investigation and Characterization Plan approved by NMOCD on September 13th, 2011, eight soil bores were advanced through the former junction box site on August 29th and 31st, 2011 (Figure 2). ROC personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID) for hydrocarbons. 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 increasing with depth at the source bore, SB-1. In all the other bores, laboratory chloride readings decreased with depth. Laboratory GRO and DRO readings were low to non-detect in all the soil bores except for SB-4 at 5 ft bgs. In SB-4 at 5 ft bgs, the laboratory GRO reading was 67.2 mg/kg and the DRO reading was 556 mg/kg. Because the field sample for SB-4 at 5 ft bgs had a PID reading above 100 ppm, the sample was also submitted for BTEX analysis. The sample returned with a laboratory benzene reading of non-detect, a toluene reading of 0.153 mg/kg, an ethyl-benzene reading of 0.495 mg/kg and a xylene reading of 1.58 mg/kg.

On October 27th and 28th, 2011, two monitor wells and two additional soil bores were installed at the site. MW-1 is located 50 ft southeast of the former junction box and MW-2 is located 163 ft northwest of the former junction box site. As MW-2 was being installed, RECS personnel field tested the soil for chlorides and screened in the field with PID meter for hydrocarbons to determine background soil concentrations. As SB-9 and SB-10 were being advanced, RECS personnel field tested the soil for chlorides and screened in the field with a PID meter for hydrocarbons. Representative samples from the bores were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers. In SB-9, chloride numbers peaked at 10 ft bgs with a laboratory chloride reading of 2,240 mg/kg and decreased to 304 mg/kg at 45 ft bgs. In SB-10, chloride numbers peaked at 30 ft bgs with a laboratory chloride reading of 1,100 mg/kg and decreased to 304 mg/kg at 45 ft bgs. In both soil bores, GRO and DRO readings were non-detect.

Recommendations

Corrective Action Plan to the Vadose Zone

RECS recommends that ROC install a 20-mil reinforced poly liner at the site measuring 51 ft x 62 ft (Figure 2). The liner will act as an infiltration barrier that will inhibit the downward migration of chlorides to groundwater. The liner will be installed at 5 – 4 ft bgs and padded both above and below with six inches of blow sand to prevent liner punctures. The soils placed on top of the padded liner will have a laboratory chloride reading below 500 mg/kg and a PID reading 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.

Finally, 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.

Further Groundwater Delineation

Groundwater samples will be obtained from the newly installed monitoring wells (MW-1 and MW-2) and analyzed on a quarterly basis. Once it is determined whether chloride impact has occurred to groundwater beneath the site, ROC will either suggest a groundwater remedy or request site termination.

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

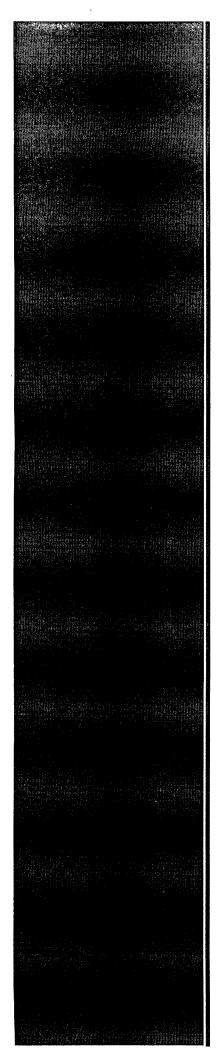
(575) 441-0431

Attachments:

Figure 1 – Geographical Location Map

Figure 2 – Proposed Liner Map

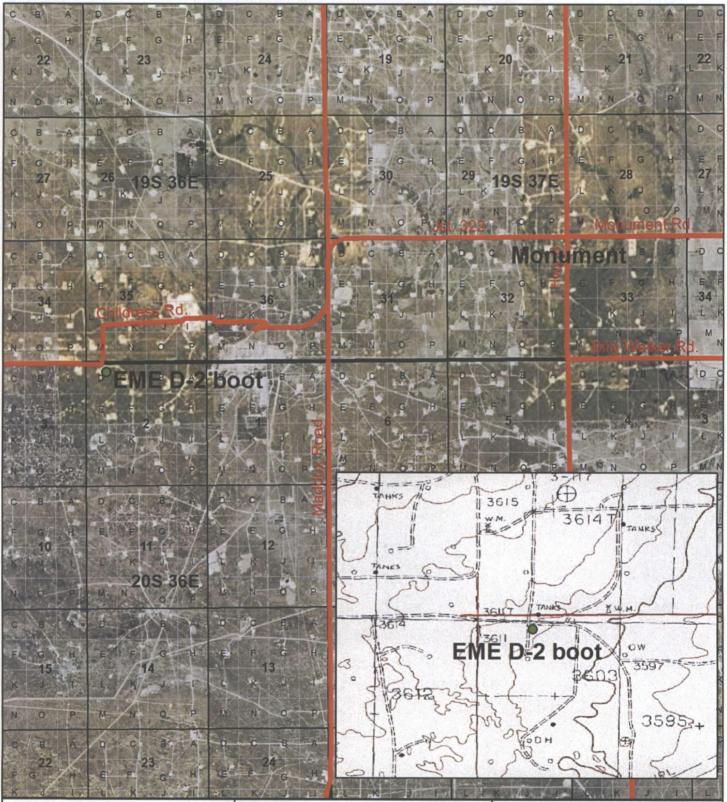
Appendix A – ICP soil bore and MW logs and laboratory confirmation



