1R-427-351

REPORTS

DATE:

9-15-11

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 5894

September 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**
Rice Operating Company – EME SWD System
EME H-7 EOL (1R427-351): UL/H sec. 7 T20S R37E
(formerly EME I-7 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. The site was previously referred to as the EME I-7 EOL. However, GIS mapping shows the site to be located within unit letter H rather than unit letter I (Figure 1). To reflect the geographical location of the site, the name has been changed to the EME H-7 EOL. All correspondence will reference EME H-7 EOL.

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.

For all such environmental projects, ROC will choose the path forward that:

- Protects public health,
- Provides the greatest net environmental benefit,
- Complies with NMOCD Rules, and
- Is supported by good science.

Each site shall generally have three submissions:

1. This Investigation and Characterization Plan (ICP) is proposed for gathering data and site characterization and assessment.

2. Upon evaluating the data and results from the ICP, a recommended remedy will be submitted in a Corrective Action Plan (CAP) if warranted.

3. Finally, after implementing the remedy, a Termination Request with final documentation will be submitted.

Background and Previous Work

The site is located approximately 2.5 miles south-west of Monument, New Mexico at UL/H sec. 7 T20S R37E as shown on the Site Location Map. NM OSE records indicate that groundwater will likely be encountered at a depth of approximately 26 +/- feet.

In 2010, ROC initiated work on the former EME H-7 EOL 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 384 mg/kg and negligible gasoline range organics (GRO) and a diesel range organics (DRO). The bottom composite showed a chloride laboratory reading of 624 mg/kg and negligible GRO and DRO readings. The excavated soil was blended on site. Laboratory analysis of the blended backfill showed a chloride reading of 352 mg/kg and negligible GRO and DRO readings. At 12-11 ft below ground surface (bgs), a 1 foot clay layer was installed to inhibit downward migration of chlorides in the soil. A clay compaction test was performed on March 25th, 2010. The remaining excavation was backfilled with the blended backfill to ground surface. The area was contoured to the surrounding landscape and seeded.

To further investigate the site, a soil bore was advanced 10 ft south of the former junction box (source) on June 10th, 2010 to 24 ft bgs with samples collected every three feet. The samples were field tested for both chlorides and hydrocarbons. The 21 ft and 24 ft samples were taken to a commercial laboratory to be analyzed. Both samples showed negligible GRO and DRO readings. Chloride concentrations showed 912 mg/kg in the 21 ft sample and 1,120 mg/kg in the 24 ft sample. The bore was plugged in entirety with bentonite.

NMOCD was notified of potential groundwater impact on October 5th, 2010 and a junction box disclosure report was submitted to NMOCD with all the 2010 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 (see Appendix B for Quality Procedures).
    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 ≤ 250 ppm; and,
ii. Three samples in which PID readings decrease and the third sample has a PID reading of ≤ 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 ≤ 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 July 21st, 2011, seven soil bores were advanced at the site to a depth of 24 ft (Figure 2). The soil bores were sampled every three feet. The samples were tested in the field for chlorides and screened in the field with a photo-ionization detector for hydrocarbons. Representative samples from each bore were taken to a commercial laboratory for analysis of chlorides and hydrocarbons. Chloride readings ranged from a high of 1,060 mg/kg at 21 ft bgs in SB-8 to a low of 128 at 24 ft bgs in SB-5. GRO readings at all depths in all bores were non-detect. DRO readings were also non-detect in all samples, except for at 24 ft bgs in SB-8 where the DRO reading was 11.9 mg/kg (Appendix A and B).

On August 30th, 2011, two monitor wells (MW-1 and MW-2) were installed at the site. MW-1, the near-source well, is located approximately 43 ft south southeast from the former junction box site and MW-2, the up gradient well, is located approximately 101 ft northwest of the former junction box site. Soil samples were collected every three feet from each well and tested in the field for chlorides and screened in the field with a photo-ionization detector for hydrocarbons. Representative samples from each well were taken to a commercial laboratory for analysis of chlorides and hydrocarbons. Laboratory chloride readings in MW-1 decreased from 736 mg/kg at 18 ft bgs to 576 mg/kg at 24 ft bgs. GRO and DRO readings were non-detect for both samples in MW-1. Chloride and TPH readings from MW-2 are representative of background concentrations in the area. Laboratory analysis of the 12 ft bgs sample resulted in a chloride concentration of 528 mg/kg and 128 mg/kg at 24 ft bgs. GRO and DRO readings were non-detect in the 12 ft sample and in the 24 ft sample, GRO was non-detect and DRO had a concentration of 16.5 mg/kg (Appendix B).

The newly installed monitoring wells will be sampled and analyzed according to NMOCD requirements. Once groundwater samples are obtained and groundwater quality has been fully delineated, a Corrective Action Plan (CAP) will be submitted to the NMOCD. The CAP will include a vadose zone remedy and groundwater remedy, if warranted.

