1R - 427-231

WORKPLANS

Date:

7-25-11

Hansen, Edward J., EMNRD

From: Lara Weinheimer [lweinheimer@rice-ecs.com]
Sent: Tuesday, August 16, 2011 9:14 AM
To: Hansen, Edward J., EMNRD
Cc: Katie Jones; Hack Conder
Subject: UPDATED Corrective Action Plan for ROC's EME P-8-3 boot (1R427-231)
Attachments: EME P-8-3 boot (1R427-231) Updated CAP.pdf

Mr. Hansen,

Attached is an updated EME P-8-3 boot (1R427-231) Corrective Action Plan (CAP). Changes made to the attached document are summarized below. Page 3, section: Recommendations: text in blue lettering, below, will be added to the paragraph. If you need any further information, please let Hack or me know.

"Recommendations
RECS recommends the following as a Corrective Action Plan.

Groundwater
Since the site is located within the regionally impacted area, and the up-gradient monitor well has higher chloride and TDS readings than the source well, RECS determines that the P-8-3 site did not contribute to the degradation of the aquifer below the site. Residual soil chlorides remaining in the bottom 10 feet of the vadose zone within the impacted area average 404 mg/kg, while background concentrations observed at the same depths of the up-gradient MW-2 average 403 mg/kg. Therefore, this site will not impacted groundwater at concentrations greater than background. As such, ROC proposes to plug and abandon the two monitor wells (MW-1 and MW-2) at the site. The wells will be plugged with a 1 – 3% bentonite/concrete slurry and the top three feet of the wells will be capped with concrete.

Soil Remedy
In addition, ROC proposes to install a 20-mil, reinforced poly liner at 4-5 ft bgs measuring 44 ft x 35 ft (Figure 6). The liner will cover monitor well #1, extend 5 ft beyond SB-6 and SB-7, and will extend to the lease road to the north. The liner will provide a barrier that will inhibit the downward migration of chlorides to groundwater. The soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID measurement below 100 ppm. Excavated soil will be evaluated for use as backfill, and any soil requiring disposal will be properly disposed of at a NMOCD approved facility. 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.

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

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

Thank you,

Lara

Lara Weinheimer
Project Scientist
Rice Environmental Consulting & Safety
122 W. Taylor
Hobbs, NM 88240
(575) 441-0431

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 5740

July 25th, 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: **Corrective Action Plan**
Rice Operating Company – EME SWD System
EME P-8-3 boot (1R427-231): UL/P sec. 8 T20S R37E

Mr. Hansen:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site in the EME Salt Water Disposal (SWD) system. ROC is the service provider (agent) for the EME SWD System and has no ownership of any portion of the pipeline, well, or facility. The system is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage/usage basis.

This site is located approximately 3 miles south of Monument, New Mexico at UL/P sec. 8 T20S R37E as shown on the Site Location Map (Figure 1). Groundwater at this site is located at an approximate depth of 23 +/- feet.

Background and Previous Work

Junction Box Investigation

In 2007, ROC initiated work on the former EME P-8-3 boot junction. 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 trench, the 15 ft bgs sample was collected for laboratory verification. Laboratory tests of the site showed negligible gasoline range organics (GRO) and diesel range organics (DRO). However, chlorides concentrations from the trench did not relent with depth with the 15 foot sample testing at 624 ppm. The soil from the trench was taken to a disposal facility and clean imported soil was used to backfill the site and to contour it to the surrounding landscape. The site was seeded, and an identification plate was placed on the surface of the site to mark its location for future environmental considerations. NMOCD was notified of potential groundwater impact on March 13, 2008 and a junction box disclosure report was submitted to NMOCD with all the 2007 junction box closures and disclosures.

ICP Results

As part of the Investigation and Characterization Plan approved by NMOCD on December 22nd, 2010, five soil bores were advanced through the former junction box site to a depth of 21 ft bgs on December 8th and 10th, 2010 (Figure 4). ROC personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID). Representative samples from the bore were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers (Appendix A). Laboratory readings showed chloride numbers ranging from a high of 1,300 mg/kg at 9 ft bgs in soil bore #3 to a low of 272 mg/kg at 21 ft bgs in soil bore #5. Laboratory readings for GRO showed non-detect in all soil bores. However, laboratory DRO readings showed numbers of 77.7 mg/kg at 21 ft bgs in soil bore #1 and 149 mg/kg at 21 ft bgs in soil bore #5. All other DRO readings showed non-detect.

ICP Report Activities

Based on the delineation conducted during the ICP phase, RECS submitted an ICP Report on February 18th, 2011 which was approved by NMOCD on March 29th, 2011. The P-8-3 boot site was believed to be located within a regionally impacted groundwater area (Figure 2). As such, RECS recommended that ROC install a 4 inch, near source well approximately 25 ft southeast of the former junction box site and a 2 inch, up-gradient monitor well approximately 100 ft northwest of the former junction box site. ROC also proposed additional lateral delineation of soils surrounding the former box to determine the dimensions of an infiltration barrier.
On March 24th, 2011, four soil bores and the two monitor wells were installed at the site in accordance to the ICP Report (Figure 4). The four soil bores and the two monitor wells were field tested for chlorides and screened in the field with a photo-ionization detector (PID). Samples from each bore and well were taken to a commercial laboratory for analysis of chlorides and hydrocarbons (Appendix A). The soil bores had laboratory chloride readings ranging from a high of 640 mg/kg at 12 ft bgs in soil bore #7 to a low of 176 mg/kg at 21 ft bgs in soil bore #8. GRO and DRO readings throughout the bores showed non-detect except for 21 ft bgs in soil bore #6 which had a DRO reading of 176 mg/kg and 21 ft bgs in soil bore #8 which had a DRO reading of 376 mg/kg. The two monitor wells had chloride readings ranging from a high of 960 mg/kg at 12 ft bgs in the source well (MW-1) to a low of 400 mg/kg at 21 ft bgs in the up gradient monitor well (MW-2). GRO and DRO readings were non-detect except for 12 ft bgs in monitor well #2 which had a DRO reading of 28.2 mg/kg.

The monitor wells have been sampled once since their installation on April 8th, 2011 (Figure 5). The site was confirmed to be located with the regionally impacted groundwater area based on chloride and TDS concentration in the up-gradient monitoring well. The up-gradient well had higher chloride and TDS values than the source well with the up-gradient well having a laboratory chloride reading of 1,300 mg/L and a TDS reading of 3,160 mg/L and the source well having a chloride reading of 1,050 mg/L and a TDS reading of 2,870 mg/L. Both monitor wells had BTEX levels of non-detect (Appendix B). A plat showing the up-gradient area of the site is attached (Figure 3).

Recommendations

RECS recommends the following as a Corrective Action Plan.

Groundwater

Since the site is located with the regionally impacted area, and the up-gradient monitor well has higher chloride and TDS readings than the source well, RECS determines that the P-8-3 site did not contribute to the degradation of the aquifer below the site. Therefore, ROC proposes to plug and abandon the two monitor wells (MW-1 and MW-2) at the site. The wells will be plugged with a 1 – 3% bentonite/concrete slurry and the top three feet of the wells will be capped with concrete.

Soil Remedy

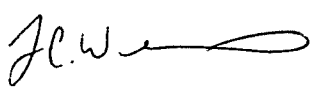
In addition, ROC proposes to install a 20-mil, reinforced poly liner at 4-5 ft bgs measuring 44 ft x 35 ft (Figure 6). The liner will cover monitor well #1, extend 5 ft beyond SB-6 and SB-7, and will extend to the lease road to the north. The liner will provide a barrier that will inhibit the downward migration of chlorides to groundwater. The soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID measurement below 100 ppm. Excavated soil will be evaluated for use as backfill, and any soil requiring disposal will be properly disposed of at a NMOCD approved facility.

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.

