1R - 427-316

WORKPLANS

Date:

7-15-11

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

CERTIFIED MAIL
RETURN RECIEPT NO. 7008 1140 0001 3070 5757

July 15th, 2011

Mr. Edward Hansen
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RE: **ICP Report and Corrective Action Plan**
Rice Operating Company – EME SWD System
EME jct. K-8-1 (1R427-316): UL/K sec. 8 T20S R37E
(formerly EME jct. N-8-1)

Mr. Hansen:

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

The site was previously referred to as the EME jct. N-8-1. However, GIS mapping shows the site to be located within unit letter K (Figure 1). To reflect the geographical location of the site, the name has been changed to the EME jct. K-8-1. All correspondences will reference EME jct. K-8-1.

Background and Previous Work

The site is located approximately 3 miles south of Monument, New Mexico at UL/K sec. 8 T20S R37E as shown on the Site Location Map (Figure 2). Groundwater at this site is located at an approximate depth of 25 +/- feet bgs.

In 2009, ROC initiated work on the former EME K-8-1 junction. The site was delineated using a backhoe to form a 30 ft x 20 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 256 mg/kg, negligible gasoline range organics (GRO) readings and a diesel range organics (DRO) reading of 489 mg/kg. The bottom composite showed a chloride laboratory reading of 208 mg/kg, negligible GRO and a DRO reading

of 349 mg/kg. Clean soil was imported to the site, blended with soil from the excavation and backfilled into the excavation. Laboratory analysis of the blended backfill showed a chloride reading of 144 mg/kg, negligible GRO and a DRO reading of 232 mg/kg. To further investigate the site, a soil bore was advanced on November 12th, 2009, 25 feet south of the source. The boring was advanced to 24 ft bgs and samples were taken every two feet. The samples were field tested for both chlorides and hydrocarbons. The 18 ft and 24 ft samples were taken to a commercial laboratory to be analyzed. Both samples showed negligible chloride readings. However, GRO and DRO were slightly elevated in both samples and while benzene was non-detect in both samples, toluene, ethyl-benzene, and total xylenes were detected. The bore hole was plugged with bentonite to the ground surface.

The area was contoured to the surrounding landscape, seeded, and an identification plate was placed on the surface of the site to mark its location for future environmental considerations. NMOCD was notified of potential groundwater impact on December 18th, 2009, and a junction box disclosure report was submitted to NMOCD with all the 2009 junction box closures and disclosures.

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

Proposed Work Elements

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

ICP Investigative Results

As part of the Investigation and Characterization Plan approved by NMOCD on May 19th, 2011, five soil bores (SB-2 through SB-6) were advanced through the former junction box site on May 24th, 2011 (Figure 3). RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID). Representative samples from the bores were taken to a

commercial laboratory for confirmation of chloride and hydrocarbon field numbers (Appendix A). Laboratory readings showed chloride numbers ranging from a high of 1,420 mg/kg at 6 ft bgs in soil bore #3 to a low of 240 mg/kg at 24 ft bgs in soil bore #2. Laboratory readings for GRO showed non-detect in all soil bores except in soil bore #2 at 21 ft bgs, where the GRO reading was 78.5 mg/kg. DRO readings ranged from a high of 1,110 mg/kg at 3 ft bgs in soil bore #2 to a low of non-detect at 6 ft bgs in soil bore #3, at the surface and 6 ft bgs in soil bore #4, and throughout soil bore #5. Soil bore #2 at 21 and 24 ft bgs and soil bore #6 at 21 and 24 ft bgs had PID readings over 100 ppm and were taken to a commercial laboratory for BTEX analysis. Laboratory analysis showed benzene readings from both soil bores to be non-detect. However, toluene readings ranged from a high of 0.45 mg/kg at 21 ft in soil bore #2 to a low of 0.274 mg/kg at 24 ft in soil bore #6. Ethyl-benzene ranged from a high of 0.796 mg/kg at 21 ft bgs in soil bore #6 to a low of 0.29 mg/kg at 24 ft in soil bore #2. Finally, total xylenes ranged from a high of 5.54 at 21 ft bgs in soil bore #6 to a low of 1.83 at 24 ft bgs in soil bore #2.

On July 6, 2011, surface samples were collected from a point 5 ft beyond SB-4, SB-3, and SB-2. Field screening of the 35 ft south surface sample yielded a chloride concentration of 59 mg/kg and a PID reading of 0.0 ppm. The 19 ft north surface sample yielded a chloride concentration of 89 mg/kg and a PID reading of 0.0 ppm, and the 17 ft west surface sample yielded a chloride concentration of 454 mg/kg and a PID reading of 0.0 ppm.

Recommendations

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

ROC proposes placing a 20-mil, reinforced poly liner measuring 42 ft x 58 ft at 5-4 ft bgs (Figure 3). The liner will cover all the soil bore points and will extend 5 feet out from SB-3, covering the 17 ft west surface sample, 5 feet out from SB-2, covering the 35 ft south surface sample, 10 feet out from SB-4, extending 5 feet beyond the 19 ft north surface sample, and 5 feet out from SB-5. 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. This site is located next to a lease road and active facility with heavy oilfield traffic and does not require seeding (Figure 4).