Figures

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

Geographical Location Map

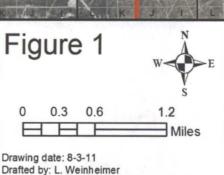




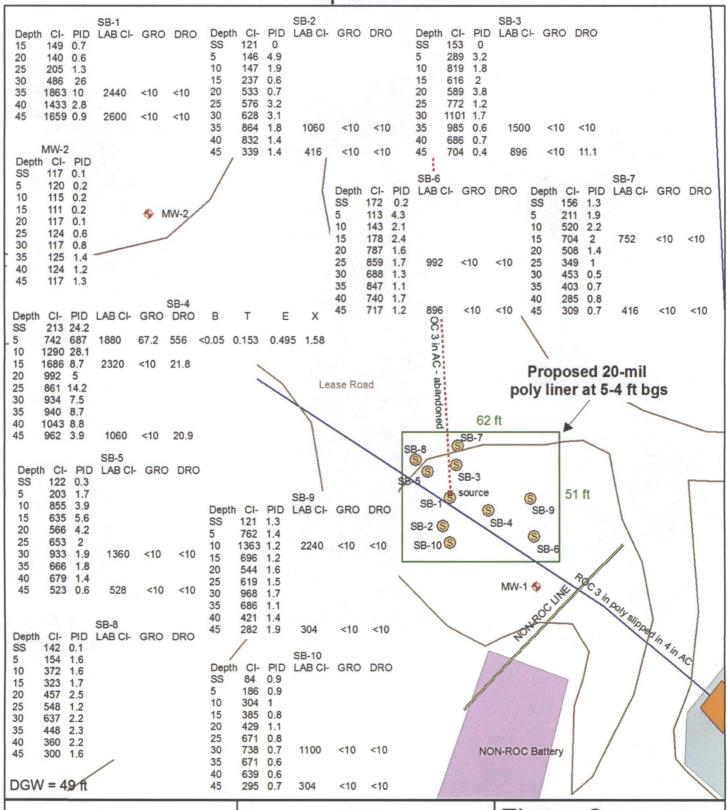
EME D-2 boot

LEGALS: UL/D sec. 2 T20S R36E

Case#: 1R427-14



Proposed Liner

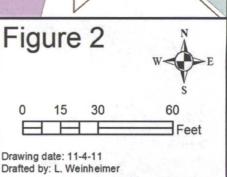


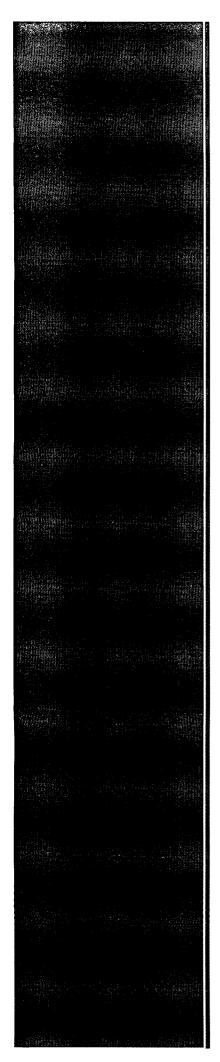


EME D-2 boot

LEGALS: UL/D sec. 2 T20S R36E

Case#: 1R427-14





Appendix A

ICP soil bore and MW 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

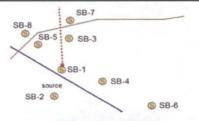
Logger: Kyle Norman SB-8 SB-5 SB-3 Driller: Harrison & Cooper, Inc. SB-1 **Drilling Method:** Air rotary **Project Name:** Well ID: S SB-4 Start Date: 8/29/2011 EME D-2 boot SB-1 SB-2 (S) S SB-6 End Date: 8/29/2011 **Project Consultant: RECS** Comments: All samples were from cuttings. Located at the source Location: UL/D sec. 2 T20S R36E of the former junction box site. DRAFTED BY: L. Weinheimer Lat: 32°36'32.683"N County: Lea TD = 45 ftGW = 49 ftLong: 103°19'51.876"W State: NM Depth Chloride Lithology **Well Construction** LAB PID Description (feet) field tests 5 ft 10 ft Sandy Red Clay 15 ft 149 0.7 20 ft 140 0.6 bentonite 25 ft 205 1.3 seal 30 ft 486 26 Sandy Tan Reddish Clay CI-35 ft 1863 2440 10 GRO <10 DRO <10 40 ft 1433 2.8 CI-Sandy Red Clay 45 ft 0.9 1659 2600 GRO <10 DRO

<10

Logger: Kyle Norman Driller:

Harrison & Cooper, Inc.

Drilling Method: Air rotary Start Date: 8/29/2011 End Date: 8/29/2011





Project Name:

Well ID:

EME D-2 boot Project Consultant: RECS Location: UL/D sec. 2 T20S R36E

SB-2

Comments: All samples were from cuttings. Located 13 ft south of the former junction box site.