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

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

Sincerely,



Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

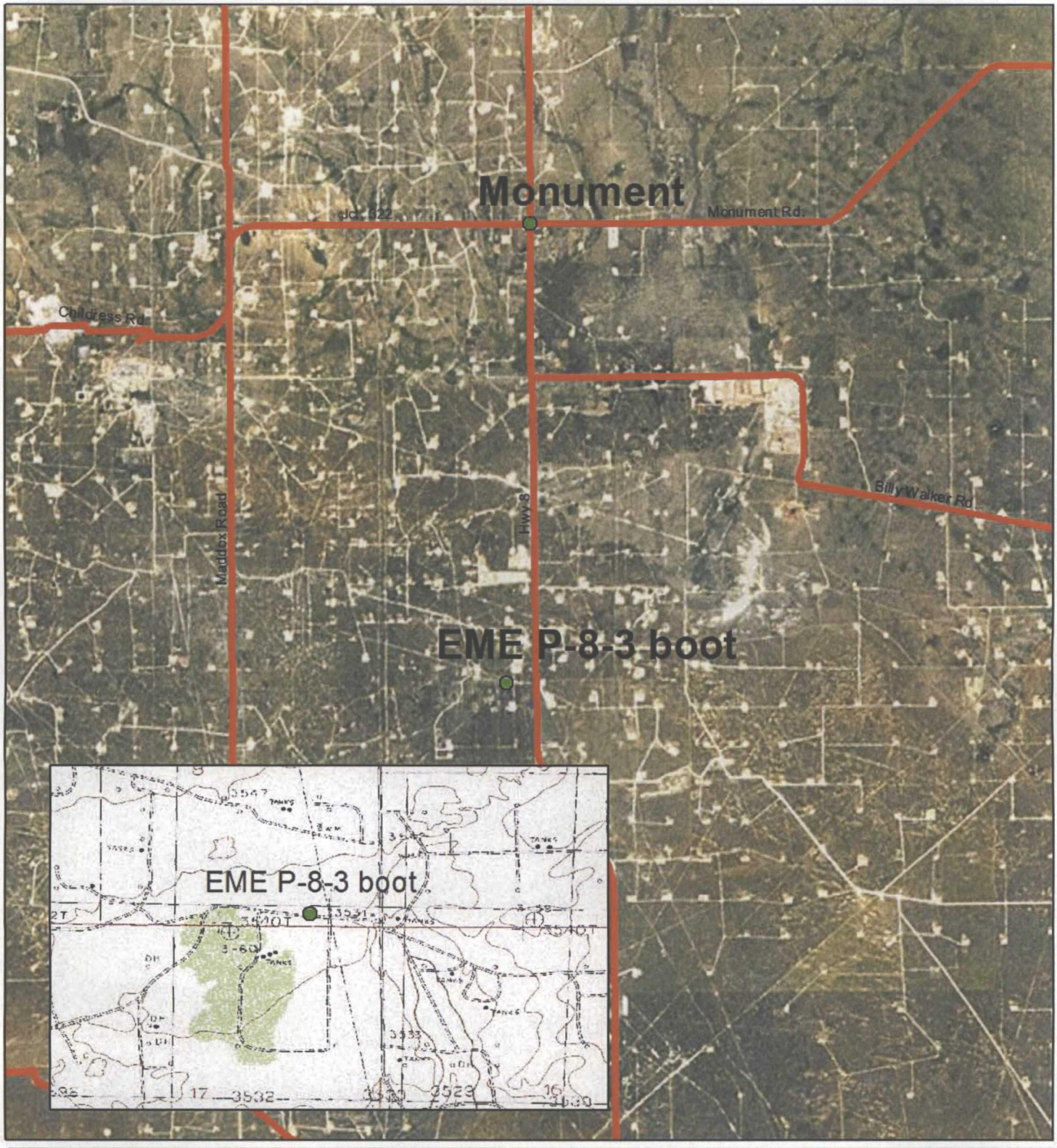
Attachments:

Figure 1 – Site location map
Figure 2 – Regionally impacted groundwater map
Figure 3 – Up gradient site location map
Figure 4 – Soil bore and Monitor well installation plat
Figure 5 – Monitor well sampling plat
Figure 6 – Proposed liner dimensions plat

Appendix A – Soil bore and Monitor well installation logs and laboratory confirmation
Appendix B – Monitor well sampling laboratory analysis

Figures

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



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

EME P-8-3 boot

Legals: UL/P sec. 8
T20S R37E

Case #: 1R427-231

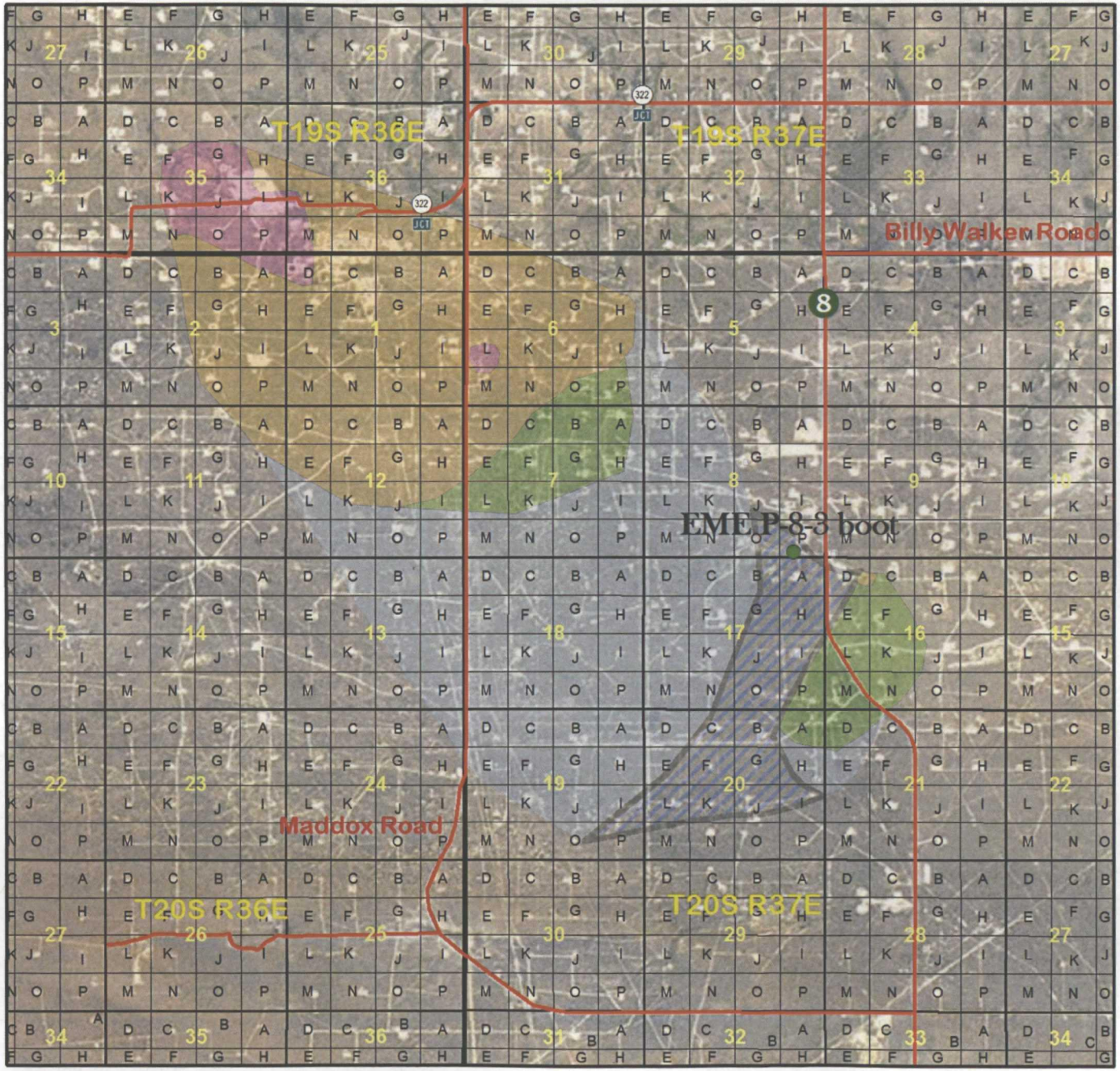
Figure 1

N
W E
S

0 2,300 4,600 9,200
Feet

Drawing date:11-17-10
Drafted by: L. Weinheimer

EME Groundwater Contamination



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RECS

122 W. Taylor
Hobbs, NM 88240
Phone (575) 393-9174
Fax (575) 397-1471

- Cl- concentration > 10,000
- 10,000 > Cl- concentration > 5,000
- 5,000 > Cl- concentration > 2,000
- 2,000 > Cl- concentration > 700
- Hypothetical Cl- contamination area

N W E S

0 0.5 1 Miles

This map was prepared by and for Rice Operating Company. This map represents the known chloride impact concentrations in the groundwater as of 2011. As conditions change and/or new monitor wells are added, the contamination plume will undergo permutations that will be reflected in future maps. Rice Operating Company does not assume any responsibility for the use of this information by others.