Finally, ROC proposes to delineate groundwater quality by placing a near-source monitor well and an up gradient monitor well at the site. Additional monitor wells may be warranted to fully delineate groundwater quality. ROC will monitor the groundwater for a minimum of two quarters prior to submitting a report that will address any groundwater remediation actions that may be necessary at the site. If no groundwater remedy is needed based on the monitor well sampling analysis, ROC will then submit a request for "remediation termination" of the regulatory file.

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

Sincerely,

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

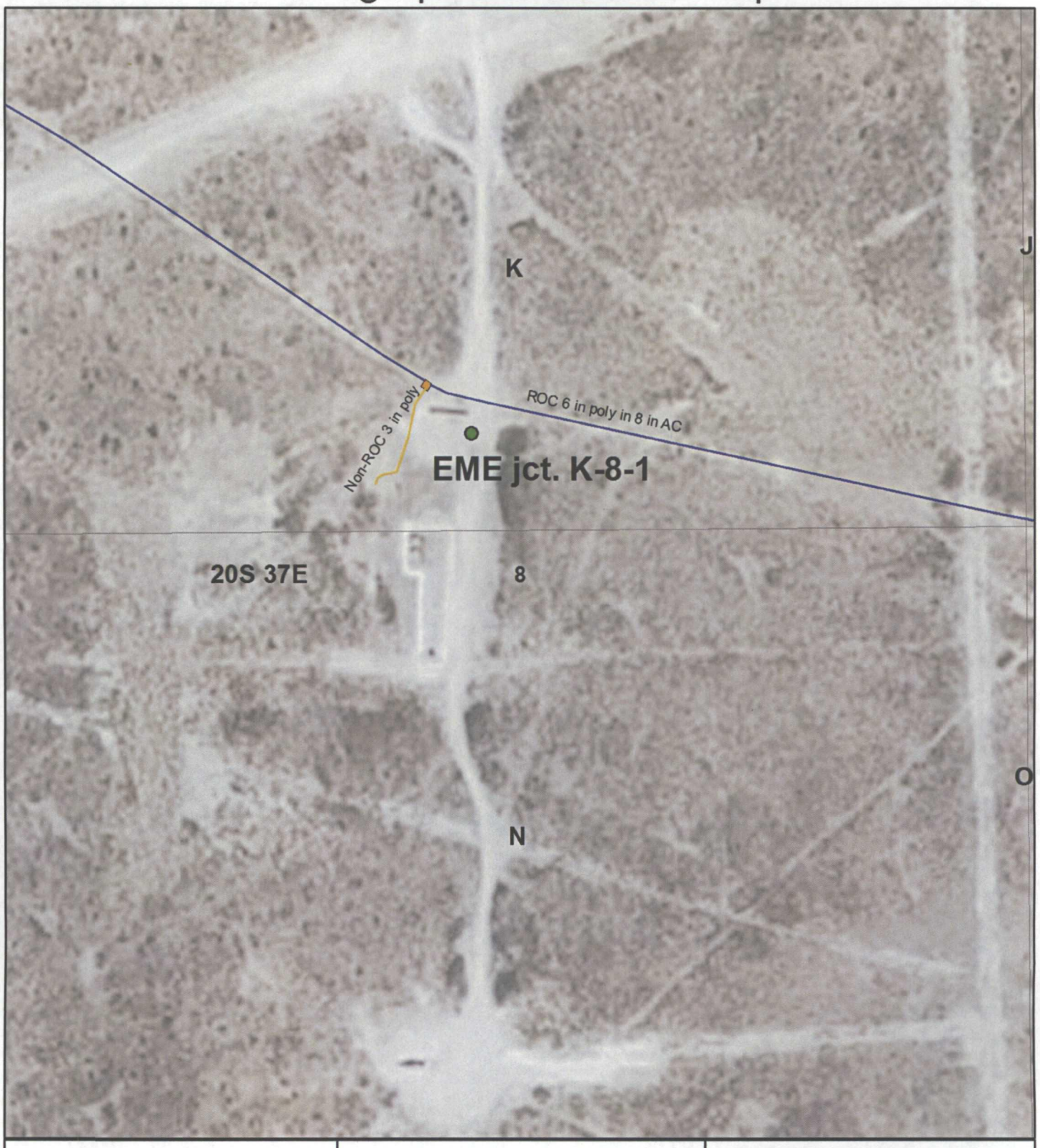
Figure 1 – Geographical location map
Figure 2 – Site location map
Figure 3 – Soil bore installation plat and proposed liner plat
Figure 4 – Site photo on 5/5/2011