DRAFTED BY: L. Weinheimer

Lat: 32°36'32.578"N

County: Lea

	TD = 45			GW = 49 ft	Long: 103°19'51	
Depth (feet)	Chloride field tests LAB PI		PID	Description	Lithology	Well Construction
				Brown sand		
SS	121		0.0			
				Sandy Red Clay		
5 ft	146		4.9			
				Sandy Tan Clay		
10 ft	147		1.9	Sandy ran Slay		
15 ft	237		0.6	Sandy Tan Reddish Clay		
1511	201		0.0			
				Sandy Red Clay		
20 ft	533		0.7			
						bentonite > seal
25 ft	576		3.2			
30 ft	628		3.1			
	020		0.1	Sandy Tan Reddish Clay		
		CI-				
35 ft	864	1060	1.8			
	-	GRO <10				
		DRO <10				
40 ft	832		1.4			
-						
AE 4	200	CI-	1.4	0		
45 ft	339	416 GRO	1.4	Sandy Red Clay		
- 5-		<10 DRO				
		<10				

Logger: Kyle Norman SB-7 SB-8 SB-5 SB-3 Driller: Harrison & Cooper, Inc. SB-1 Drilling Method: Air rotary Project Name: Well ID: **S** SB-4 Start Date: 8/31/2011 SB-2 S EME D-2 boot SB-3 SB-6 End Date: 8/31/2011 Project Consultant: RECS Location: UL/D sec. 2 T20S R36E Comments: All samples were from cuttings. Located 11 ft north of the former junction box site. DRAFTED BY: L. Weinheimer Lat: 32°36'32.813"N County: Lea State: NM Long: 103°19'51.843"W TD = 45 ftGW = 49 ftDepth Chloride Description Lithology **Well Construction** LAB PID field tests (feet) SS 153 0 Sandy Red Clay 3.2 5 ft 289 Sandy Tan Clay 10 ft 1.8 819 Sandy Red Clay 15 ft 616 2 20 ft 589 3.8 bentonite Sandy Tan Clay seal 25 ft 772 1.2 1.7 30 ft 1,101 CI-35 ft 985 1500 0.6 Sandy Tan Reddish Clay GRO 40 ft 686 0.7 CI-45 ft 704 896 0.4 Sandy Red Clay GRO <10 DRO 11.1

Logger: Kyle Norman SB-8 SB-5 SB-3 Driller: Harrison & Cooper, Inc. SB-1 **Drilling Method:** Air rotary **Project Name:** Well ID: S SB-4 Start Date: 8/31/2011 SB-2 (S) EME D-2 boot S SB-6 End Date: 8/31/2011 Project Consultant: RECS Comments: All samples were from cuttings. Located 16 ft ESE Location: UL/D sec. 2 T20S R36E of the former junction box site. DRAFTED BY: L. Weinheimer Lat: 32°36'32.635"N County: Lea State: NM TD = 45 ftGW = 49 ftLong: 103°19'51.698"W Depth Chloride Lithology **Well Construction** LAB PID Description field tests (feet) Sandy Red Clay SS 24.2 213 Black Oily Sand Hydrocarbon Odor 1880 5 ft 742 687 GRO 67.2 B < 0.05 T 0.153 DRO Tan to Gray Hydrocarbon Odor 556 E 0.495 X 1.58 10 ft 1290 28.1 Sandy Red Clay Hydrocarbon Odor CI-15 ft 1686 2320 8.7 GRO <10 Sandy Red Clay Slight Hydrocarbon DRO Odor 21.8 20 ft 992 5 25 ft 861 14.2 30 ft 7.5 934 35 ft 8.7 940 Sandy Red Clay 40 ft 1043 8.8 CI-45 ft 962 1060 3.9

> GRO <10 DRO 20.9

SB-4

bentonite

seal

Logger: Kyle Norman SB-7 SB-5 SB-3 Driller: Harrison & Cooper, Inc. **Drilling Method:** Air rotary SB-1 Project Name: Well ID: S SB-4 Start Date: 8/31/2011 SB-2 S EME D-2 boot SB-5 S SB-6 **End Date:** 8/31/2011 Project Consultant: RECS Location: UL/D sec. 2 T20S R36E Comments: All samples were from cuttings. Located 12 ft North west of the former junction box site. **DRAFTED BY: L. Weinheimer** Lat: 32°36'32.785"N County: Lea Long: 103°19'51.977"W TD = 45 ftState: NM GW = 49 ftDepth Chloride LAB PID **Well Construction** Description Lithology field tests (feet) SS 122 0.3 Sandy Red Clay 5 ft 203 1.7 10 ft 855 3.9 15 ft 635 5.6 Sandy Tan Reddish Clay 20 ft 566 4.2 bentonite seal 25 ft 653 2 30 ft 1.9 933 1360 GRO <10 DRO <10 35 ft 666 1.8 40 ft 679 1.4 Sandy Red Clay CI-45 ft 523 528 0.6 GRO <10 DRO <10