Drawing date: 12-15-09
Revision date:1-11-11
Drafted by: Lara Weinheimer

Figure 2

Up-gradient Site Map

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC
RECS

EME P-8-3 boot

Legals: UL/P sec. 8
T20S R37E

Case #: 1R427-231

Figure 3

N
W E
S

0 445 890 1,780
Feet

Drawing date: 6-29-11
Drafted by: L. Weinheimer

Soil bore and Monitor well information

SB-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO
15	565	0	624	<10	<10
18	471	0			
21	332	0	320	<10	77.7

SB-2

Depth	Cl-	PID	Cl- LAB	GRO	DRO
3	165	0			
6	290	0			
9	242	0			
12	478	0	960	<10	<10
15	391	0			
18	370	0			
21	309	0	480	<10	<10

SB-3

Depth	Cl-	PID	LAB Cl-	GRO	DRO
3	145	0			
6	690	0			
9	878	0	1300	<10	<10
12	481	0			
15	400	0			
18	550	0			
21	309	0	384	<10	<10

MW 2

SB-4

Depth	Cl-	PID	LAB Cl-	GRO	DRO
3	485	0			
6	447	0			
9	634	0	944	<10	<10
12	543	0			
15	380	0			
18	396	0			
21	398	0	528	<10	<10

SB-5

Depth	Cl-	PID	LAB Cl-	GRO	DRO
3	170	0			
6	227	0			
9	630	0	976	<10	<10
12	531	0			
15	444	0			
18	333	0			
21	210	0	272	<10	149

SB-6

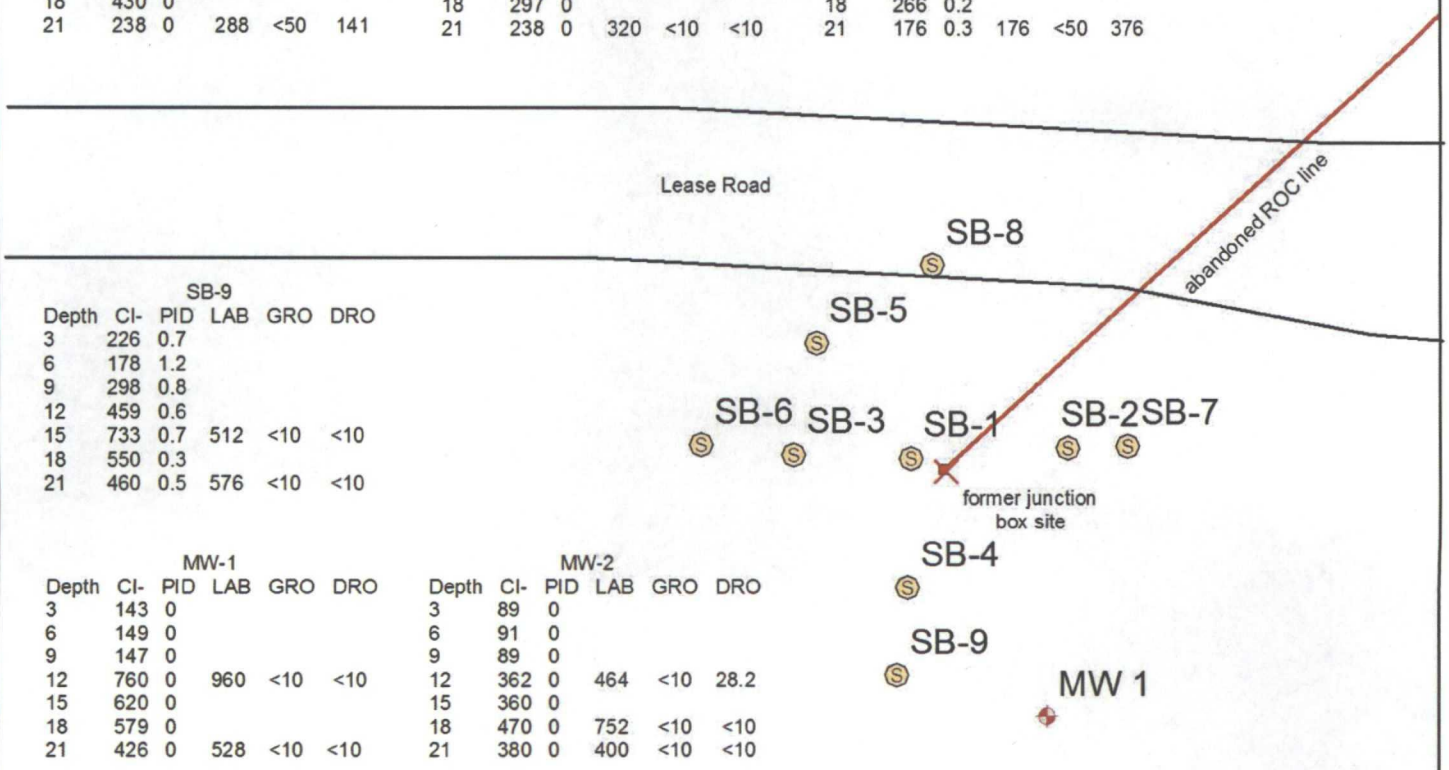
Depth	Cl-	PID	LAB	GRO	DRO
3	234	0.3			
6	284	0.1			
9	447	0.1	544	<10	<10
12	507	0			
15	540	0	576	<10	<10
18	430	0			
21	238	0	288	<50	141

SB-7

Depth	Cl-	PID	LAB	GRO	DRO
3	141	0			
6	141	0			
9	480	0			
12	503	0	640	<10	<10
15	406	0			
18	297	0			
21	238	0	320	<10	<10

SB-8

Depth	Cl-	PID	LAB	GRO	DRO
3	146	0.3			
6	150	1.3			
9	408	2.1	496	<10	<10
12	294	2.2			
15	298	0.3			
18	266	0.2			
21	176	0.3	176	<50	376



SB-9

Depth	Cl-	PID	LAB	GRO	DRO
3	226	0.7			
6	178	1.2			
9	298	0.8			
12	459	0.6			
15	733	0.7	512	<10	<10
18	550	0.3			
21	460	0.5	576	<10	<10

MW-1

Depth	Cl-	PID	LAB	GRO	DRO
3	143	0			
6	149	0			
9	147	0			
12	760	0	960	<10	<10
15	620	0			
18	579	0			
21	426	0	528	<10	<10

MW-2

Depth	Cl-	PID	LAB	GRO	DRO
3	89	0			
6	91	0			
9	89	0			
12	362	0	464	<10	28.2
15	360	0			
18	470	0	752	<10	<10
21	380	0	400	<10	<10