Appendix A – Soil bore logs and laboratory confirmation

Figures

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

Geographical Location Map



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC
RECS

EME jct. K-8-1

LEGALS: UL/K sec. 8
T20S R37E

NMOCD Case#: 1R427-316

Figure 1

N
W E
S

0 50 100 200
Feet

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

Site Location Map

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC
RECS

EME jct. K-8-1

LEGALS: UL/K sec. 8
T20S R37E

NMOCD Case#: 1R427-316

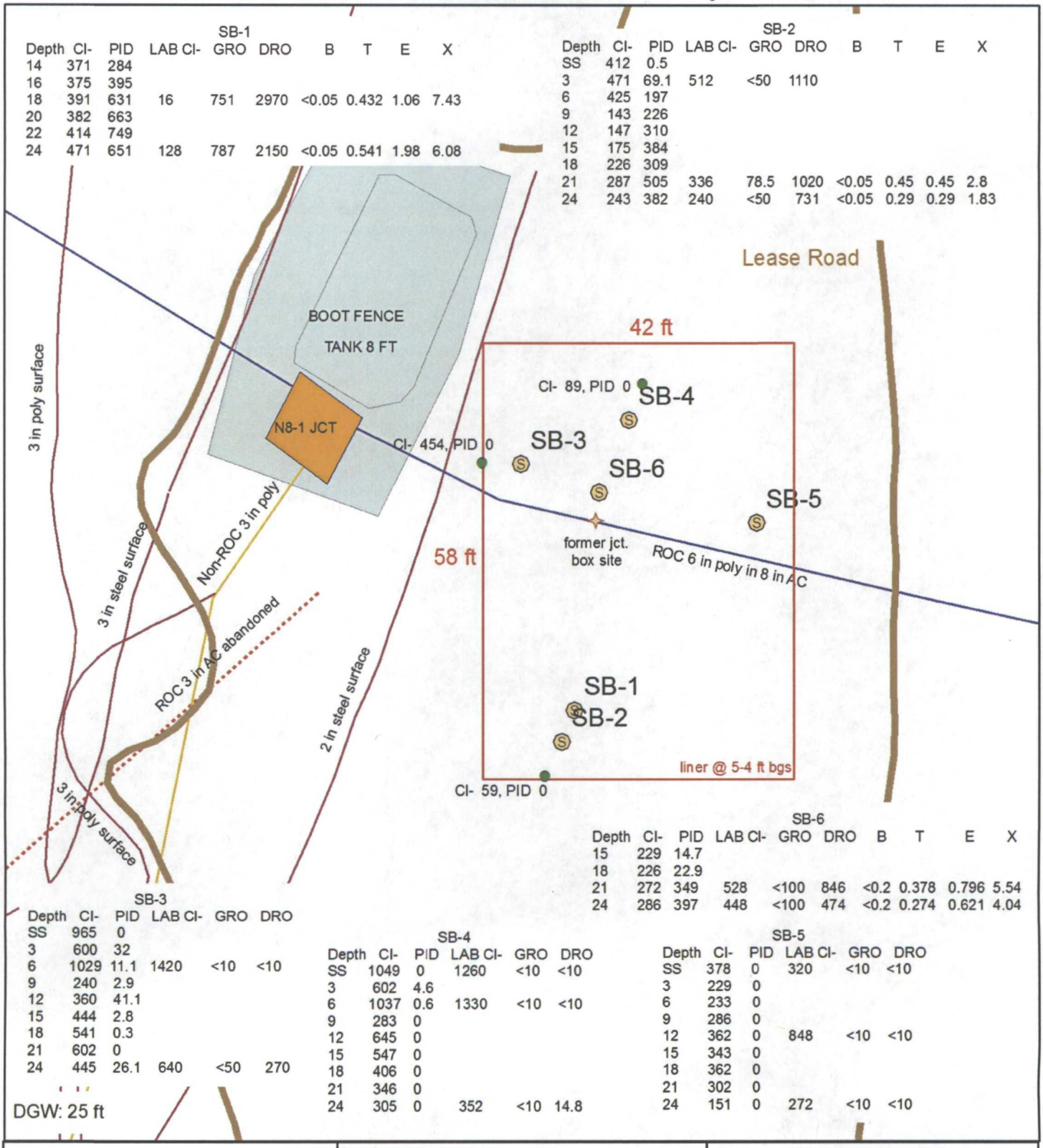
Figure 2

N
W E
S

0 750 1,500 3,000
Feet

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

Soil bore installation and Proposed Liner



SB-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
14	371	284							
16	375	395							
18	391	631	16	751	2970	<0.05	0.432	1.06	7.43
20	382	663							
22	414	749							
24	471	651	128	787	2150	<0.05	0.541	1.98	6.08

SB-2

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
SS	412	0.5							
3	471	69.1	512	<50	1110				
6	425	197							
9	143	226							
12	147	310							
15	175	384							
18	226	309							
21	287	505	336	78.5	1020	<0.05	0.45	0.45	2.8
24	243	382	240	<50	731	<0.05	0.29	0.29	1.83

SB-3

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	965	0			
3	600	32			
6	1029	11.1	1420	<10	<10
9	240	2.9			
12	360	41.1			
15	444	2.8			
18	541	0.3			
21	602	0			
24	445	26.1	640	<50	270

SB-4

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	1049	0	1260	<10	<10
3	602	4.6			
6	1037	0.6	1330	<10	<10
9	283	0			
12	645	0			
15	547	0			
18	406	0			
21	346	0			
24	305	0	352	<10	14.8

SB-5

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	378	0	320	<10	<10
3	229	0			
6	233	0			
9	286	0			
12	362	0	848	<10	<10
15	343	0			
18	362	0			
21	302	0			
24	151	0	272	<10	<10

SB-6

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
15	229	14.7							
18	226	22.9							
21	272	349	528	<100	846	<0.2	0.378	0.796	5.54
24	286	397	448	<100	474	<0.2	0.274	0.621	4.04