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

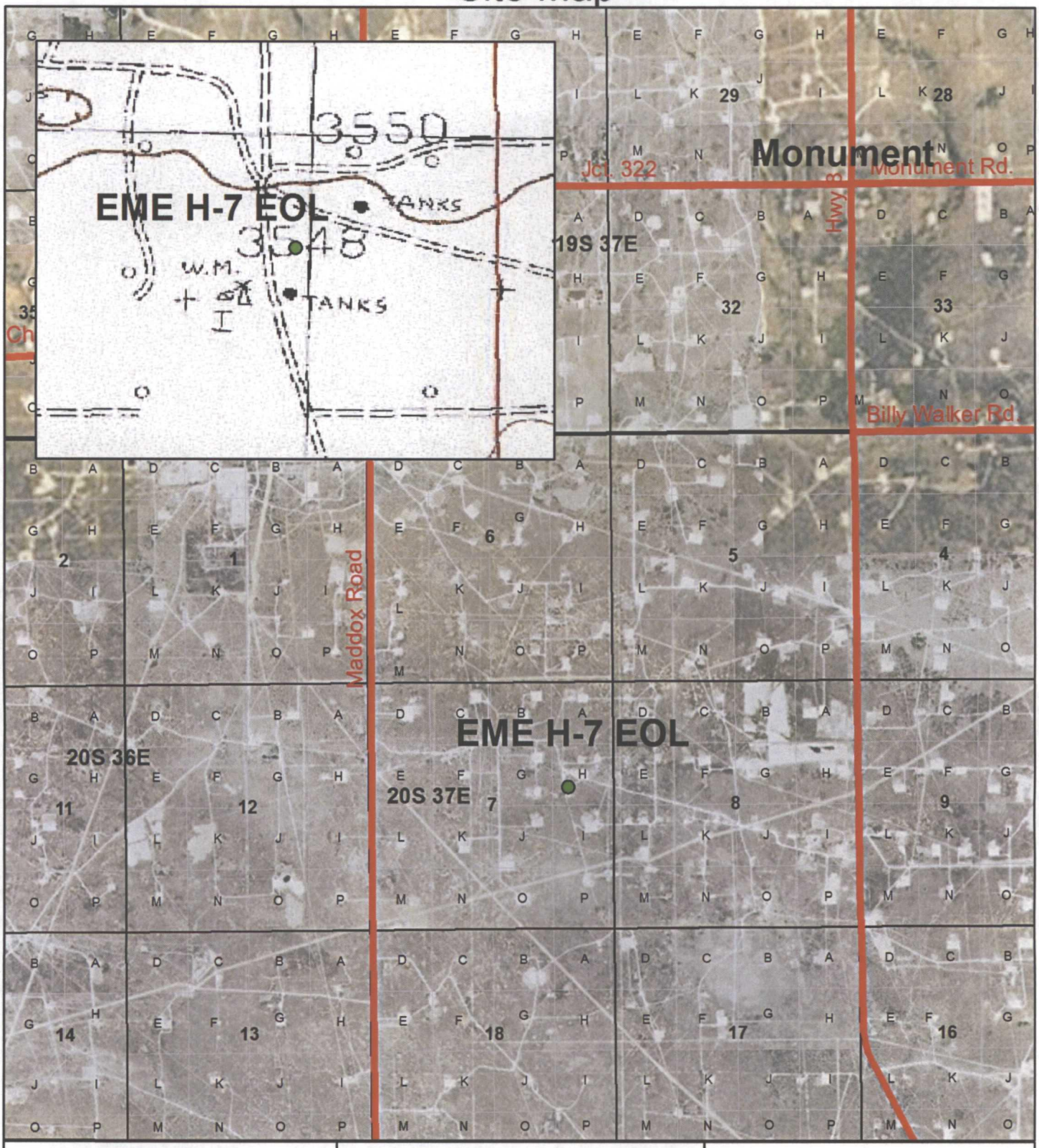
Attachments:

- Figure 1 – Site map
- Figure 2 – Soil bore and MW installation
- Appendix A – SB-1 through SB-6 installation and laboratory confirmation
- Appendix B – SB-7, SB-8, MW-1 and MW-2 installation 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

Site Map



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS

EME H-7 EOL

LEGALS: UL/H sec. 7
T20S R37E

NMOCD Case #: 1R427-351

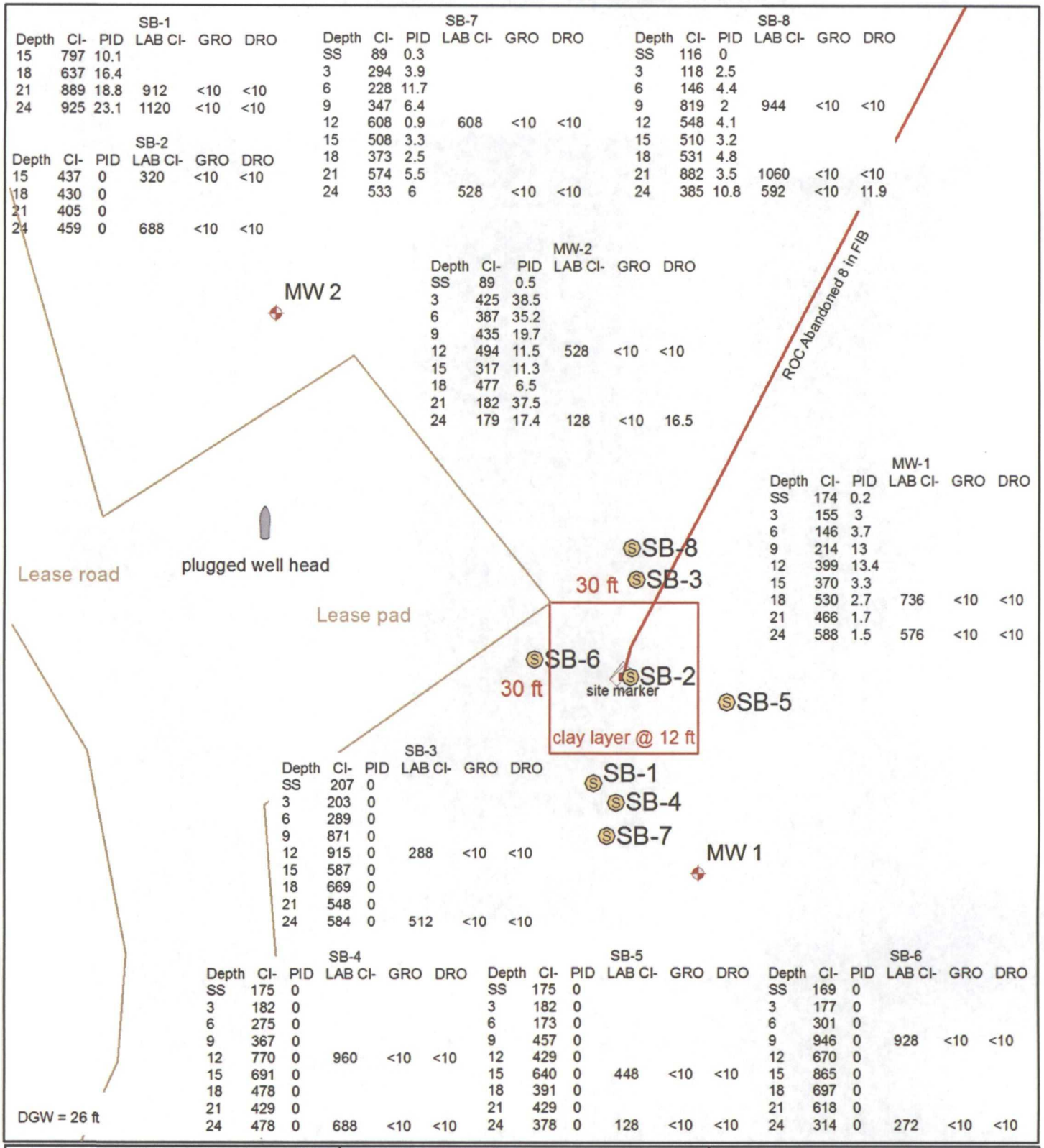
Figure 1

N W E S

0 1,350 2,700 5,400 Feet

Drawing date: 5-23-11
Drafted by: L. Weinheimer

Soil bore and MW installation



SB-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO
15	797	10.1			
18	637	16.4			
21	889	18.8	912	<10	<10
24	925	23.1	1120	<10	<10