DGW = 23 ft

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME P-8-3 boot

Legals: UL/P sec. 8
T20S R37E

Case #: 1R427-231

Figure 4

N W E S

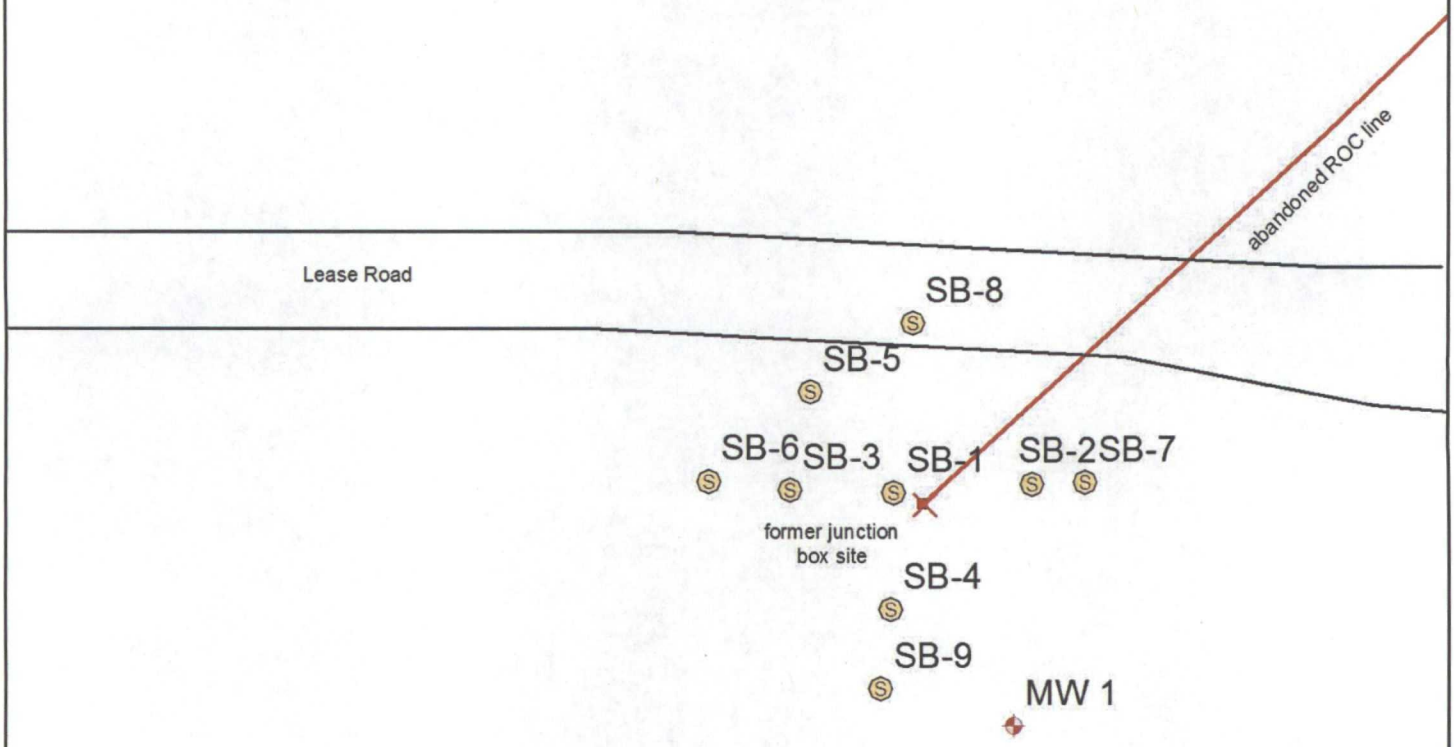
0 5 10 20 Feet

Drawing date: 3-31-11
Drafted by: L. Weinheimer

Monitor Well Sampling

MW 2

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	24.88	39.96	2.4	12	4/8/2011	1300	3160	<0.001	<0.001	<0.001	<0.003	761	clear no odor



MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	26.44	56.44	19.4	80	4/8/2011	1050	2870	<0.001	<0.001	<0.001	<0.003	640	clear no odor

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME P-8-3 boot

Legals: UL/P sec. 8
T20S R37E

Case #: 1R427-231

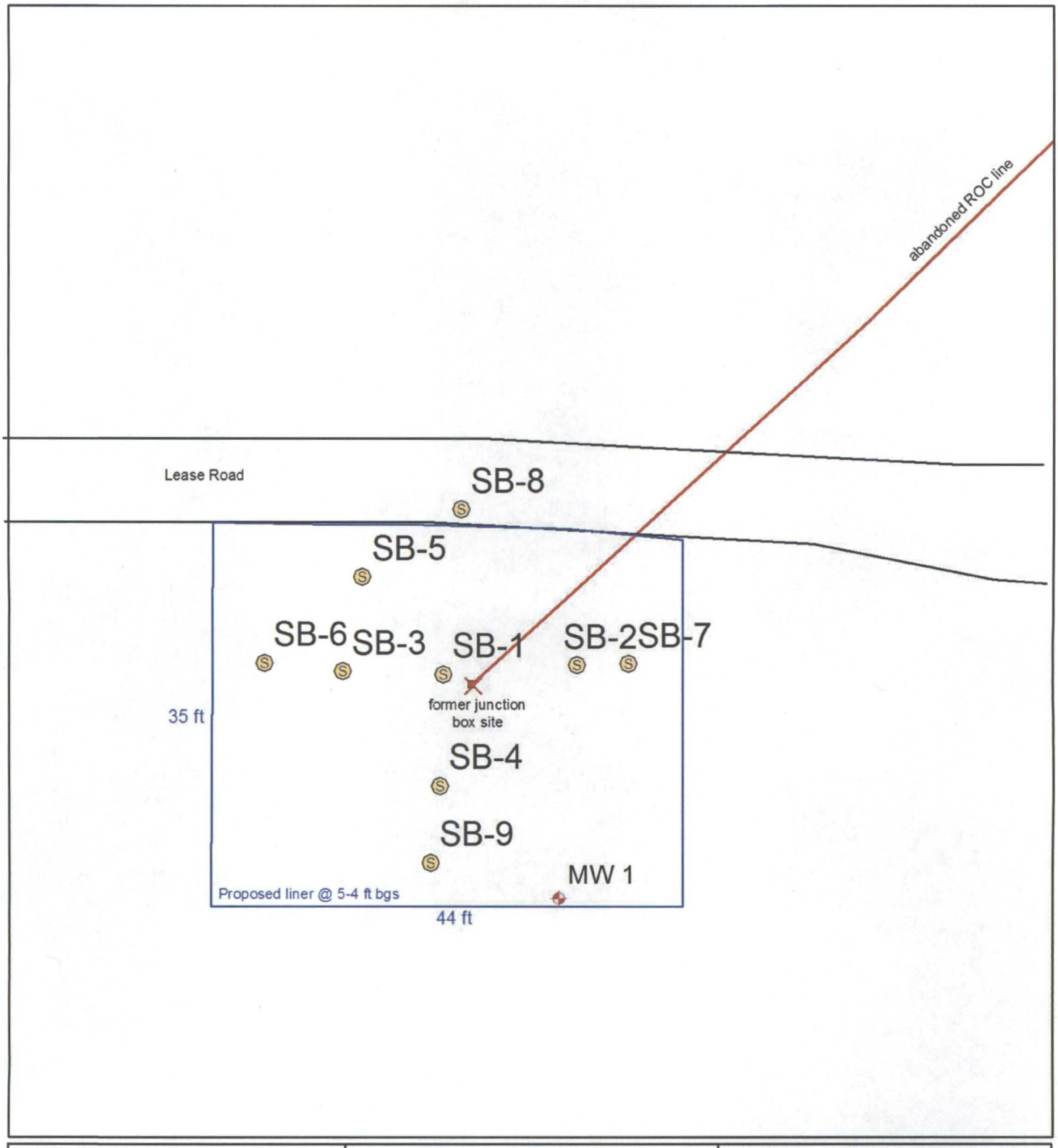
Figure 5

N W E S

0 5 10 20 Feet

Drawing date:6-29-11
Drafted by: L. Weinheimer

Proposed Liner



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME P-8-3 boot

Legals: UL/P sec. 8
T20S R37E

Case #: 1R427-231

Figure 6

N W E S

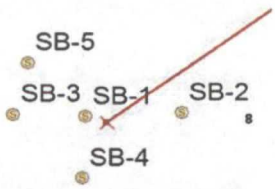
0 5 10 20 Feet

Drawing date: 6-29-11
Drafted by: L. Weinheimer

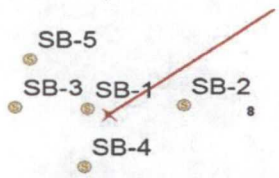
Appendix A

Soil bore and Monitor well installation logs and laboratory confirmation

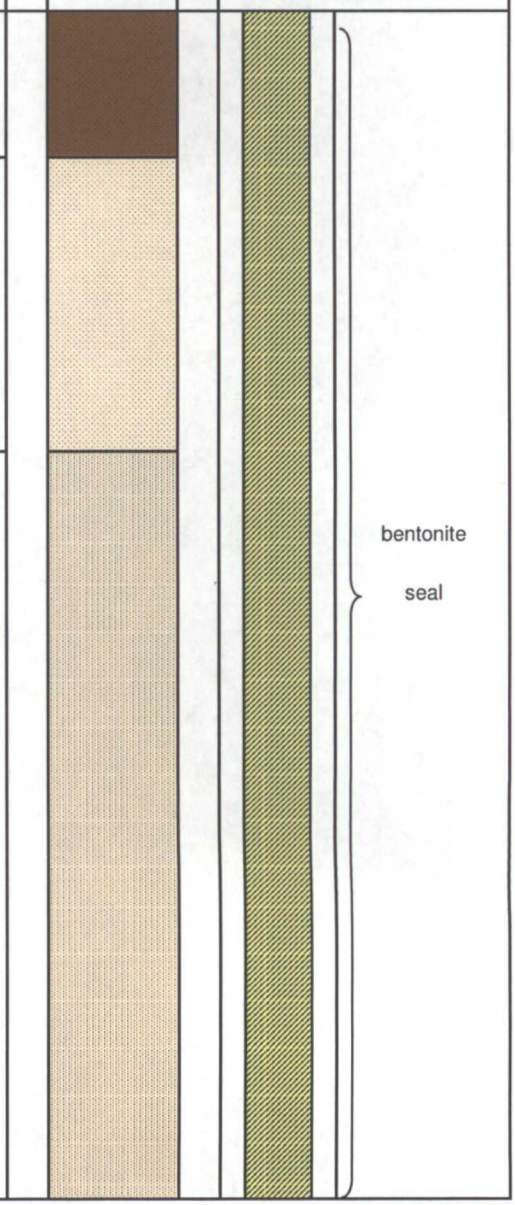
RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