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

EME jct. K-8-1

LEGALS: UL/K sec. 8
T20S R37E

NMOCD Case#: 1R427-316

Figure 3

N W E S

● Surface Sample points

0 5 10 20 Feet

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

EME jct. K-8-1 site location, facing south-southwest 5/5/2011

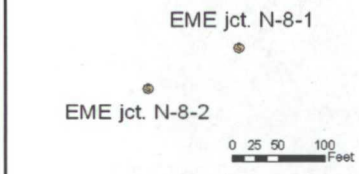
Figure 4

Appendix A

Soil bore installation and laboratory confirmation

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

Logger:	Lara Weinheimer
Driller:	Harrison & Cooper, Inc. Drilling
Consultant:	N/A - ROC junction box upgrade plan
Drilling Method:	Geo-probe
Start Date:	11/12/2009
End Date:	11/12/2009



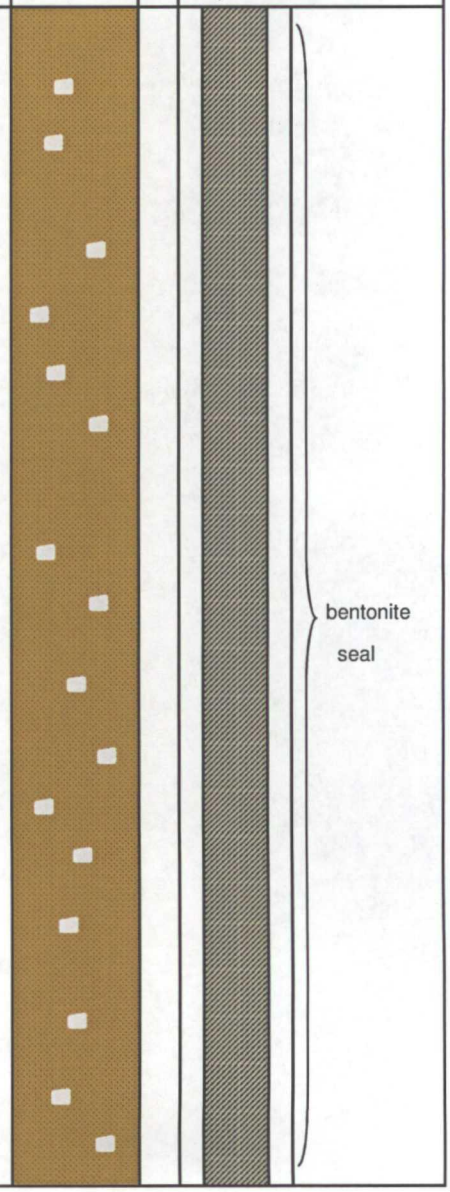
RICE OPERATING COMPANY ROC SINCE 1955

Project Name: EME jct. N-8-1 **Well ID:** SB #1

Location: UL/N sec. 8 T20S R37E
Lat: 32°35'4.103"N **County:** Lea
Long: 103°16'33.095" W **State:** NM

Comments: All samples from split spoon sampling.
Located 25 feet south of the former juction box site.
Drafted by: Lara Weinheimer
TD = 24 ft Estimated depth to GW = 30 ft

Depth (feet)	chloride field tests	LAB	PID	Description
14	371		284	
16	375		395	
18	391	Cl- 16	631	12 - 24 ft VERY FINE TO FINE SAND WITH CALICHE
	B <0.05 T 0.432	GRO 751		slight greenish light brown, dry, moderate hydrocarbon odor
	E 1.06 X 7.43	DRO 2970		
20	382		663	
22	414		749	
24	471	Cl- 128	651	
	B <0.05 T 0.541	GRO 787		
	E 1.98 X 6.08	DRO 2150		



CARDINAL LABORATORIES

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

November 19, 2009

Hack Conder
Rice Operating Company
122 West Taylor
Hobbs, NM 88240

Re: EME Jct. N-8-1

Enclosed are the results of analyses for sample number H18726, received by the laboratory on 11/13/09 at 8:50 am.

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 Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited though 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 524.2	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely,

Celey D. Keene
Laboratory Director

This report conforms with NELAP requirements.

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR
HOBBS, NM 88240
FAX TO (575) 391-1471

Receiving Date: 11/13/09
Reporting Date: 11/17/09
Project Owner: NOT GIVEN
Project Name: EME JCT. N-8-1
Project Location: EME JCT. N-8-1

Sampling Date: 11/12/09
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: CK/ZL/HM

LAB NO.	SAMPLE ID	GRO (C_6-C_{10}) (mg/kg)	DRO (>C_{10}-C_{28}) (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	Cl* (mg/kg)
ANALYSIS DATE:		11/17/09	11/17/09	11/16/09	11/16/09	11/16/09	11/16/09	11/13/09
H18726-1	SB #1 @ 18'	751	2,970	<0.050	0.432	1.06	7.43	16
H18726-2	SB #1 @ 24'	787	2,150	<0.050	0.541	1.98	6.08	128
Quality Control		457	522	0.048	0.047	0.051	0.158	500
True Value QC		500	500	0.050	0.050	0.050	0.150	500
% Recovery		91.4	104	96.0	94.0	102	105	100
Relative Percent Difference		0.6	7.7	<1.0	<1.0	<1.0	1.3	< 0.1

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8021; Cl-: Std. Methods 4500-Cl-B
*Analyses performed on 1:4 w:v aqueous extracts. Reported on wet weight.