SB-2

Depth	Cl-	PID	LAB Cl-	GRO	DRO
15	437	0	320	<10	<10
18	430	0			
21	405	0			
24	459	0	688	<10	<10

SB-7

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	89	0.3			
3	294	3.9			
6	228	11.7			
9	347	6.4			
12	608	0.9	608	<10	<10
15	508	3.3			
18	373	2.5			
21	574	5.5			
24	533	6	528	<10	<10

SB-8

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	116	0			
3	118	2.5			
6	146	4.4			
9	819	2	944	<10	<10
12	548	4.1			
15	510	3.2			
18	531	4.8			
21	882	3.5	1060	<10	<10
24	385	10.8	592	<10	11.9

MW-2

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	89	0.5			
3	425	38.5			
6	387	35.2			
9	435	19.7			
12	494	11.5	528	<10	<10
15	317	11.3			
18	477	6.5			
21	182	37.5			
24	179	17.4	128	<10	16.5

MW-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	174	0.2			
3	155	3			
6	146	3.7			
9	214	13			
12	399	13.4			
15	370	3.3			
18	530	2.7	736	<10	<10
21	466	1.7			
24	588	1.5	576	<10	<10

SB-3

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	207	0			
3	203	0			
6	289	0			
9	871	0			
12	915	0	288	<10	<10
15	587	0			
18	669	0			
21	548	0			
24	584	0	512	<10	<10

SB-4

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	175	0			
3	182	0			
6	275	0			
9	367	0			
12	770	0	960	<10	<10
15	691	0			
18	478	0			
21	429	0			
24	478	0	688	<10	<10

SB-5

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	175	0			
3	182	0			
6	173	0			
9	457	0			
12	429	0			
15	640	0	448	<10	<10
18	391	0			
21	429	0			
24	378	0	128	<10	<10

SB-6

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	169	0			
3	177	0			
6	301	0			
9	946	0	928	<10	<10
12	670	0			
15	865	0			
18	697	0			
21	618	0			
24	314	0	272	<10	<10

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

EME H-7 EOL

LEGALS: UL/H sec. 7
T20S R37E

NMOCD Case #: 1R427-351

Figure 2

N
W E
S

0 12.5 25 50
Feet

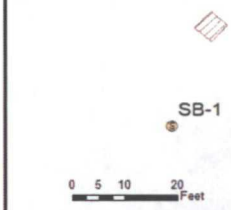
Drawing date: 9-9-11
Drafted by: L. Weinheimer

Appendix A

SB-1 through SB-6 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
Driller:	Harrison & Cooper, Inc. Drilling
Consultant:	N/A junction box upgrade plan
Drilling Method:	Air rotary
Start Date:	6/10/2010
End Date:	6/10/2010



RICE OPERATING COMPANY ROC SINCE 1955

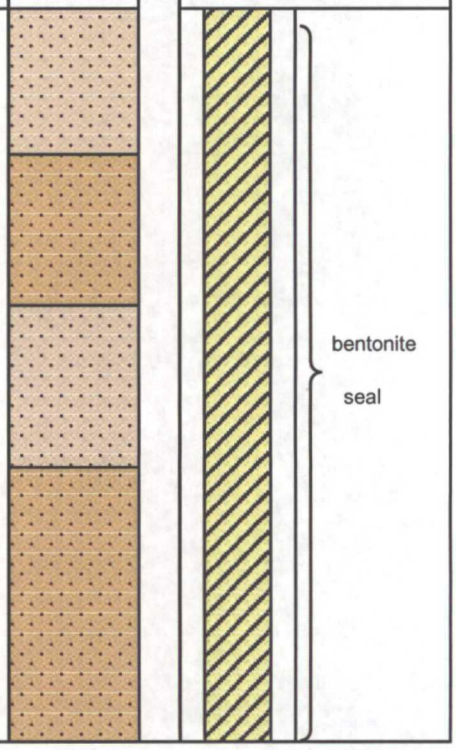
Project Name: EME I-7 EOL
Well ID: SB-1
Location: UL/I sec. 7 T20S R37E
Lat: 32°35'18.715"N
Long: 103°17'6.679"W
County: Lea
State: NM

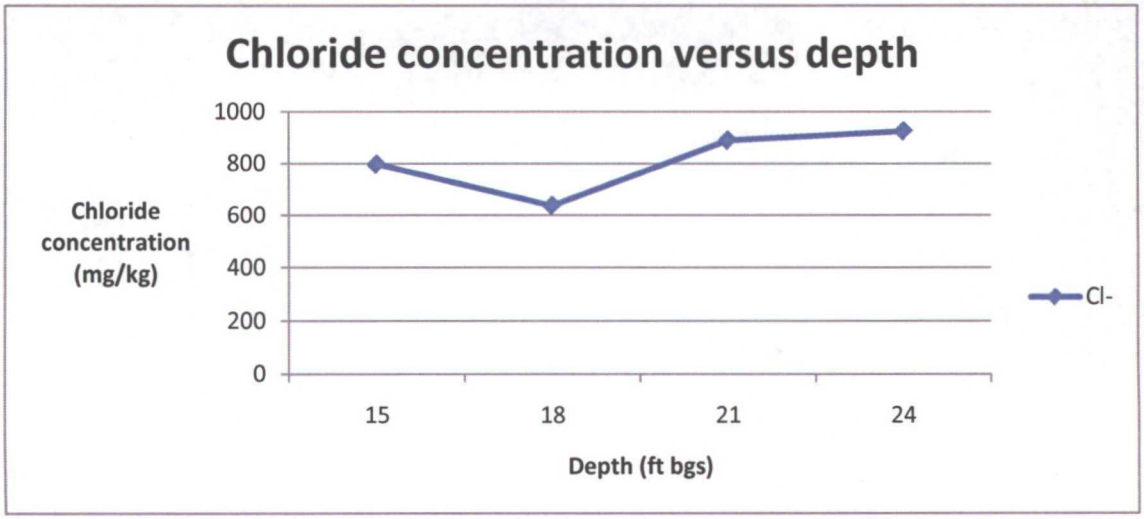
Comments: All samples from cuttings. Located 10 ft south of the former juction box site.