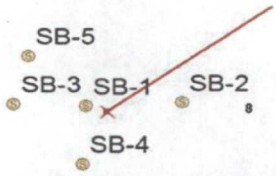
Logger:	Jordan Woodfin		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME P-8-3 boot **Well ID:** SB-1
Start Date:	12/8/2010		
End Date:	12/8/2010		**Project Consultant:** RECS
Comments: Located at the source of the former junction box site.			**Location:** UL/P sec. 8 T20S R37E
DRAFTED BY: L. Weinheimer			**Lat:** 32°34'51.143"N **County**: LEA
TD = 21 ft	GW = 23 ft		**Long:** 103°16'5.578"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan very fine silty sand with small caliche fragments		bentonite seal
15 ft	565	Cl- 624	0			
		GRO <10				
		DRO <10				
18ft	471		0			
21 ft	332	Cl- 320	0			
		GRO <10				
		DRO 77.7				

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME P-8-3 boot **Well ID:** SB-2
Start Date:	12/8/2010		
End Date:	12/8/2010		**Project Consultant:** RECS
Comments: Located 10 ft east of the former junction box site.			**Location:** UL/P sec. 8 T20S R37E
DRAFTED BY: L. Weinheimer			**Lat:** 32°34'51.149"N **County**: LEA
TD = 21 ft	GW = 23 ft		**Long:** 103°16'5.43"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Brown very fine sand
3 ft	165		0	
				Tan very fine silty sand
6 ft	290		0	
9 ft	242		0	
				Tan very fine sand with very small caliche fragments
12 ft	478	Cl- 960	0	
		GRO <10		
		DRO <10		
15 ft	391		0	
18 ft	370		0	
21 ft	309	Cl- 480	0	
		GRO <10		
		DRO <10		



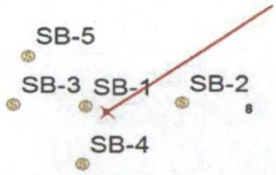
Logger:	Jordan Woodfin		**Project Name:** EME P-8-3 boot **Well ID:** SB-3
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	12/8/2010		
End Date:	12/8/2010		
Comments: Located 12 ft west of the former junction box site.			**Location:** UL/P sec. 8 T20S R37E
DRAFTED BY: L. Weinheimer			**Lat:** 32°34'51.147"N **County**: LEA
TD = 21 ft	GW = 23 ft		**Long:** 103°16'5.687"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Brown very fine sand slightly consolidated
3 ft	145		0	
				Tan fine silty sand
6 ft	690		0	
9 ft	878	Cl- 1300	0	
		GRO <10		Tan very fine silty sand with caliche fragments
		DRO <10		
12 ft	481		0	
15 ft	400		0	
18 ft	550		0	
21 ft	309	Cl- 384	0	
		GRO <10		
		DRO <10		

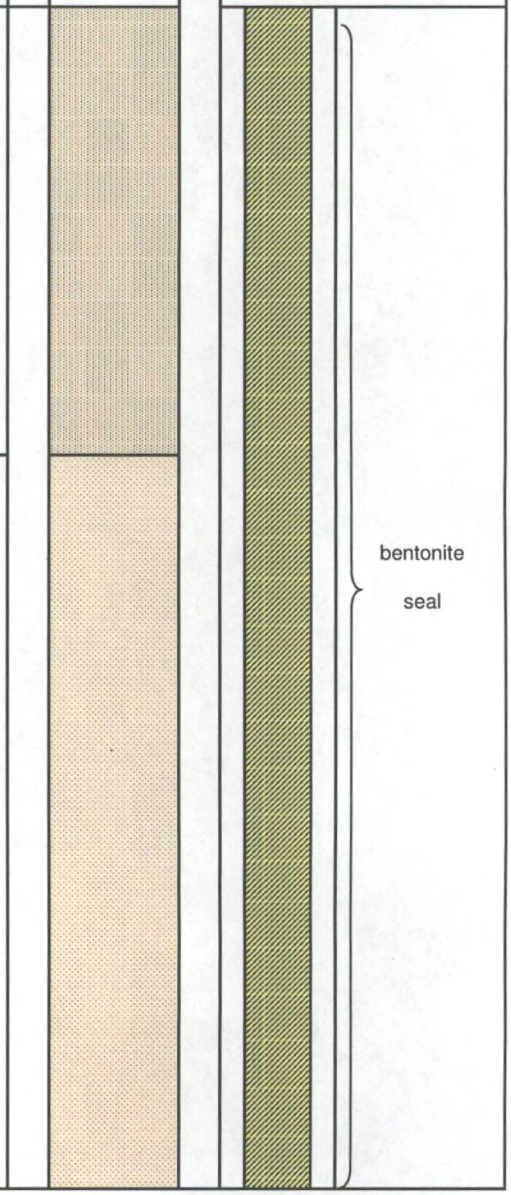
Lithology

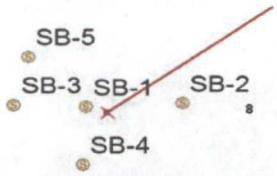
Well Construction

bentonite seal

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME P-8-3 boot **Well ID:** SB-4
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	12/8/2010		
End Date:	12/8/2010		
Comments: Located 10 ft south of the former junction box site.			**Location:** UL/P sec. 8 T20S R37E
DRAFTED BY: L. Weinheimer			**Lat:** 32°34'51.041"N **County**: LEA
TD = 21 ft	GW = 23 ft		**Long:** 103°16'5.582"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Tan silty sand with small caliche fragments
3 ft	485		0	
6 ft	447		0	
9 ft	634	Cl- 944	0	
		GRO <10		Tan very fine silty sand with small caliche fragments
		DRO <10		
12 ft	543		0	
15 ft	380		0	
18 ft	396		0	
21 ft	398	Cl- 528	0	
		GRO <10		
		DRO <10		



Logger:	Jordan Woodfin		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME P-8-3 boot **Well ID:** SB-5
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	12/10/2010		
End Date:	12/10/2010		
Comments: Located 14 ft north west of the former junction box site.			**Location:** UL/P sec. 8 T20S R37E
DRAFTED BY: L. Weinheimer			**Lat:** 32°34'51.233"N **County**: LEA
TD = 21 ft	GW = 23 ft		**Long:** 103°16'5.665"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Brown very fine sand (slightly consolidated)
3 ft	170		0	
				Tan silty sand with caliche fragments
6 ft	227		0	
				Light brown fine silty sand with caliche fragments
9 ft	630	Cl- 976	0	
		GRO <10		
		DRO <10		
12 ft	531		0	
15 ft	444		0	
18 ft	333		0	
21 ft	210	Cl- 272	0	
		GRO <10		
		DRO 149		

Lithology

Well Construction: bentonite seal

CARDINAL Laboratories

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

December 13, 2010

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME JCT P-8-3

Enclosed are the results of analyses for samples received by the laboratory on 12/09/10 9:50.

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:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME JCT P-8-3	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SB #1 @ 15' (H021480-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**624**	16.0	12/10/2010	ND	416	104	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	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	<10.0	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate: 1-Chlorooctane	*87.7 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*92.5 %*	*70-130*

Sample ID: SB #1 @ 21' (H021480-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**320**	16.0	12/10/2010	ND	416	104	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	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	**77.7**	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate: 1-Chlorooctane	*102 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*105 %*	*70-130*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME JCT P-8-3	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SB #2 @ 12' (H021480-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**960**	16.0	12/10/2010	ND	416	104	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	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	<10.0	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate: 1-Chlorooctane	*90.9 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*94 4 %*	*70-130*

Sample ID: SB #2 @ 21' (H021480-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**480**	16.0	12/10/2010	ND	416	104	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	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	<10.0	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate. 1-Chlorooctane	*89 7 %*	*70-130*
Surrogate 1-Chlorooctadecane	*92.7 %*	*70-130*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME JCT P-8-3	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SB #3 @ 9' (H021480-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1300**	16.0	12/10/2010	ND	416	104	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	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	<10.0	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate: 1-Chlorooctane	*88.0 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*99 1 %*	*70-130*

Sample ID: SB #3 @ 21' (H021480-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**384**	16.0	12/10/2010	ND	416	104	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	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	<10.0	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate. 1-Chlorooctane	*98 3 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*103 %*	*70-130*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME JCT P-8-3	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SB #4 @ 9' (H021480-07)

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	12/10/2010	ND	416	104	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	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	<10.0	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane	*111 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*114 %*	*70-130*

Sample ID: SB #4 @ 21' (H021480-08)

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	12/10/2010	ND	416	104	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	12/10/2010	ND	190	95.1	200	14.3	
DRO >C10-C28	<10.0	10.0	12/10/2010	ND	187	93.7	200	5.04	