TEXAS NELAP ACCREDITATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE, AND TOTAL XYLENES. Not accredited for GRO/DRO and Chloride.

Lab Director

Date 11/19/09

H18726 TBCL 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: Emé jet N-8-1	State: Zip:
Project Location: Emé jet N-8-1	Phone #:
Sampler Name: Lara Weinheimer	Fax #:

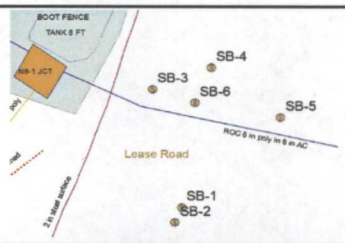
FOR LAB USE ONLY				MATRIX						PRESERV			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH							
H18726-1	SB #1 @ 18'	G	1			✓					✓		11-12-04	11:50	✓	✓	✓								
-2	SB #1 @ 24'	G	1			✓					✓		11-12-04	12:15	✓	✓	✓								

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: L Weinheimer	Date: 11-13-04 Time: 8:50	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) MCB	REMARKS: email results Hconder@riceswd.com; jpurvis@riceswd.com; Lweinheimer@riceswd.com

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

NEED SAMPLES BACK, PLEASE!

Logger:	Jordan Woodfin		**Project Name:** EME jct. K-8-1 **Well ID:** SB-2
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	5/24/2011		
End Date:	5/24/2011		

Comments: Located 30 ft south of the former junction box site. All samples were taken from cuttings.

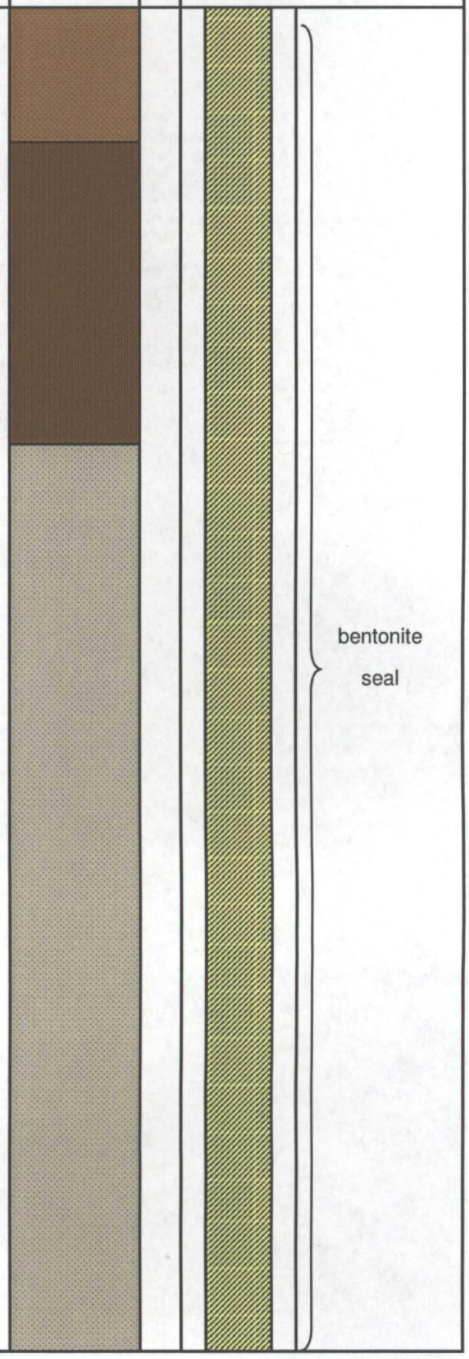
DRAFTED BY: L. Weinheimer

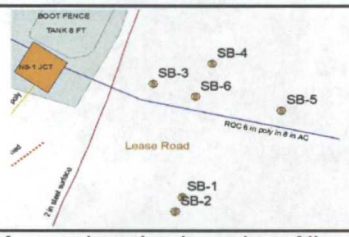
TD = 24 ft GW = 25 ft

Location: UL/K sec. 8 T20S R37E

Lat: 32°35'4.061"N **Long:** 103°16'33.116"W **County**: Lea **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Light brown very fine silty sand
SS	412		0.5	
				Brown very fine sand with fine caliche
3 ft	471	Cl- 512	69.1	
		GRO <50.0		
		DRO 1110		
6 ft	425		197	
				Brownish green very fine sand with fine caliche (HCO)
9 ft	143		226	
12 ft	147		310	
15ft	175		384	
18 ft	226		309	
21 ft	287	Cl- 336	505	
B <0.05 T 0.45		GRO 78.5		
E 0.45 X 2.8		DRO 1020		
24 ft	243	Cl- 240	382	
B <0.05 T 0.29		GRO <50.0		
E 0.29 X 1.83		DRO 731		



Logger:	Jordan Woodfin		**Project Name:** EME jct. K-8-1 **Well ID:** SB-3
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	5/24/2011		
End Date:	5/24/2011		

Comments: Located 12 ft west of the former junction box site. All samples were taken from cuttings.