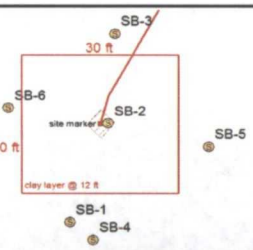
Drafted by: Lara Weinheimer

TD = 24 ft DGW = 26 ft

Depth (feet)	chloride field tests	LAB	PID	Description
				12 - 15 ft SAND tan
15 ft	797		10.1	
				15 - 18 ft SAND dark tan
18 ft	637		16.4	
				18 - 21 ft SAND tan
21 ft	889	Cl- 912	18.8	
		GRO <10		21 - 24 ft SAND dark tan
		DRO <10		
24 ft	925	Cl- 1120	23.1	
		GRO <10		
		DRO <10		





Logger:	Jordan Woodfin		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME H-7 EOL **Well ID:** SB-2
Start Date:	7/11/2011		
End Date:	7/11/2011		**Project Consultant:** RECS

Comments: Located at the source of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer
TD = 24 GW = 26 ft

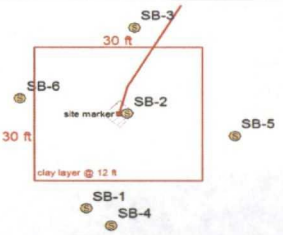
Location: UL/H sec. 7 T20S R37E
Lat: 32°35'18.924"N **County**: Lea
Long: 103°17'6.592"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Light brown to tan very fine silty sand with some caliche
15 ft	437	Cl- 320	0	
		GRO <10		
		DRO <10		
18 ft	430		0	
				Tan very fine silty sand
21 ft	405		0	
24 ft	459	Cl- 688	0	
		GRO <10		
		DRO <10		

Lithology

Well Construction

bentonite seal

Logger:	Jordan Woodfin		**Project Name:** EME H-7 EOL **Well ID:** SB-3
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	7/11/2011		
End Date:	7/11/2011		

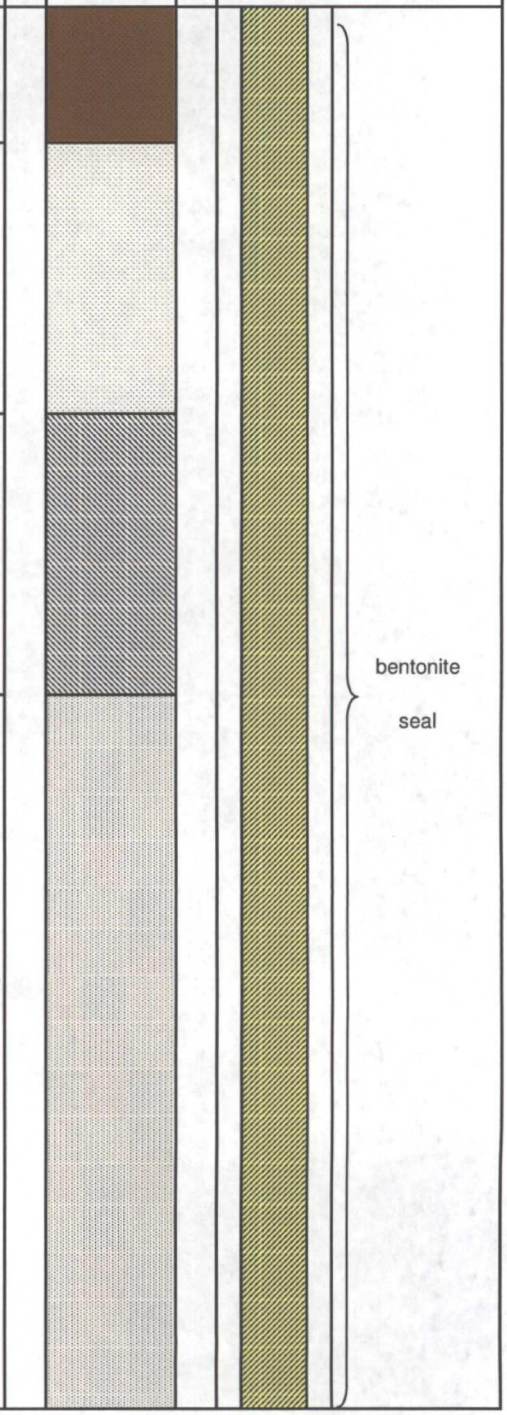
Comments: Located 20 ft north of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer

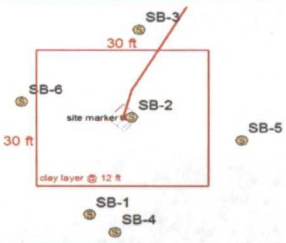
TD = 24 GW = 26 ft

Location: UL/H sec. 7 T20S R37E

Lat: 32°35'19.116"N **County**: Lea
Long: 103°17'6.577"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown very fine sand
SS	207		0	
				Tan very fine sand
3 ft	203		0	
6 ft	289		0	
				Tan very fine silty sand
9 ft	871		0	
12 ft	915	Cl- 288	0	
		GRO <10		Tan very fine sand with some caliche
		DRO <10		
15 ft	587		0	
18 ft	669		0	
21 ft	548		0	
24 ft	584	Cl- 512	0	
		GRO <10		
		DRO <10		



Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME H-7 EOL **Well ID:** SB-4
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	7/11/2011		
End Date:	7/11/2011		

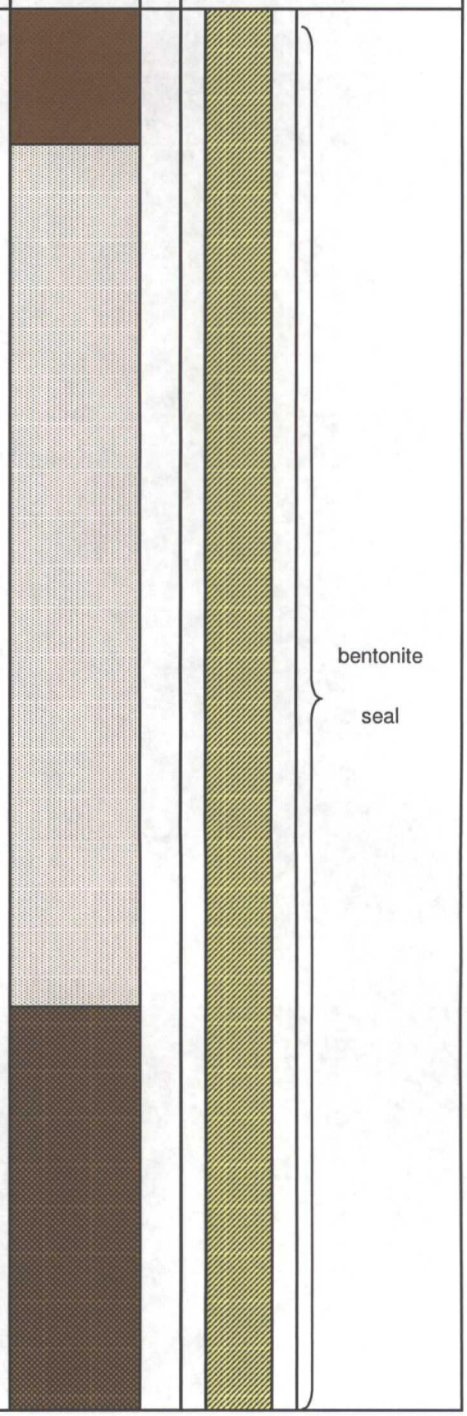
Comments: Located 25 ft south of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer

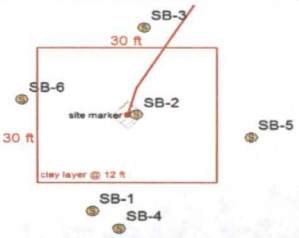
TD = 24 GW = 26 ft

Location: UL/H sec. 7 T20S R37E

Lat: 32°35'18.676"N **County**: Lea
Long: 103°17'6.63"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown very fine sand
SS	175		0	
				Tan fine sand with small caliche fragments
3 ft	182		0	
6 ft	275		0	
9 ft	367		0	
12 ft	770	Cl- 960	0	
		GRO <10		
		DRO <10		
15 ft	691		0	
18 ft	478		0	
				Brown to tan medium sand with gravel
21 ft	429		0	
24 ft	478	Cl- 688	0	
		GRO <10		
		DRO <10		



Logger:	Jordan Woodfin		**Project Name:** EME H-7 EOL **Well ID:** SB-5
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		**Location:** UL/H sec. 7 T20S R37E
Start Date:	7/11/2011		**Lat:** 32°35'18.871"N **County**: Lea
End Date:	7/11/2011		**Long:** 103°17'6.37"W **State**: NM

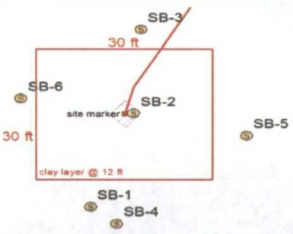
Comments: Located 21 ft east of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer
TD = 24 GW = 26 ft

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown very fine sand
SS	175		0	
				Tan medium sand
3 ft	182		0	
				Tan very fine sand
6 ft	173		0	
9 ft	457		0	
				Tan very fine silty sand
12 ft	429		0	
				Tan fine sand with caliche
15 ft	640	Cl- 448	0	
		GRO <10		
		DRO <10		
18 ft	391		0	
21 ft	429		0	
				Light brown very fine sand
24 ft	378	Cl- 128	0	
		GRO <10		
		DRO <10		

Lithology

Well Construction

bentonite seal

Logger:	Jordan Woodfin		**Project Name:** EME H-7 EOL **Well ID:** SB-6
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		**Location:** UL/H sec. 7 T20S R37E
Start Date:	7/11/2011		**Lat:** 32°35'18.961"N **County**: Lea
End Date:	7/11/2011		**Long:** 103°17'6.819"W **State**: NM

Comments: Located 18 ft west of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer

TD = 24 GW = 26 ft

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown very fine sand
SS	169		0	
				Tan medium sand
3 ft	177		0	
				Tan very fine sand
6 ft	301		0	
9 ft	946	Cl- 928	0	
		GRO <10		Tan very fine silty sand
		DRO <10		
12 ft	670		0	
				Tan fine sand with caliche
15 ft	865		0	
18 ft	697		0	
21 ft	618		0	
				Light brown very fine sand
24 ft	314	Cl- 272	0	
		GRO <10		
		DRO <10		

Lithology

Well Construction: bentonite seal

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
112 W. TAYLOR
HOBBS, NM 88240

Receiving Date: 06/11/10
Reporting Date: 06/17/10**
Project Number: NOT GIVEN
Project Name: EME I-7 EOL
Project Location: EME I-7 EOL

Sampling Date: 06/10/10
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: JH
Analyzed By: AB/CK

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/kg)	DRO (>C_{10}-C_{28}) (mg/kg)	Cl* (mg/kg)
ANALYSIS DATE		06/12/10	06/12/10	06/15/10
H20095-1	SB #1 @ 21'	<10.0	<10.0	912
H20095-2	SB #1 @ 24"	<10.0	<10.0	1,120
Quality Control		461	423	500
True Value QC		500	500	500
% Recovery		92.2	84.6	100
Relative Percent Difference		1.7	0.4	<0.1

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl: Std. Methods 4500-Cl B
*Analyses performed on 1:4 w:v aqueous extracts.
Reported on wet weight.
**REVISED REPORT.

Chemist

06/17/10
Date

H20095 TCL RICE

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 #: 393-9174 Fax #: 397-1471	Address:
Project #: Project Owner:	City:
Project Name: EME I-7 EOL	State: Zip:
Project Location: EME I-7 EOL	Phone #:
Sampler Name: Jordan Woodfin	Fax #:

FOR LAB USE ONLY				MATRIX							PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions								
H20095-1	SB #1 @ 21"	G	1			✓					✓		6/10/10	03:13	✓	✓										
2	SB #1 @ 24"	G	1			✓					✓		6/10/10	03:17	✓	✓										

Relinquished By: Jordan Woodfin	Date: 6-11-10 Time: 7:20	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: 6-11-10 Time: 9:06	Received By: Jodi Henson	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☐ Yes ☐ No Intact: ☐ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: email results Hconder@riceswd.com; jwoodfin@riceswd.com; Lweinheimer@riceswd.com

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

NEED SAMPLES BACK, PLEASE

#26

CARDINAL Laboratories

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

July 15, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME H-7 EOL

Enclosed are the results of analyses for samples received by the laboratory on 07/12/11 8:02.

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:	07/12/2011	Sampling Date:	07/11/2011
Reported:	07/15/2011	Sampling Type:	Soil
Project Name:	EME H-7 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 2 @ 15 FT (H101432-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**320**	16.0	07/13/2011	ND	448	112	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/14/2011	ND	180	90.1	200	0.128	
DRO >C10-C28	<10.0	10.0	07/14/2011	ND	170	85.0	200	0.178	

Surrogate: 1-Chlorooctane	*98.2 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*108 %*	*70-130*

Sample ID: SB 2 @ 24 FT (H101432-02)

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	07/13/2011	ND	448	112	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/14/2011	ND	180	90.1	200	0.128	
DRO >C10-C28	<10.0	10.0	07/14/2011	ND	170	85.0	200	0.178	