Logger: Kyle Norman SB-7 SB-8 SB-5 S SB-3 Driller: Harrison & Cooper, Inc. SB-1 **Drilling Method:** Air rotary **Project Name:** Well ID: ⑤ SB-4 Start Date: 8/31/2011 EME D-2 boot SB-6 SB-6 Project Consultant: RECS End Date: 8/31/2011 Comments: All samples were from cuttings. Located 37 ft south Location: UL/D sec. 2 T20S R36E east of the former junction box site. DRAFTED BY: L. Weinheimer Lat: 32°36'32.536"N County: Lea State: NM Long: 103°19'51.489"W TD = 45 ftGW = 49 ft Depth Chloride **Well Construction** PID Description LAB Lithology field tests (feet) Brown sand SS 172 0.2 5 ft 113 4.3 Sandy Tan Clay 10 ft 143 2.1 15 ft 2.4 178 20 ft 787 1.6 bentonite CIseal 25 ft 859 992 1.7 GRO <10 DRO <10 30 ft 688 1.3 Sandy Red Clay 35 ft 847 1.1 40 ft 740 1.7 CI-45 ft 717 896 1.2 GRO <10 DRO <10

Logger: Kyle Norman SB-8 SB-5 SB-3 Driller: Harrison & Cooper, Inc. SB-1 **Drilling Method:** Air rotary Project Name: Well ID: S SB-4 Start Date: 8/31/2011 SB-2 (S) EME D-2 boot SB-7 S SB-6 Project Consultant: RECS End Date: 8/31/2011 Comments: All samples were from cuttings. Located 18 ft north Location: UL/D sec. 2 T20S R36E of the former junction box site. Lat: 32°36'32.887"N DRAFTED BY: L. Weinheimer County: Lea State: NM Long: 103°19'51.836"W TD = 45 ftGW = 49 ftDepth Chloride Description **Well Construction** LAB PID Lithology (feet) field tests Sandy Tan Clay SS 156 1.3 5 ft 211 1.9 Tan Sand with Some Caliche 10 ft 520 2.2 CI-15 ft 704 2.0 752 Sandy Red Clay GRO <10 DRO <10 20 ft 1.4 508 bentonite Tan Sand with Some Caliche seal 25 ft 349 1.0 Red Sand with Some Caliche 30 ft 453 0.5 35 ft 403 0.7 40 ft 285 8.0 Sandy Red Clay CI-45 ft 309 0.7 416 GRO <10 DRO <10

Logger: Kyle Norman SB-7 SB-5 8 SB-3 Driller: Harrison & Cooper, Inc. SB-1 **Drilling Method:** Air rotary **Project Name:** Well ID: **S** SB-4 Start Date: 8/31/2011 EME D-2 boot SB-8 SB-2 (S) S SB-6 End Date: 8/31/2011 Project Consultant: RECS Comments: All samples were from cuttings. Located 19 ft north Location: UL/D sec. 2 T20S R36E west of the former junction box site. Lat: 32°36'32.835"N DRAFTED BY: L. Weinheimer County: Lea State: NM TD = 45 ftGW = 49 ftLong: 103°19'52.034"W Depth Chloride **Well Construction** PID LAB Description Lithology (feet) field tests Sandy Red Clay SS 142 0.1 Sandy Tan Reddish Clay 5 ft 154 1.6 10 ft 372 1.6 Tan Sand with Some Caliche 15 ft 323 1.7 Sandy Red Clay 20 ft 457 2.5 bentonite seal 25 ft 548 1.2 Sandy Tan Clay CI-30 ft 637 1120 2.2 GRO <10 DRO <10 35 ft 448 2.3 40 ft 360 2.2 Sandy Red Clay CI-45 ft 300 336 1.6 GRO <10 DRO <10

Logger: Kyle Norman

Driller: Harrison & Cooper, Inc.

Drilling Method: Air rotary

Start Date: 10/27/2011

End Date: 10/27/2011



Project Name:

Well ID:

EME D-2 boot

SB-9

Project Consultant: RECS

Location: UL/D sec. 2 T20S R36E

Comments: SB-9 is located 32 ft east of the former junction

box site. All samples were from cuttings.

DRAFTED BY: L. Weinheimer

TD = 45 ft GW = 49 ft

Lat: 32°36'32.681"N

County: Lea State: NM

Long: 103°19'51.5"W

	10 - 40			GVV = 45 IL	Long. 100 1001.	
Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown Sand		
SS	121		1.3			
				Red Sand With Some Caliche		
5 ft	762		1.4			
				Tan Sand With Some Caliche		
10 ft	1363	CI- 2240	1.2	Tan Sand With Some Sanons		
		GRO <10	7			
		DRO <10				
15 ft	696		1.2			
20 ft	544		1.6			bentonite
7				Red Sand With Some Caliche		seal
25 ft	619		1.5			
30 ft	968		1.7			
35 ft	686		1.1			

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
40 ft	421		1.4	Red Sand With Some Caliche		
45 ft	282	CI- 304 GRO	1.9			
		<10 DRO <10				

Logger: Kyle Norman Driller: Harrison & Cooper, Inc. Drilling Method: Air rotary Start Date: 10/28/2011 End Date: 10/28/2011



Project Name:

Well ID:

EME D-2 boot

SB-10

Project Consultant: RECS

Location: UL/D sec. 2 T20S R36E

Comments: SB-10 is located 20 ft south of the former junction

box site. All samples were from cuttings.