Surrogate: 1-Chlorooctane	*85 4 %*	*70-130*
Surrogate. 1-Chlorooctadecane	*90 1 %*	*70-130*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Rice Operating Company	BILL TO
Project Manager: Hack Conder	P.O. #:
Address: 122 West Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: 575-393-9174 Fax #: 575-397-1471	Address:
Project #: Project Owner:	City:
Project Name: EME JCT P-8-3	State: Zip:
Project Location: EME JCT P-8-3	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						
H21480-1	SB #1 @15'		1			✓					✓		12/8/10	02:00	✓	✓										
2	SB #1 @21'		1			✓					✓			02:15	✓	✓										
3	SB #2 @12'		1			✓					✓			02:30	✓	✓										
4	SB #2 @21'		1			✓					✓			02:45	✓	✓										
5	SB #3 @9'		1			✓					✓			03:00	✓	✓										
6	SB #3 @21'		1			✓					✓			03:15	✓	✓										
7	SB #4 @9'		1			✓					✓			03:45	✓	✓										
8	SB #4 @21'		1			✓					✓			04:00	✓	✓										

Relinquished By: Jordan Woodfin	Date: 12/9/10 Time: 9:50	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: 12/9/10 Time: 9:50	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 kjones@riceswd.com

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

#26

NEED SAMPLES BACK, PLEASE

CARDINAL Laboratories

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

December 15, 2010

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME JCT P-8-3

Enclosed are the results of analyses for samples received by the laboratory on 12/10/10 16:45.

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:	12/10/2010	Sampling Date:	12/10/2010
Reported:	12/15/2010	Sampling Type:	Soil
Project Name:	EME JCT P-8-3	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SB #5 @ 9' (H021499-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**976**	16.0	12/13/2010	ND	416	104	400	3.77	

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	12/14/2010	ND	213	106	200	6.74	
DRO >C10-C28	<10.0	10.0	12/14/2010	ND	226	113	200	5.87	

Surrogate: 1-Chlorooctane	*90 0 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*90 1 %*	*70-130*

Sample ID: SB #5 @ 21' (H021499-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**272**	16.0	12/13/2010	ND	416	104	400	3.77	

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	12/14/2010	ND	213	106	200	6.74	
DRO >C10-C28	**149**	10.0	12/14/2010	ND	226	113	200	5.87	

Surrogate 1-Chlorooctane	*92 6 %*	*70-130*
Surrogate 1-Chlorooctadecane	*92 3 %*	*70-130*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Rice Operating Company	BILL TO
Project Manager: Hack Conder	P.O. #:
Address: 122 West Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: 575-393-9174 Fax #: 575-397-1471	Address:
Project #: Project Owner:	City:
Project Name: EME Jct P-8-3	State: Zip:
Project Location: EME Jct P-8-3	Phone #:
Sampler Name: Jordan Woodfin	Fax #:

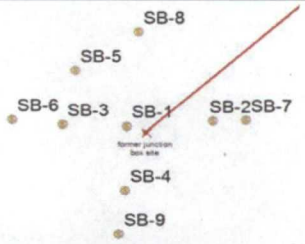
FOR LAB USE ONLY				MATRIX						PRESERV.		SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TPH 8015 M Extended Thru C40					
H21499-1	SB #5 @ 9'	G	1			✓					✓		12/10/10	08:15	✓	✓									
-2	SB #5 @ 21'	G	1			✓					✓		12/10/10	08:30	✓	✓									

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.

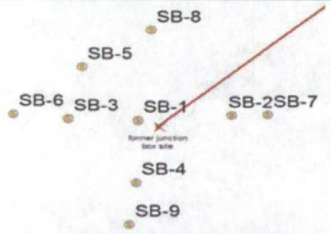
Relinquished By: Jordan Woodfin	Date: 12/10/10 Time: 9:45	Received By: Jodi Henson	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☑ Yes ☐ No Intact: ☐ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: email results Hconder@riceswd.com; jwoodfin@riceswd.com; Lweinheimer@riceswd.com kjones@riceswd.com

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

NEED SAMPLES BACK, PLEASE

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME P-8-3 boot **Well ID:** SB-6
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	3/24/2011		
End Date:	3/24/2011		
Comments: All samples are from cuttings. Located 19 ft west of the former junction box site. **DRAFTED BY: L. Weinheimer** TD = 21 ft GW = 23 ft			**Location:** UL/P sec. 8 T20S R37E **Lat:** 32°34'51.155"N **Long:** 103°16'5.773"W **County**: LEA **State**: NM

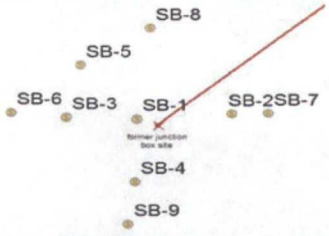
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Well consolidated brownish yellow fine sand		
3 ft	234		0.3			
				Tan to yellow slightly consolidated silty sand		
6 ft	284		0.1			
				Tan slightly consolidated silty sand		
9 ft	447	Cl- 544	0.1			
		GRO <10		Tan well consolidated fine sand		
		DRO <10				bentonite seal
12 ft	507		0.0			
				Tan to red slightly consolidated silty sand		
15 ft	540	Cl- 576	0.0			
		GRO <10				
		DRO <10				
18 ft	430		0.0			
21 ft	238	Cl- 288	0.0			
		GRO <50				
		DRO 141				

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME P-8-3 boot **Well ID:** SB-7
Start Date:	3/24/2011		**Project Consultant:** RECS
End Date:	3/24/2011		
Comments: All samples are from cuttings. Located 14 ft east of the former junction box site. **DRAFTED BY: L. Weinheimer** TD = 21 ft GW = 23 ft			**Location:** UL/P sec. 8 T20S R37E **Lat:** 32°34'51.152"N **Long:** 103°16'5.374"W **County**: LEA **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Tan very fine sand with caliche
3 ft	141		0	
				Tan yellowish fine silty sand with small caliche
6 ft	141		0	
				Tan very fine silty sand
9 ft	480		0	
				Tan to light brown very fine silty sand with caliche
12 ft	503	Cl- 640	0	
		GRO <10		
		DRO <10		
15 ft	406		0	
18 ft	297		0	
21 ft	238	Cl- 320	0	
		GRO <10		
		DRO <10		

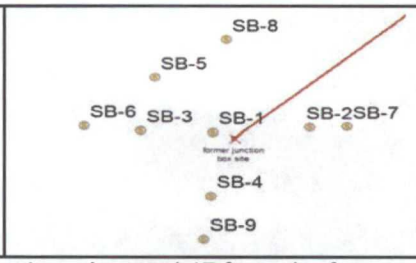
Lithology

Well Construction: bentonite seal

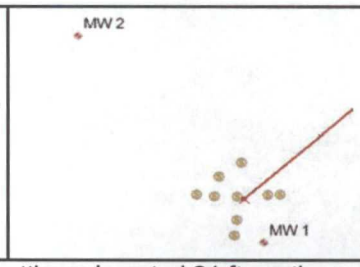
Logger:	Jordan Woodfin		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME P-8-3 boot **Well ID:** SB-8
Start Date:	3/24/2011		**Project Consultant:** RECS
End Date:	3/24/2011		**Location:** UL/P sec. 8 T20S R37E
Comments: All samples are from cuttings. Located 16 ft north of the former junction box site. **DRAFTED BY: L. Weinheimer** TD = 21 ft GW = 23 ft			**Lat:** 32°34'51.295"N **County**: LEA **Long:** 103°16'5.555"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan caliche		
3 ft	146		0.3			
				Tan fine silty sand with caliche		
6 ft	150		1.3			
9 ft	408	Cl- 496	2.1			
		GRO <10				
		DRO <10				
12 ft	294		2.2			
				Red fine silty sand		
15 ft	298		0.3			
				Tan fine silty sand with caliche		
18 ft	266		0.2			
21 ft	176	Cl- 176	0.3			
		GRO <50				
		DRO 376				

bentonite seal

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME P-8-3 boot **Well ID:** SB-9
Start Date:	3/24/2011		
End Date:	3/24/2011		**Project Consultant:** RECS
Comments: All samples are from cuttings. Located 17 ft south of the former junction box site. **DRAFTED BY: L. Weinheimer** TD = 21 ft GW = 23 ft			**Location:** UL/P sec. 8 T20S R37E **Lat:** 32°34'50.971"N **Long:** 103°16'5.593"W **County**: LEA **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
3 ft	226		0.7	Tan fine sand with caliche		
6 ft	178		1.2			
9 ft	298		0.8			
12 ft	459		0.6	Tan very fine silty sand		bentonite seal
15 ft	733	Cl- 512	0.7			
		GRO <10				
		DRO <10				
18 ft	550		0.3			
				Tan very fine silty sand with caliche		
21 ft	460	Cl- 576	0.5			
		GRO <10				
		DRO <10				

Logger:	Jordan Woodfin		**Project Name:** EME P-8-3 boot **Well ID:** MW-1 **Project Consultant:** RECS
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		
Start Date:	3/24/2011		
End Date:	3/24/2011		

Comments: All samples are from cuttings. Located 21 ft south-east of the former junction box site.