Surrogate: 1-Chlorooctane	*100 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*111 %*	*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:	07/12/2011	Sampling Date:	07/11/2011
Reported:	07/15/2011	Sampling Type:	Soil
Project Name:	EME H-7 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 3 @ 12 FT (H101432-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**288**	16.0	07/13/2011	ND	448	112	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/14/2011	ND	180	90.1	200	0.128	
DRO >C10-C28	<10.0	10.0	07/14/2011	ND	170	85.0	200	0.178	

Surrogate: 1-Chlorooctane	*104 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*117 %*	*70-130*

Sample ID: SB 3 @ 24 FT (H101432-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**512**	16.0	07/13/2011	ND	400	100	400	3.92	

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	07/14/2011	ND	180	90.1	200	0.128	
DRO >C10-C28	<10.0	10.0	07/14/2011	ND	170	85.0	200	0.178	

Surrogate: 1-Chlorooctane	*99.5 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*109 %*	*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:	07/12/2011	Sampling Date:	07/11/2011
Reported:	07/15/2011	Sampling Type:	Soil
Project Name:	EME H-7 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 4 @ 12 FT (H101432-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**960**	16.0	07/13/2011	ND	400	100	400	3.92	

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	07/14/2011	ND	180	90.1	200	0.128	
DRO >C10-C28	<10.0	10.0	07/14/2011	ND	170	85.0	200	0.178	

Surrogate: 1-Chlorooctane	*104 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*112 %*	*70-130*

Sample ID: SB 4 @ 24 FT (H101432-06)

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	07/13/2011	ND	400	100	400	3.92	

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	07/14/2011	ND	180	90.1	200	0.128	
DRO >C10-C28	<10.0	10.0	07/14/2011	ND	170	85.0	200	0.178	

Surrogate: 1-Chlorooctane	*101 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*109 %*	*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:	07/12/2011	Sampling Date:	07/11/2011
Reported:	07/15/2011	Sampling Type:	Soil
Project Name:	EME H-7 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 5 @ 15 FT (H101432-07)

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	07/13/2011	ND	400	100	400	3.92	

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	07/14/2011	ND	180	90.1	200	0.128	
DRO >C10-C28	<10.0	10.0	07/14/2011	ND	170	85.0	200	0.178	

Surrogate: 1-Chlorooctane	*98.7 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*111 %*	*70-130*

Sample ID: SB 5 @ 24 FT (H101432-08)

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	07/13/2011	ND	400	100	400	3.92	

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	07/14/2011	ND	180	90.1	200	0.128	
DRO >C10-C28	<10.0	10.0	07/14/2011	ND	170	85.0	200	0.178	

Surrogate: 1-Chlorooctane	*99.9 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*108 %*	*70-130*

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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:	07/12/2011	Sampling Date:	07/11/2011
Reported:	07/15/2011	Sampling Type:	Soil
Project Name:	EME H-7 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 6 @ 9 FT (H101432-09)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**928**	16.0	07/13/2011	ND	400	100	400	3.92	

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	07/15/2011	ND	180	90.1	200	0.128	
DRO >C10-C28	<10.0	10.0	07/15/2011	ND	170	85.0	200	0.178	

Surrogate: 1-Chlorooctane	*105 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*114 %*	*70-130*

Sample ID: SB 6 @ 24 FT (H101432-10)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**272**	16.0	07/13/2011	ND	400	100	400	3.92	

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	07/15/2011	ND	180	90.1	200	0.128	
DRO >C10-C28	<10.0	10.0	07/15/2011	ND	170	85.0	200	0.178	

Surrogate: 1-Chlorooctane	*109 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*118 %*	*70-130*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: Rice 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 H-7 EOL	State: Zip:
Project Location: EME H-7 EOL	Phone #:
Sampler Name: Jordan Woodfin	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV			SAMPLING		ANALYSIS REQUEST									
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TPH 8015 M Extended Thru C40					
H10432																								
1	SB 2 @ 15ft	G	1			✓					✓		7/11/11	11:00	✓	✓									
2	SB 2 @ 24'	G	1			✓					✓		"	11:30	✓	✓									
3	SB 3 @ 12'	G	1			✓					✓		"	12:00	✓	✓									
4	SB 3 @ 24'	G	1			✓					✓		"	12:30	✓	✓									
5	SB 4 @ 12'	G	1			✓					✓		"	01:30	✓	✓									
6	SB 4 @ 24'	G	1			✓					✓		"	02:00	✓	✓									
7	SB 5 @ 15'	G	1			✓					✓		"	02:30	✓	✓									
8	SB 5 @ 24'	G	1			✓					✓		"	03:00	✓	✓									
9	SB 6 @ 9'	G	1			✓					✓		"	03:30	✓	✓									
10	SB 6 @ 24'	G	1			✓					✓		"	04:00	✓	✓									

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of 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: Jordan Woodfin	Date: 7/12/11 Time: 7:30	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: 7/12/11 Time: 8:02	Received By: Jodi Henson	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☐ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: email results Hconder@riceswd.com; jwoodfin@rice-ecs.com; Lweinheimer@rice-ecs.com kjones@riceswd.com

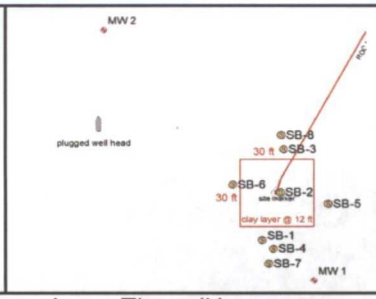
† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

NEED SAMPLES BACK, PLEASE

Appendix B

SB-7, SB-8, MW-1, and MW-2 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:	Kyle Norman		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME H-7 EOL **Well ID:** SB-7
Start Date:	8/30/2011		
End Date:	8/30/2011		**Project Consultant:** RECS

Comments: All samples were from cuttings. The soil bore was located 32 ft south of the former junction box site.