Lat: 32°36'32.512"N

County: Lea

DRAFTED BY: L. Weinheimer

TD = 45 ft				GW = 49 ft	Long: 103°19'51.	.879"W State: NM
Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown Sand		
SS	84		0.9			
5 ft	186		0.9			
10 ft	304		1.0	Red Sand With Some Caliche		
15 ft	385		0.8			
20 ft	429		1.1	Red Sand		
				Tan Sand		bentonite
25 ft	671		0.8			
30 ft	738	CI- 1100 GRO	0.7	Red Sand		
		<10 DRO <10				
35 ft	671		0.6			

Depth (feet)	Chloride field tests	LAB PID		Description	Lithology	Well Construction
40 ft	639		0.6			
				Red Sand		
45 ft	295	GRO <10	0.7			
		DRO <10				

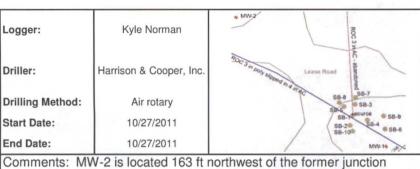
Logger: Kyle Norman Harrison & Cooper, Driller: Inc. **Drilling Method:** Air rotary Project Name: Well ID: Start Date: 10/27/2011 EME D-2 boot MW-1 End Date: 10/27/2011 Project Consultant: RECS Location: UL/D sec. 2 T20S R36E Comments: MW-1 is located 50 ft southeast of the former junction box site. No samples were taken. DRAFTED BY: L. Weinheimer Lat: 32°36'32.336"N County: Lea Long: 103°19'51.474"W TD = 92 ftGW = 49 ftState: NM Chloride Depth Lithology LAB Description **Well Construction** PID field tests (feet) SS 5 ft 10 ft in PVC 15 ft NO SAMPLES TAKEN bentonite seal 20 ft 25 ft 30 ft 35 ft 40 ft 45 ft 50 ft 55 ft 60 ft

Depth (feet)	Chloride field tests			Description	Lithology	Well Construction		
65 ft						sand		
70 ft						pack		
75 ft	- 2							
80 ft				NO SAMPLES TAKEN				
85 ft								
90 ft		34				9888888		
92 ft				2 2 2 0 mar 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				

Kyle Norman Logger:

Driller: Harrison & Cooper, Inc.

Drilling Method: Air rotary Start Date: 10/27/2011 End Date: 10/27/2011





Project Name:

Well ID:

EME D-2 boot

MW-2

Project Consultant: RECS

Location: UL/D sec. 2 T20S R36E

box site. All samples were from cuttings. No samples to lab. DRAFTED BY: L. Weinheimer Lat: 32°36'33.805"N

County: Lea Long: 103°19'53 262"W

	TD = 62	ft		GW = 49 ft	Long: 103°19'53.262"W State: N		
Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Co	nstruction
				Brown Sand			
SS	117		0.1		3333033333333333333		
				Tan Sand With Some Caliche			
5 ft	120		0.2				
				Red Sand With Some Caliche			
10 ft	115		0.2			2 in PVC	
						2	
15 ft	111		0.2				
							bentonite seal
20 ft	117		0.1				
				Red Sand			
25 ft	124		0.6				
,							
30 ft	117		0.8				
35 ft	125		1.4				

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Cons	struction
40 ft	124	X	1.2	Red Sand			
45 ft	117		1.3				
50 ft	× ,						sand
55 ft				NO SAMPLES TAKEN			pack
60 ft							
62 ft							



September 02, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME D-2 BOOT (20/36)

Enclosed are the results of analyses for samples received by the laboratory on 08/30/11 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.

Celey D. Keine

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received:

08/30/2011

Sampling Date:

08/29/2011

Reported:

09/02/2011

Sampling Type:

Soil

Project Name:

EME D-2 BOOT (20/36)

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: SOIL BORE #1 @ 35' (H101831-01)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2440	16.0	08/31/2011	ND	416	104	400	3.77	
TPH 8015M	mg	/kg	Analyze	d By: ab	,				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/01/2011	ND	163	81.5	200	1.53	
DRO >C10-C28	<10.0	10.0	09/01/2011	ND	161	80.3	200	2.07	
Surrogate: 1-Chlorooctane	98.9	% 55.5-15	4	* 1					
Surrogate: 1-Chlorooctadecane	107	% 57.6-15	8						

Sample ID: SOIL BORE #1 @ 45' (H101831-02)

Chloride, SM4500CI-B	mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2600	16.0	08/31/2011	ND	416	104	400	3.77	
TPH 8015M	mg,	/kg	Analyze	d By: ab					·
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/01/2011	ND	163	81.5	200	1.53	
DRO >C10-C28	<10.0	10.0	09/01/2011	ND	161	80.3	200	2.07	
Surrogate: 1-Chlorooctane	94.3	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	106	% 576-15	8						

Cardinal Laboratories *=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples inclinified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene



Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received:

08/30/2011

Sampling Date:

08/29/2011

Reported:

09/02/2011

Sampling Type:

Soil

Project Name:

EME D-2 BOOT (20/36)

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

109 %

57.6-158

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: SOIL BORE #2 @ 35' (H101831-03)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM			•		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	· Qualifier
Chloride	1060	16.0	08/31/2011	ND	416	104	400	3.77	
TPH 8015M	mg,	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/01/2011	ND	163	81.5	200	1.53	
DRO >C10-C28	<10.0	10.0	09/01/2011	ND .	161	80.3	200	2.07	
Surrogate: 1-Chlorooctane	97.9	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	108	% 57.6-15	8						

Sample ID: SOIL BORE #2 @ 45' (H101831-04)

Chloride, SM4500CI-B	mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS .	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	08/31/2011	ND	416	104	400	3.77	
TPH 8015M	mg	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/02/2011	ND	172	86.1	200	1.25	
DRO >C10-C28	<10.0	10.0	09/02/2011	ND	181	90.6	200	3.69	

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Celey D. Keine

Surrogate: 1-Chlorooctadecane



Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

** Samples not received at proper temperature of 6°C or below.

*** Insufficient time to reach temperature.

Chloride by SM4500Cl-B does not require samples be received at or below 6°C

Samples reported on an as received basis (wet) unless otherwise noted on report

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

ARDINAL LABORATORIES

(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: Rice	le∷ Rice	BILL TO THE	"野"。"			,	ANALYSIS	•	REQUEST			
Project Manage	Project Manager: 'Hack Conder	P.O.#;		 -	<u> </u>		-		_		┢	Γ
Address:		Company:		<u>. </u>			S					
City:	State: NM. Zip.	Àttn:					uo					
Phone #:	Fax#	Address:					iu					
Project #:	Přójěct Owner:	City:			IÁI	Н	/ /S	·				
Project Name:		State: Zip:				d.						
Project Locatic	Project Location FME 0-2 Book 20-36	Phone #:		oin O	(B.	L S		sc		,		
Sampler Name	Sampler Name: Kyle Norman	Fax #:		<u> </u>		ВX	:	11				
FOR LAB USE ONLY		IX PRESERV SAMPLING	ING.	_		Э	9				7	: -
Lab I.D. HTO: 831	Sample I.D. (G)RABLOR (C)OMP. # CONTAINERS GROUNDWATER: WASTEWATER: SOIL	OIL SLUDGE ACID/BASE: TOTHER: OTHER:	TIME			L .	telqmoQ					
	35' 6'	11-62-8	10:00	1 1				·				
2	45'	11:bl-8 1	01:01 11:62.8	7	<u> </u>			•				
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PLEASE NOTE: Liability	PLEASE NOTE: Liability and Darmines, Couldnil's habity and clean's exclusive remark for any claim arising whether birsed in a	to whether birsed in contact of torf, shall be limited to the pinguni pair by the client for the	do by the client for t	2								1

», Coudan's talkey and dents' exclusive corrects or my claim militing what to behave a just, ball be finited to the namesh publisher to the claim for the implications of the control of the control of the claim for the implications of the control of the control

Email results
Kernel Morman Crice-ecs.com
Kornel Morman Crice-ecs.com hconder@riceswd.com; Lweinheimer@riceswd.com Phone Result: Fax Result: REMARKS: CHECKED BY: Cool Intact:

Dyes Dyes

No D No Received By: 2 Date: 30-11 Time 7.15 Date: Sampler - UPS - Bus - Other Delivered By (

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

中200



September 09, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: D-2 BOOT EME (20/37)

Enclosed are the results of analyses for samples received by the laboratory on 08/31/11 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.

Celey D. Keene

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received:

08/31/2011

Sampling Date:

08/31/2011

Reported:

09/09/2011

Sampling Type:

Soil

Project Name:

D-2 BOOT EME (20/37)

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: SOIL BORE #3 @ 35' (H101855-01)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1500	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	179	89.3	200	0.599	•
DRO >C10-C28	<10.0	10.0	09/04/2011	ND	168	84.1	200	6.80	
Surrogate: 1-Chlorooctane	106	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	108	% 57.6-15	8						

Sample ID: SOIL BORE #3 @ 45' (H101855-02)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	896	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: ab	ı				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	179	89.3	200	0.599	
DRO >C10-C28	11.1	10.0	09/04/2011	ND	168	84.1	200	6.80	
Surrogate: 1-Chlorooctane	103	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	103	% 57.6-15	8						

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Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received:

08/31/2011

Sampling Date:

08/31/2011

Reported:

09/09/2011

Sampling Type:

Soil

Project Name:

D-2 BOOT EME (20/37)

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: SOIL BORE #4 @ 5' (H101855-03)

BTEX 8021B	mg/	kg	Analyze	d By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/02/2011	ND	2.11	106	2.00	10.0	
Toluene*	0.153	0.050	09/02/2011	ND	2.03	101	2.00	8.54	
Ethylbenzene*	0.495	0.050	09/02/2011	ND	2.02	101	2.00	6.29	
Total Xylenes*	1.58	0.150	09/02/2011	ND	6.03	100	6.00	5.93	
Surrogate: 4-Bromofluorobenzene (PIL	161 9	% 64.4-13	4						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: HM			· , <u>.</u>		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1880	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	67.2	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	556	10.0	09/04/2011	ND	177	88.3	200	0.760	
Surrogate: 1-Chlorooctane	109 9	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	106 9	% 57.6-15	8						•