DRAFTED BY: L. Weinheimer

TD = 24 ft GW = 25 ft

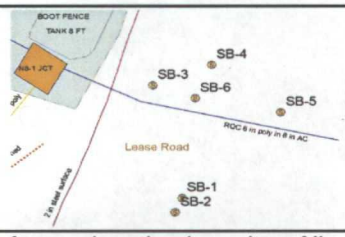
Location: UL/K sec. 8 T20S R37E

Lat: 32°35'4.427"N **Long:** 103°16'33.176"W **County**: Lea **State**: NM

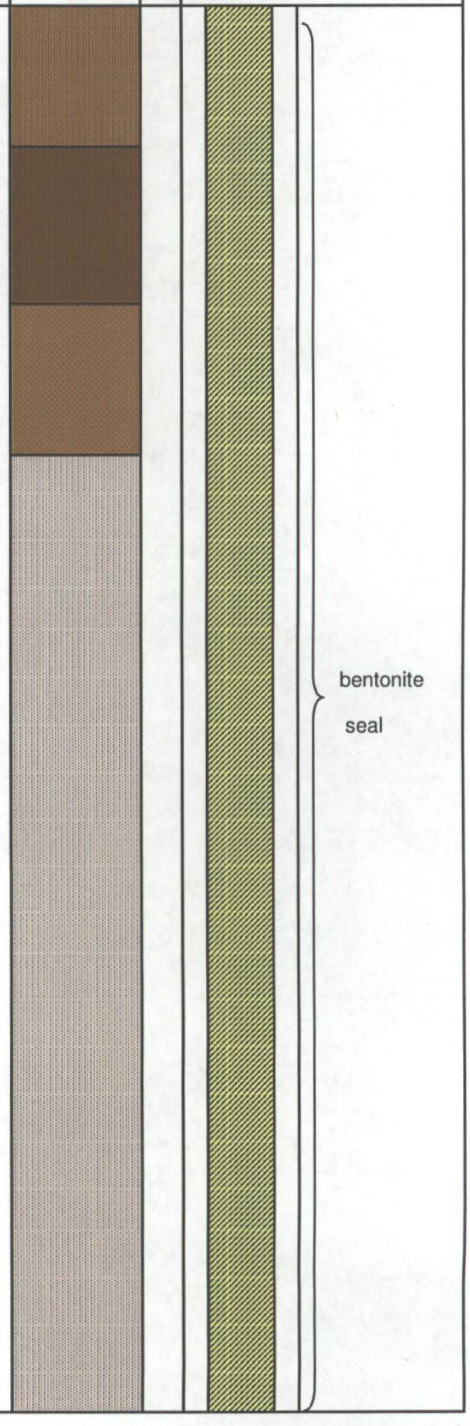
Depth (feet)	chloride field tests	LAB	PID	Description
				Light brown very fine sand with caliche
SS	965		0.0	
				Brown fine sand and caliche well consolidated
3 ft	600		32.0	
				Light brown very fine silty sand
6 ft	1029	Cl- 1420	11.1	
		GRO <10.0		Tan very fine silt and sand with caliche
		DRO <10.0		
9 ft	240		2.9	
12 ft	360		41.1	
15ft	444		2.8	
18 ft	541		0.3	
21 ft	602		0.0	
24 ft	445	Cl- 640	26.1	
		GRO <50.0		
		DRO 270		

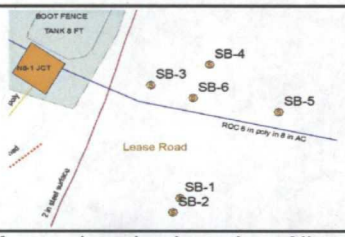
Lithology

Well Construction: bentonite seal

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME jct. K-8-1 **Well ID:** SB-4
Start Date:	5/24/2011		
End Date:	5/24/2011		**Project Consultant:** RECS
Comments: Located 14 ft north of the former junction box site. All samples were taken from cuttings. **DRAFTED BY: L. Weinheimer**			**Location:** UL/K sec. 8 T20S R37E
TD = 24 ft	GW = 25 ft		**Lat:** 32°35'4.483"N **County**: Lea **Long:** 103°16'33.005"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Light brown very fine sand with caliche
SS	1,049	Cl- 1260	0	
		GRO <10.0		Brown fine sand and caliche well consolidated
		DRO <10.0		
3 ft	602		4.6	
				Light brown very fine silty sand
6 ft	1,037	Cl- 1330	0.6	
		GRO <10.0		Tan very fine silt and sand with caliche
		DRO <10.0		
9 ft	283		0	
12 ft	645		0	
15ft	547		0	
18 ft	406		0	
21 ft	346		0	
24 ft	305	Cl- 352	0	
		GRO <10.0		
		DRO 14.8		



Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME jct. K-8-1 **Well ID:** SB-5
Start Date:	5/24/2011		
End Date:	5/24/2011		**Project Consultant:** RECS

Comments: Located 21 ft east of the former junction box site. All samples were taken from cuttings.