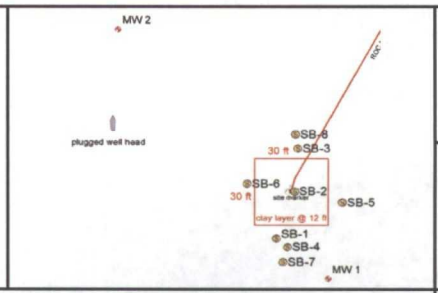
DRAFTED BY: L. Weinheimer

TD = 24 ft GW = 26 ft

Location: UL/H sec. 7 T20S R37E

Lat: 32°35'18.609"N **Long:** 103°17'6.652"W **County**: Lea **State**: NM

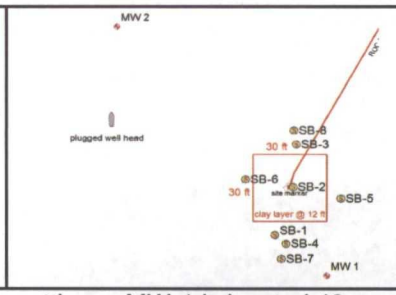
Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan Fine Silt		bentonite seal
SS	89		0.3			
3 ft	294		3.9			
6 ft	228		11.7			
9 ft	347		6.4			
12 ft	608	Cl- 608	0.9			
		GRO <10				
		DRO <10				
15 ft	508		3.3			
18 ft	373		2.5			
21 ft	574		5.5			
24 ft	533	Cl- 528	6	Red Fine Silt		
		GRO <10				
		DRO <10				

Logger:	Kyle Norman		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME H-7 EOL **Well ID:** SB-8
Start Date:	8/30/2011		
End Date:	8/30/2011		**Project Consultant:** RECS
Comments: All samples were from cuttings. The soil bore was located 26 ft north of the former junction box site. **DRAFTED BY: L. Weinheimer** TD = 24 ft GW = 26 ft			**Location:** UL/H sec. 7 T20S R37E **Lat:** 32°35'19.179"N **Long:** 103°17'6.59"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan Fine Silt		
SS	116		0.0			
				Tan Fine with some Caliche and Silt		
3 ft	118		2.5			
				Tan Fine Silt		
6 ft	146		4.4			
9 ft	819	Cl-944	2.0			
		GRO <10		Tan Fine with some Caliche and Silt		
		DRO <10				
12 ft	548		4.1			
15 ft	510		3.2			
				Tan Fine Silt		
18 ft	531		4.8			
				Tan Fine with some Caliche and Silt		
21 ft	882	Cl-1060	3.5			
		GRO <10				
		DRO <10				
24 ft	385	Cl-592	10.8			
		GRO <10				
		DRO 11.9				

bentonite seal

Logger:	Kyle Norman
Driller:	Harrison & Cooper, Inc.
Drilling Method:	Air rotary
Start Date:	8/30/2011
End Date:	8/30/2011



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS

Project Name: EME H-7 EOL **Well ID:** MW-1

Project Consultant: RECS

Comments: All samples were from cuttings. MW-1 is located 42 ft south southeast of the former junction box site.

DRAFTED BY: L. Weinheimer

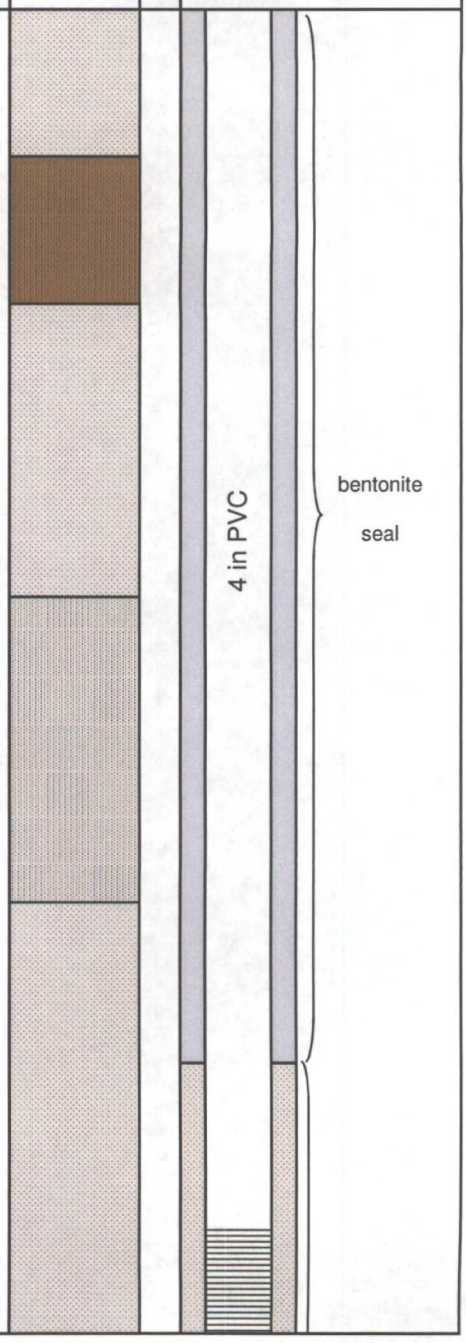
TD = 71 ft GW = 26 ft

Location: UL/H sec. 7 T20S R37E

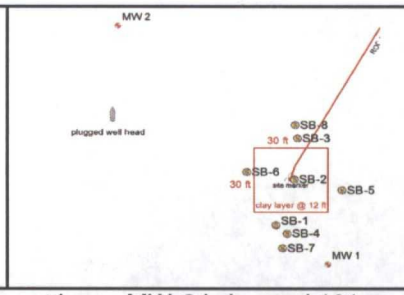
Lat: 32°35'18.534"N **Long:** 103°17'6.44"W

County: Lea **State:** NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Tan Fine Silt
SS	174		0.2	
				Brown Fine with some Caliche and Silt
3 ft	155		3	
				Tan Fine Silt
6 ft	146		3.7	
9 ft	214		13	
				Tan Fine with some Caliche and Silt
12 ft	399		13.4	
15 ft	370		3.3	
				Tan Fine Silt
18 ft	530	Cl- 736	2.7	
		GRO <10		
		DRO <10		
21 ft	466		1.7	



Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
24 ft	588	Cl- 576	1.5			
		GRO <10				
		DRO <10				
25 ft				NO SAMPLES TAKEN		
30ft						
35 ft						
40 ft						sand pack
45 ft						
50 ft						
55 ft						
60 ft						
65 ft						
70 ft						
71 ft						

Logger:	Kyle Norman		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME H-7 EOL **Well ID:** MW-2
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	8/30/2011		
End Date:	8/30/2011		

Comments: All samples were from cuttings. MW-2 is located 101 ft northwest of the former junction box site.