DRAFTED BY: L. Weinheimer

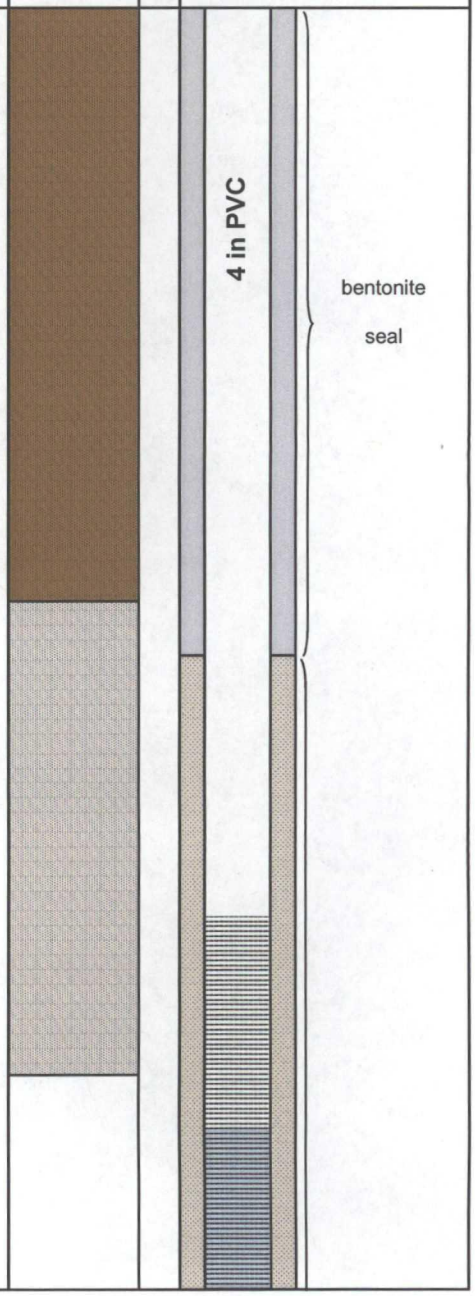
TD = 68 ft GW = 23 ft

Location: UL/P sec. 8 T20S R37E

Lat: 32°34'50.937"N **Long:** 103°16'5.453"W

County: LEA **State:** NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Light brown fine sand with small caliche fragments
3 ft	143		0	
6 ft	149		0	
9 ft	147		0	
12 ft	760	Cl- 960	0	
		GRO <10		Tan very fine silty sand with medium caliche fragments
		DRO <10		
15 ft	620		0	
18 ft	579		0	
21 ft	426	Cl- 528	0	
		GRO <10		
		DRO <10		
35 ft				



Depth (feet)	chloride field tests	LAB	PID	Description		Lithology		Well Construction
				NO SAMPLES TAKEN				sand pack
40 ft								
45 ft								
50 ft								
55 ft								
60 ft								
65 ft								
68 ft								

CARDINAL Laboratories

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

March 31, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME P-8-3 BOOT

Enclosed are the results of analyses for samples received by the laboratory on 03/25/11 8:25.

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:	03/25/2011	Sampling Date:	03/24/2011
Reported:	03/31/2011	Sampling Type:	Soil
Project Name:	EME P-8-3 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME P-8-3 BOOT		

Sample ID: SB 6 @ 9 FT (H100581-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**544**	16.0	03/28/2011	ND	416	104	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	03/28/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/28/2011	ND	116	116	100	0.490	

Surrogate. 1-Chlorooctane	*87.2 %*	*70-130*
Surrogate 1-Chlorooctadecane	*81 1 %*	*70-130*

Sample ID: SB 6 @ 15 FT (H100581-02)

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	03/28/2011	ND	416	104	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	03/28/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/28/2011	ND	116	116	100	0.490	

Surrogate 1-Chlorooctane	*89.0 %*	*70-130*
Surrogate 1-Chlorooctadecane	*87.1 %*	*70-130*

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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:	03/25/2011	Sampling Date:	03/24/2011
Reported:	03/31/2011	Sampling Type:	Soil
Project Name:	EME P-8-3 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME P-8-3 BOOT		

Sample ID: SB 6 @ 21 FT (H100581-03)

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	03/28/2011	ND	416	104	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	<50.0	50.0	03/28/2011	ND	108	108	100	1.11	
DRO >C10-C28	**141**	50.0	03/28/2011	ND	116	116	100	0.490	

Surrogate: 1-Chlorooctane	*90.5 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*77.5 %*	*70-130*

Sample ID: SB 7@ 12 FT (H100581-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**640**	16.0	03/28/2011	ND	416	104	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	03/28/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/28/2011	ND	116	116	100	0.490	

Surrogate: 1-Chlorooctane	*97.6 %*	*70-130*
Surrogate 1-Chlorooctadecane	*89 0 %*	*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:	03/25/2011	Sampling Date:	03/24/2011
Reported:	03/31/2011	Sampling Type:	Soil
Project Name:	EME P-8-3 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME P-8-3 BOOT		

Sample ID: SB 7 @ 21 FT (H100581-05)

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	03/29/2011	ND	416	104	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	03/28/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/28/2011	ND	116	116	100	0.490	

Surrogate. 1-Chlorooctane	*92.8 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*90.8 %*	*70-130*

Sample ID: SB 8 @ 9 FT (H100581-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**496**	16.0	03/29/2011	ND	416	104	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	03/28/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/28/2011	ND	116	116	100	0.490	

Surrogate: 1-Chlorooctane	*91 3 %*	*70-130*
Surrogate. 1-Chlorooctadecane	*86 5 %*	*70-130*

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Analytical Results For:

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

Received:	03/25/2011	Sampling Date:	03/24/2011
Reported:	03/31/2011	Sampling Type:	Soil
Project Name:	EME P-8-3 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME P-8-3 BOOT		

Sample ID: SB 8 @ 21 FT (H100581-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**176**	16.0	03/29/2011	ND	416	104	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	<50.0	50.0	03/28/2011	ND	108	108	100	1.11	
DRO >C10-C28	**376**	50.0	03/28/2011	ND	116	116	100	0.490	

Surrogate: 1-Chlorooctane	*104 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*99.7 %*	*70-130*

Sample ID: SB 9 @ 15 FT (H100581-08)

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	03/29/2011	ND	416	104	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	03/28/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/28/2011	ND	116	116	100	0.490	

Surrogate: 1-Chlorooctane	*108 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*106 %*	*70-130*

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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:	03/25/2011	Sampling Date:	03/24/2011
Reported:	03/31/2011	Sampling Type:	Soil
Project Name:	EME P-8-3 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME P-8-3 BOOT		

Sample ID: SB 9 @ 21 FT (H100581-09)

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	03/29/2011	ND	416	104	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	03/29/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/29/2011	ND	116	116	100	0.490	

Surrogate. 1-Chlorooctane	*93.6 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*84.7 %*	*70-130*

Sample ID: MW - 1 @ 12 FT (H100581-10)

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	03/29/2011	ND	416	104	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	03/29/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/29/2011	ND	116	116	100	0.490	

Surrogate 1-Chlorooctane	*89.1 %*	*70-130*
Surrogate 1-Chlorooctadecane	*86.7 %*	*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:	03/25/2011	Sampling Date:	03/24/2011
Reported:	03/31/2011	Sampling Type:	Soil
Project Name:	EME P-8-3 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME P-8-3 BOOT		

Sample ID: MW - 1 @ 21 FT (H100581-11)

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	03/29/2011	ND	416	104	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	03/29/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/29/2011	ND	116	116	100	0.490	

Surrogate. 1-Chlorooctane	*105 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*104 %*	*70-130*

Sample ID: MW - 2 @ 12 FT (H100581-12)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**464**	16.0	03/29/2011	ND	416	104	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	03/29/2011	ND	108	108	100	1.11	
DRO >C10-C28	**28.2**	10.0	03/29/2011	ND	116	116	100	0.490	

Surrogate: 1-Chlorooctane	*105 %*	*70-130*
Surrogate 1-Chlorooctadecane	*102 %*	*70-130*