DRAFTED BY: L. Weinheimer

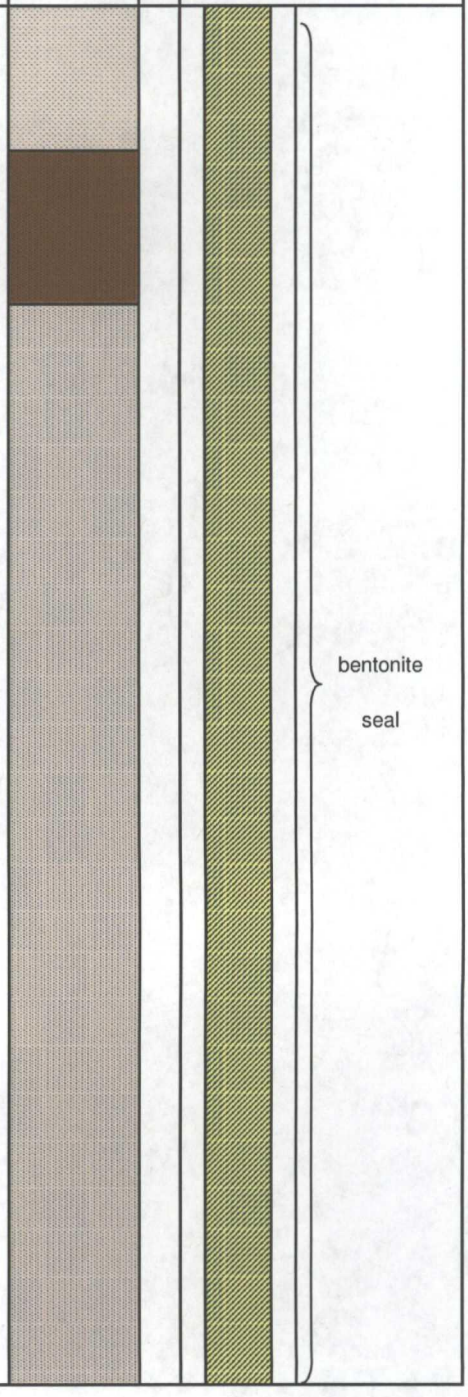
TD = 24 ft GW = 25 ft

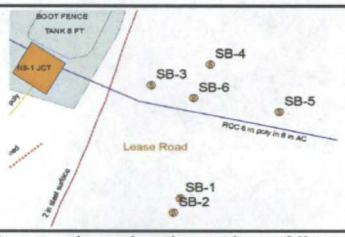
Location: UL/K sec. 8 T20S R37E

Lat: 32°35'4.348"N **County**: Lea

Long: 103°16'32.806"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Tan very fine sand
SS	378	Cl- 320	0	
		GRO <10.0		Brown fine sand and caliche well consolidated
		DRO <10.0		
3 ft	229		0	
				Tan very fine sand and caliche
6 ft	233		0	
9 ft	286		0	
12 ft	362	Cl- 848	0	
		GRO <10.0		
		DRO <10.0		
15 ft	343		0	
18 ft	362		0	
21 ft	302		0	
24 ft	151	Cl- 272	0	
		GRO <10.0		
		DRO <10.0		



Logger:	Jordan Woodfin		**Project Name:** EME jct. K-8-1 **Well ID:** SB-6
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	5/24/2011		
End Date:	5/24/2011		
Comments: Located 4 ft north of the former junction box site. All samples were taken from cuttings. **DRAFTED BY: L. Weinheimer** TD = 24 ft GW = 25 ft			**Location:** UL/K sec. 8 T20S R37E **Lat:** 32°35'4.39"N **Long:** 103°16'33.054"W **County**: Lea **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brownish grey course sand well consolidated with caliche (HCO)		
15 ft	229		14.7			
				Brownish grey course sand well consolidated with caliche (HCO)		
18 ft	226		22.9			
				Brownish grey course sand well consolidated with caliche (HCO)		bentonite seal
21 ft	272	Cl- 528	349			
B <0.2	T 0.378	GRO <100		Grey course sand with caliche (HCO)		
E 0.796	X 5.54	DRO 846				
24 ft	286	Cl- 448	397			
B <0.2	T 0.274	GRO <100				
E 0.621	X 4.04	DRO 474				

CARDINAL Laboratories

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

May 27, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME JCT K-8-1

Enclosed are the results of analyses for samples received by the laboratory on 05/25/11 8:15.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	05/25/2011	Sampling Date:	05/24/2011
Reported:	05/27/2011	Sampling Type:	Soil
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 2 @ 3' (H101065-01)

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	05/26/2011	ND	448	112	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	05/26/2011	ND	241	120	200	3.97	
DRO >C10-C28	**1110**	50.0	05/26/2011	ND	213	107	200	0.169	

Surrogate 1-Chlorooctane	*100 %*	*70-130*
Surrogate 1-Chlorooctadecane	*91.4 %*	*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:	05/25/2011	Sampling Date:	05/24/2011
Reported:	05/27/2011	Sampling Type:	Soil
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 2 @ 21' (H101065-02)

BTEX 8021B mg/kg **Analyzed By: CMS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/25/2011	ND	2.16	108	2.00	1.64	
Toluene*	**0.450**	0.050	05/25/2011	ND	2.10	105	2.00	1.47	
Ethylbenzene*	**0.450**	0.050	05/25/2011	ND	2.15	107	2.00	1.46	
Total Xylenes*	**2.80**	0.150	05/25/2011	ND	6.32	105	6.00	1.43	

Surrogate: 4-Bromofluorobenzene (PIL *107 %* *70-130*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**336**	16.0	05/26/2011	ND	448	112	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**78.5**	50.0	05/26/2011	ND	241	120	200	3.97	
DRO >C10-C28	**1020**	50.0	05/26/2011	ND	213	107	200	0.169	