DRAFTED BY: L. Weinheimer

TD = 41 ft GW = 26 ft

Location: UL/H sec. 7 T20S R37E

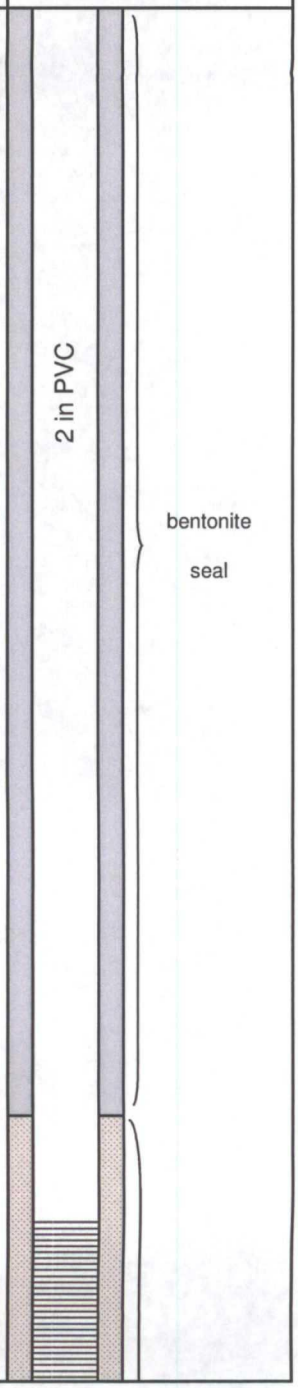
Lat: 32°35'19.647"N **Long:** 103°17'7.427"W

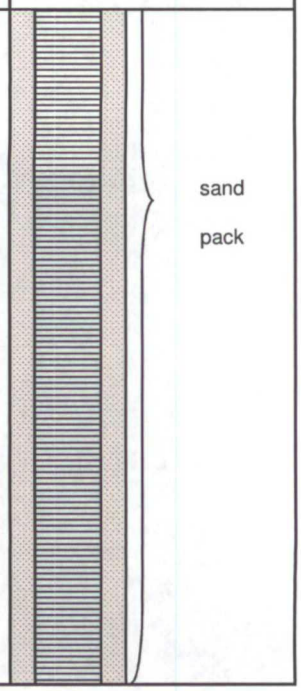
County: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Fine Silt
SS	89		0.5	
				Tan Fine with some Caliche and Silt
3 ft	425		38.5	
				Yellowish Tan Fine Silt
6 ft	387		35.2	
				Tan Fine with some Caliche and Silt
9 ft	435		19.7	
12 ft	494	Cl- 528	11.5	
		GRO <10		
		DRO <10		
15 ft	317		11.3	
18 ft	477		6.5	
				Red Fine Silt
21 ft	182		37.5	
24 ft	179	Cl- 128	17.4	

Lithology

Well Construction



Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
		GRO <10		NO SAMPLES TAKEN		
		DRO 16.5				
25 ft						
30ft						
35 ft						
40 ft						
41 ft						

CARDINAL Laboratories

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

September 09, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME H-7 EOL (20/37)

Enclosed are the results of analyses for samples received by the laboratory on 08/30/11 16:10.

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:	08/30/2011	Sampling Date:	08/30/2011
Reported:	09/09/2011	Sampling Type:	Soil
Project Name:	EME H-7 EOL (20/37)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SOIL BORE #7 @ 12' (H101842-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**608**	16.0	08/31/2011	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	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	

Surrogate: 1-Chlorooctane	*98.4 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*102 %*	*57.6-158*

Sample ID: SOIL BORE #7 @ 24' (H101842-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**528**	16.0	08/31/2011	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	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	

Surrogate: 1-Chlorooctane	*101 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*105 %*	*57.6-158*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/30/2011	Sampling Date:	08/30/2011
Reported:	09/09/2011	Sampling Type:	Soil
Project Name:	EME H-7 EOL (20/37)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SOIL BORE #8 @ 9' (H101842-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**944**	16.0	08/31/2011	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	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	

Surrogate: 1-Chlorooctane	*91.9 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*96.2 %*	*57.6-158*

Sample ID: SOIL BORE #8 @ 21' (H101842-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1060**	16.0	08/31/2011	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	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	

Surrogate: 1-Chlorooctane	*90.1 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*93.1 %*	*57.6-158*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

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

Received:	08/30/2011	Sampling Date:	08/30/2011
Reported:	09/09/2011	Sampling Type:	Soil
Project Name:	EME H-7 EOL (20/37)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SOIL BORE #8 @ 24' (H101842-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**592**	16.0	08/31/2011	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/02/2011	ND	172	86.1	200	1.25	
DRO >C10-C28	**11.9**	10.0	09/02/2011	ND	181	90.6	200	3.69	

Surrogate: 1-Chlorooctane	*99.9 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*103 %*	*57.6-158*

Sample ID: MW #1 @ 18' (H101842-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**736**	16.0	08/31/2011	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	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	

Surrogate: 1-Chlorooctane	*99.1 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*102 %*	*57.6-158*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/30/2011	Sampling Date:	08/30/2011
Reported:	09/09/2011	Sampling Type:	Soil
Project Name:	EME H-7 EOL (20/37)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: MW #1 @ 24' (H101842-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**576**	16.0	08/31/2011	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	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	

Surrogate: 1-Chlorooctane	*93.5 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*96.4 %*	*57.6-158*

Sample ID: MW #2 @ 12' (H101842-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**528**	16.0	08/31/2011	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	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	

Surrogate: 1-Chlorooctane	*104 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*107 %*	*57.6-158*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/30/2011	Sampling Date:	08/30/2011
Reported:	09/09/2011	Sampling Type:	Soil
Project Name:	EME H-7 EOL (20/37)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: MW #2 @ 24' (H101842-09)

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	08/31/2011	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/02/2011	ND	172	86.1	200	1.25	
DRO >C10-C28	**16.5**	10.0	09/02/2011	ND	181	90.6	200	3.69	

Surrogate: 1-Chlorooctane	*104 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*109 %*	*57.6-158*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: ~~RECS~~ Rice 9/8/11 ck	BILL TO
Project Manager: Hack Conder	P.O. #:
Address:	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: EME H-7 EOL 20-37	Phone #:
Sampler Name: Kyle Norman	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS					
H101842																									
1	Soil Bore #7 @ 12'	G	1			✓					✓		8-30-11	8:50	✓	✓									
2	Soil Bore #7 @ 24'	G	1			✓					✓		8-30-11	9:10	✓	✓									
3	Soil Bore #8 @ 9'	G	1			✓					✓		8-30-11	9:30	✓	✓									
4	Soil Bore #8 @ 21'	G	1			✓					✓		8-30-11	9:40	✓	✓									
5	Soil Bore #8 @ 24'	G	1			✓					✓		8-30-11	9:50	✓	✓									
6	MW #1 @ 18'	G	1			✓					✓		8-30-11	11 00	✓	✓									
7	MW #1 @ 24'	G	1			✓					✓		8-30-11	11:20	✓	✓									
8	MW #2 @ 12'	G	1			✓					✓		8-30-11	2:00	✓	✓									
9	MW #2 @ 24'	G	1			✓					✓		8-30-11	2:30	✓	✓									

Relinquished By:	Date: 8-30-11	Received By: Jodi Henson	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 4:10		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: email results Knorman@rice-ecs.com Kjones@riceswd.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com zconder@rice-ecs.com
	Time:		
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	

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

#26