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Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received:

08/31/2011

08/31/2011

Reported:

09/09/2011

Sampling Date: Sampling Type:

Soil

Project Name:

D-2 BOOT EME (20/37)

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: SOIL BORE #4 @ 15' (H101855-04)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM		·		•	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2320	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	21,8	10.0	09/04/2011	ND	177	88.3	200	0.760	
									

Surrogate: 1-Chlorooctane

105 %

55.5-154

Surrogate: 1-Chlorooctadecane

109 %

57.6-158

Sample ID: SOIL BORE #4 @ 45' (H101855-05)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM				· · · · · · · · · · · · · · · · · · ·	·
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1060	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	20.9	10.0	09/04/2011	ND	177	88.3	200	0.760	

137 %

55.5-154

Surrogate: 1-Chlorooctadecane

Surrogate: 1-Chlorooctane

139 %

57.6-158

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received:

08/31/2011

Sampling Date:

08/31/2011

Reported:

09/09/2011

Sampling Type:

Soil

Project Name:

D-2 BOOT EME (20/37)

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Project Location:

NOT GIVEN

Sample Received By:

Jodi Henson

Sample ID: SOIL BORE #5 @ 30' (H101855-06)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: HM		_			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1360	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	<10.0	10.0	09/04/2011	ND	177	88.3	200	0.760	
Surrogate: 1-Chlorooctane	107	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	110	% 57.6-15	8						

Sample ID: SOIL BORE #5 @ 45' (H101855-07)

Chloride, SM4500CI-B	mg/	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: ab					
Analyte	Result	م Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	<10.0	10.0	09/04/2011	ND	177	88.3	200	0.760	
Surrogate: 1-Chlorooctane	121	% 55.5-15	4						
Surrogate: I-Chlorooctadecane	127	% 57.6-15	8						

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Celey D. Keene, Lab Director/Quality Manager



Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received: Reported: 08/31/2011

09/09/2011

D-2 BOOT EME (20/37)

Project Number:

Project Name:

NONE GIVEN

Project Location:

NOT GIVEN

Sampling Date:

08/31/2011

Sampling Type:

Soil

Sampling Condition: Sample Received By: Cool & Intact

Jodi Henson

Sample ID: SOIL BORE #6 @ 25' (H101855-08)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	992	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	<10.0	10.0	09/04/2011	ND	177	88.3	200	0.760	
Surrogate: 1-Chlorooctane	108	% 55.5-15	4						•

Surrogate: 1-Chlorooctadecane

110 %

57.6-158

Sample ID: SOIL BORE #6 @ 45' (H101855-09)

Chloride, SM4500CI-B	mg.	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	896	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	<10.0	10.0	09/04/2011	ND	177	88.3	200	0.760	
Surrogate: 1-Chlorooctane	105	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	107	% 57.6-15	8						

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Celey D. Keine



Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received: Reported: 08/31/2011

09/09/2011

D-2 BOOT EME (20/37)

Project Name: Project Number:

NONE GIVEN

Project Location:

NOT GIVEN

Sampling Date:

08/31/2011

Sampling Type:

Soil

Sampling Condition: Sample Received By: Cool & Intact

Jodi Henson

Sample ID: SOIL BORE #7 @ 15' (H101855-10)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	752	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	<10.0	10.0	09/04/2011	. ND	177	88.3	200	0.760	
Surrogate: 1-Chlorooctane	109	% 55.5-15	4						,
Surrogate: L-Chloroctadecane	111	% 57.6-15	R						

Sample ID: SOIL BORE #7 @ 45' (H101855-11)

Chloride, SM4500CI-B	mg/	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	.% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg/	'kg	Analyze	d By: ab			-		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	<10.0	10.0	09/04/2011	ND	177	88.3	200	0.760	
Surrogate: 1-Chlorooctane	130 5	% 55.5-15	4			•			
Surrogate: 1-Chlorooctadecane	133 9	% 57.6-15	8			•			

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Kune



Analytical Results For:

Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received:

08/31/2011

Sampling Date:

08/31/2011

Reported:

09/09/2011

Sampling Type:

Soil

Project Name:

D-2 BOOT EME (20/37)

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: SOIL BORE #8 @ 30' (H101855-12)

	9	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1120	16.0	09/01/2011	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	<10.0	10.0	09/04/2011	ND	177	88.3	200	0.760	

Surrogate: 1-Chlorooctadecane

111%

57.6-158

Sample ID: SOIL BORE #8 @ 45' (H101855-13)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	09/01/2011	ND ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: ab					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/04/2011	ND	174	87.2	200	0.657	
DRO >C10-C28	<10.0	10.0	09/04/2011	ND	177	88.3	200	0.760	
Surrogate: 1-Chlorooctane	114	% 55.5-15	4	,					
Surrogate: 1-Chlorooctadecane	116	% 57.6-15	8						

Cardinal Laboratories

*=Accredited Analyte

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 client for 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 thirty (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 cleint, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claims is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Notes and Definitions

A-01 Surrogate failed high due to objective matrix interference.