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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:	03/25/2011	Sampling Date:	03/24/2011
Reported:	03/31/2011	Sampling Type:	Soil
Project Name:	EME P-8-3 BOOT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME P-8-3 BOOT		

Sample ID: MW - 2 @ 18 FT (H100581-13)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**752**	16.0	03/29/2011	ND	416	104	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	03/29/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/29/2011	ND	116	116	100	0.490	

Surrogate: 1-Chlorooctane	*95 0 %*	*70-130*
Surrogate. 1-Chlorooctadecane	*91.3 %*	*70-130*

Sample ID: MW - 2 @ 21 FT (H100581-14)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**400**	16.0	03/29/2011	ND	416	104	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	03/29/2011	ND	108	108	100	1.11	
DRO >C10-C28	<10.0	10.0	03/29/2011	ND	116	116	100	0.490	

Surrogate: 1-Chlorooctane	*101 %*	*70-130*
Surrogate 1-Chlorooctadecane	*96 1 %*	*70-130*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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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

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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 P-8-3 Boot	State: Zip:
Project Location: EME P-8-3 Boot	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					
H10852-1	SB 6 @ 9ft	G	1			✓					✓		3/24/11	09:00	✓	✓									
2	SB 6 @ 15ft	G	1			✓					✓		"	09:30	✓	✓									
3	SB 6 @ 21ft	G	1			✓					✓		"	10:00	✓	✓									
4	SB 7 @ 12ft	G	1			✓					✓		"	10:30	✓	✓									
5	SB 7 @ 21ft	G	1			✓					✓		"	11:00	✓	✓									
6	SB 8 @ 9ft	G	1			✓					✓		"	11:30	✓	✓									
7	SB 8 @ 21ft	G	1			✓					✓		"	12:00	✓	✓									
8	SB 9 @ 15ft	G	1			✓					✓		"	01:00	✓	✓									
9	SB 9 @ 21ft	G	1			✓					✓		"	01:30	✓	✓									
10																									

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: 3/25/11 Time: 2:10	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: 3/25/11 Time: 8:25	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

#26

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 P-8-3 Boot	State: Zip:
Project Location: EME P-8-3 Boot	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					
H100561-10	MW-1 @ 12ft	G	1			✓					✓		3/24/11	02:30	✓	✓									
11	MW-1 @ 21ft	G	1			✓					✓		"	02:50	✓	✓									
12	MW-2 @ 12ft	G	1			✓					✓		"	03:00	✓	✓									
13	MW-2 @ 18ft	G	1			✓					✓		"	03:30	✓	✓									
14	MW-2 @ 21ft	G	1			✓					✓		"	03:50	✓	✓									

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.

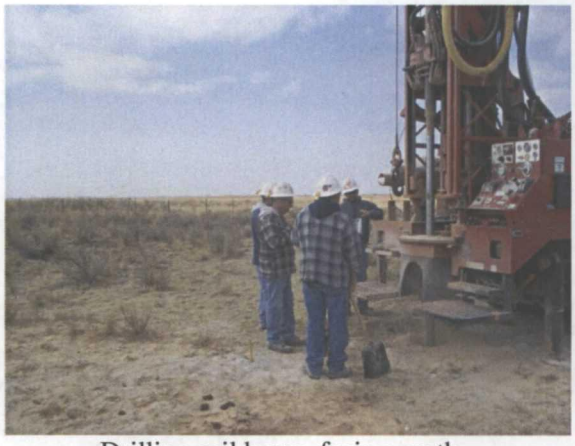
Relinquished By: Jordan Woodfin	Date: 3/25/11 Time: 7:30	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: 3/25/11 Time: 8:25	Received By: Jodi Henson	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: Yes / No 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

#26

NEED SAMPLES BACK, PLEASE

EME P-8-3 boot
Unit P, Section 8, T-20-S, R-37-E



Drilling soil bores, facing south

Plugging the soil bore with bentonite

Completed soil bores

Drilling MW-1, facing south

Inserting the casing into the well

Inserted silica sand pack

Adding the bentonite seal

Sealing in the monument

Completed MW-1

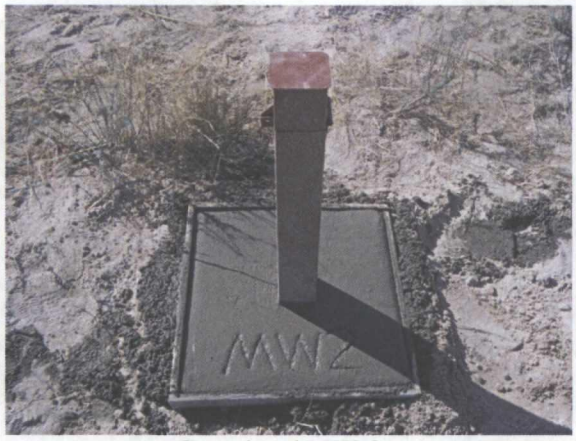
Drilling MW-2

Inserting the casing

Adding the silica sand pack

Adding the bentonite seal

Sealing in the monument



Completed MW-2

Appendix B

Monitor well sampling laboratory analysis

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

CARDINAL Laboratories

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

April 18, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME JCT P-8-3

Enclosed are the results of analyses for samples received by the laboratory on 04/12/11 12:21.

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

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:	04/12/2011	Sampling Date:	04/08/2011
Reported:	04/18/2011	Sampling Type:	Water
Project Name:	EME JCT P-8-3	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T20S-R37E-SEC8 P-LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H100736-01)

BTEX 8260B mg/L **Analyzed By: CMS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	04/14/2011	ND	0.019	94.8	0.0200	1.38	
Toluene*	<0.001	0.001	04/14/2011	ND	0.019	93.4	0.0200	0.537	
Ethylbenzene*	<0.001	0.001	04/14/2011	ND	0.018	92.3	0.0200	1.09	
Total Xylenes*	<0.003	0.003	04/14/2011	ND	0.055	92.0	0.0600	0.0724	

Surrogate: Dibromofluoromethane	*87.9 %*	*80-120*
Surrogate: Toluene-d8	*88.6 %*	*80-120*
Surrogate: 4-Bromofluorobenzene	*81 0 %*	*80-120*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1050**	4.00	04/17/2011	ND	104	104	100	0.00	

Sulfate 375.4 mg/L **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate	**640**	10.0	04/18/2011	ND	39.9	99.8	40.0	0.254	

TDS 160.1 mg/L **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS	**2870**	5.00	04/13/2011	ND				0.699	

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:	04/12/2011	Sampling Date:	04/08/2011
Reported:	04/18/2011	Sampling Type:	Water
Project Name:	EME JCT P-8-3	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T20S-R37E-SEC8 P-LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H100736-02)

BTEX 8260B mg/L **Analyzed By: CMS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	04/14/2011	ND	0.019	94.8	0.0200	1.38	
Toluene*	<0.001	0.001	04/14/2011	ND	0.019	93.4	0.0200	0.537	
Ethylbenzene*	<0.001	0.001	04/14/2011	ND	0.018	92.3	0.0200	1.09	
Total Xylenes*	<0.003	0.003	04/14/2011	ND	0.055	92.0	0.0600	0.0724	

Surrogate: Dibromofluoromethane	*89.9 %*	*80-120*
Surrogate Toluene-d8	*87 6 %*	*80-120*
Surrogate. 4-Bromofluorobenzene	*79.6 %*	*80-120*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1300**	4.00	04/17/2011	ND	104	104	100	0.00	

Sulfate 375.4 mg/L **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate	**761**	10.0	04/18/2011	ND	39.9	99.8	40.0	0.254	

TDS 160.1 mg/L **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS	**3160**	5.00	04/13/2011	ND				0.699	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene, Lab Director/Quality Manager

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company PO#
Project Manager: Hack Conder	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575)397-1471
Project #:	Project Name: EME Junction P-8-3
Project Location: T20S-R37E-Sec8 P ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2011)	TIME
H10073-1	Monitor Well #1	G	3	X				2				1		4-8	13:45
2	Monitor Well #2	G	3	X				2				1		4-8	15:25

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X																	X	X	X	
	X																	X	X	X	

Relinquished by: Rozanne Johnson	Date: 4-12-2011	Time: 12:20	Received by: Date: Time:
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff) Date: Time:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool: Yes / No; Intact: Yes / No	CHECKED BY: (Initials)	

Phone Results: Yes / No
Fax Results: Yes / No Additional Fax Number:

REMARKS:

Email Results: hconder@riceswd.com, jweinheimer@rice-ecs.com, kjones@riceswd.com, rozanne@valornet.com