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

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Celey D. Kune

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST | of 2 ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603 (505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name:	18: BEGS Rice		9/2/11	811 Ch		BIELTO				ANA	LYSIS	ANALYSIS REQUEST	EST	
Project Manag	Project Manager: Hack Conder				P.O. #:			_		_		_		
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City: Hobbs		State: NM	Zip: 88240		Attn:					<u></u>				
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Project#:		Project Owner:			City:		````		<u> </u>					
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Sampler Name	Sampler Name: Kyle Norman				Fax #:		ΟĮL							
FOR LAB USE ONLY			L	MATRIX	PRESERV	V. SAMPLING		_			_			
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† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

* ARDINAL LABORATORIES

101 East Mariand, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603

11/12/12/12/12 (505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: RECS-	# REGS 8 2 CA 12	31: 05	78	BILLIFO	- Marco		٨	ANALYSIS	IS REQUEST	UEST			<u> </u>
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Sampler Name: Kyle Norman	: Kyle Norman		Fax#:				ЕХ			·			
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1/2/	7.7.0 C. 1991.			Fax Result:		1	7	Add'i Fax #:					
Relinquished By:		Revenue By:			email results								

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

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

hconder@rice-ecs.com; Lweinheimer@rice-ecs.com Kjones@riceswd.com; Bbaker@rice-ecs.com;

zconder@rice-ecs.com

Time:

Relinquished By:

Knorman@rice-ecs.com

email results



October 31, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME D-2 BOOT (20/36)

Enclosed are the results of analyses for samples received by the laboratory on 10/28/11 7:55.

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.

Celey D. Keine

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



Analytical Results For:

Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received:

10/28/2011

Sampling Date:

10/27/2011

Reported:

10/31/2011

Sampling Type:

Soil

Project Name:

EME D-2 BOOT (20/36)

Sampling Condition:

Cool & Intact

Project Number: Project Location:

NONE GIVEN

Sample Received By:

Jodi Henson

Sample ID: SB-9 @ 10' (H102337-01)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2240	16.0	10/28/2011	ND	432	108	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/29/2011	ND	178	89.0	200	3.30	
DRO >C10-C28	<10.0	10.0	10/29/2011	ND	193	96.3	200	2.49	
Surrogate: I-Chlorooctane	82.9	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	95.1	% 57.6-15	8						

Sample ID: SB-9 @ 45' (H102337-02)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP			·		<u>.</u>
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	10/28/2011	ND	432	108	400	0.00	
ТРН 8015М	mg	/kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/29/2011	ND	178	89.0	200	3.30	
DRO >C10-C28	<10.0	10.0	10/29/2011	ND	193	96.3	200	2,49	
Surrogate: 1-Chlorooctane	75.3	% 55.5-15-	4						
Surrogate: 1-Chlorooctadecane	101	% 57.6-15	8						

Cardinal Laboratories

*=Accredited Analyte

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Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

** Samples not received at proper temperature of 6°C or below.

*** Insufficient time to reach temperature.

- Chloride by SM4500Cl-B does not require samples be received at or below 6°C

Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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Project Manager: Has & Canar							
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1 Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



November 02, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME D-2 BOOT (20/36)

Enclosed are the results of analyses for samples received by the laboratory on 10/28/11 13:12.

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.

Celey D. Keine

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



Analytical Results For:

Rice Operating Company Hack Conder 112 W. Taylor Hobbs NM, 88240

Fax To:

(575) 397-1471

Received:

10/28/2011

Sampling Date:

10/28/2011

Reported:

11/02/2011

Sampling Type:

Soil

Project Name:

EME D-2 BOOT (20/36)

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

Sample ID: SB-10 @ 30' (H102346-01)

Chloride, SM4500CI-B

ma/ka

Analyzed By: AP

Emonde, Shirisoder B	ııı 9	/ n g	Andryze	u by. Ai					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1100	16.0	11/01/2011	ND .	432	108	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/01/2011	ND	157	78.4	200	3.93	
DRO >C10-C28	<10.0	10.0	11/01/2011	ND	181	90.6	200	4.73	

Surrogate: 1-Chlorooctane

83.9 %

55.5-154

Surrogate: I-Chlorooctadecane

105 %

97.8 %

57.6-158

57.6-158

Sample ID: SB-10 @ 45' (H102346-02)

Chloride, SM4500CI-B	mg.	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	11/01/2011	ND	432	108	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/01/2011	ND .	157	78.4	200	3.93	
DRO >C10-C28	<10.0	10.0	11/01/2011	ND	181	90.6	200	4.73	
Surrogate: 1-Chlorooctane	84.3	% 55.5-15	4						

Cardinal Laboratories

Surrogate: 1-Chlorooctadecane

*=Accredited Analyte

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



ND

Notes and Definitions

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

Analyte NOT DETECTED at or above the reporting limit

Cardinal Laboratories *=Accredited Analyte

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 client for 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 thirty (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 to profits incrumed by client, its subdidaries, affiliations or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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Sampler - UPS - Bus - Other:	The Tree Tree	nconder@rice-ecs.com, Lweinnermer@rice-ecs.com

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