Surrogate 1-Chlorooctane *119 %* *70-130*

Surrogate. 1-Chlorooctadecane *101 %* *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:	05/25/2011	Sampling Date:	05/24/2011
Reported:	05/27/2011	Sampling Type:	Soil
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 2 @ 24' (H101065-03)

BTEX 8021B mg/kg **Analyzed By: CMS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/25/2011	ND	2.16	108	2.00	1.64	
Toluene*	**0.290**	0.050	05/25/2011	ND	2.10	105	2.00	1.47	
Ethylbenzene*	**0.290**	0.050	05/25/2011	ND	2.15	107	2.00	1.46	
Total Xylenes*	**1.83**	0.150	05/25/2011	ND	6.32	105	6.00	1.43	

Surrogate: 4-Bromofluorobenzene (PIL *102 %* *70-130*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**240**	16.0	05/26/2011	ND	448	112	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	05/26/2011	ND	241	120	200	3.97	
DRO >C10-C28	**731**	50.0	05/26/2011	ND	213	107	200	0.169	

Surrogate. 1-Chlorooctane *124 %* *70-130*

Surrogate: 1-Chlorooctadecane *115 %* *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:	05/25/2011	Sampling Date:	05/24/2011
Reported:	05/27/2011	Sampling Type:	Soil
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 3 @ 6' (H101065-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1420**	16.0	05/26/2011	ND	448	112	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/26/2011	ND	241	120	200	3.97	
DRO >C10-C28	<10.0	10.0	05/26/2011	ND	213	107	200	0.169	

Surrogate: 1-Chlorooctane	*102 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*92.1 %*	*70-130*

Sample ID: SB 3 @ 24' (H101065-05)

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	05/26/2011	ND	448	112	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	05/26/2011	ND	241	120	200	3.97	
DRO >C10-C28	**270**	50.0	05/26/2011	ND	213	107	200	0.169	

Surrogate: 1-Chlorooctane	*112 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*110 %*	*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:	05/25/2011	Sampling Date:	05/24/2011
Reported:	05/27/2011	Sampling Type:	Soil
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 4 SURFACE SAMPLE (H101065-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1260**	16.0	05/26/2011	ND	448	112	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/26/2011	ND	241	120	200	3.97	
DRO >C10-C28	<10.0	10.0	05/26/2011	ND	213	107	200	0.169	

Surrogate. 1-Chlorooctane	*92.0 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*73.4 %*	*70-130*

Sample ID: SB 4 @ 6' (H101065-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1330**	16.0	05/26/2011	ND	448	112	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/26/2011	ND	192	95.8	200	1.14	
DRO >C10-C28	<10.0	10.0	05/26/2011	ND	164	81.8	200	5.38	

Surrogate: 1-Chlorooctane	*162 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*164 %*	*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:	05/25/2011	Sampling Date:	05/24/2011
Reported:	05/27/2011	Sampling Type:	Soil
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 4 @ 24' (H101065-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**352**	16.0	05/26/2011	ND	464	116	400	3.51	

TPH 8015M mg/kg Analyzed By: AB

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/26/2011	ND	192	95.8	200	1.14	
DRO >C10-C28	**14.8**	10.0	05/26/2011	ND	164	81.8	200	5.38	

Surrogate: 1-Chlorooctane	*84.1 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*91.7 %*	*70-130*

Sample ID: SB 5 @ SURFACE SAMPLE (H101065-09)

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	05/26/2011	ND	464	116	400	3.51	

TPH 8015M mg/kg Analyzed By: AB

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/26/2011	ND	192	95.8	200	1.14	
DRO >C10-C28	<10.0	10.0	05/26/2011	ND	164	81.8	200	5.38	

Surrogate: 1-Chlorooctane	*102 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*95.3 %*	*70-130*

Cardinal Laboratories

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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:	05/25/2011	Sampling Date:	05/24/2011
Reported:	05/27/2011	Sampling Type:	Soil
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 5 @ 12' (H101065-10)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**848**	16.0	05/26/2011	ND	464	116	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/26/2011	ND	192	95.8	200	1.14	
DRO >C10-C28	<10.0	10.0	05/26/2011	ND	164	81.8	200	5.38	

Surrogate: 1-Chlorooctane	*82.8 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*93.0 %*	*70-130*

·Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Celey D. Keene, 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 K-8-1		**State:** **Zip:**	
Project Location: EME Jct K-8-1		**Phone #:**	
Sampler Name: Jordan Woodfin		**Fax #:**	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TPH 8015 M Extended Thru C40
H1D1065																				
1	SB 2 @ 3'	G	1			✓					✓		5/24/11	08:00	✓	✓				
2	SB 2 @ 21'	G	1			✓					✓		"	08:20	✓	✓	✓			
3	SB 2 @ 24'	G	1			✓					✓		"	08:30	✓	✓	✓			
4	SB 3 @ 6'	G	1			✓					✓		"	09:00	✓	✓				
5	SB 3 @ 24'	G	1			✓					✓		"	09:20	✓	✓				
6	SB 4 Surface Sample	G	1			✓					✓		"	10:00	✓	✓				
7	SB 4 @ 6'	G	1			✓					✓		"	10:15	✓	✓				
8	SB 4 @ 24'	G	1			✓					✓		"	10:30	✓	✓				
9	SB 5 @ Surface Sample	G	1			✓					✓		"	11:00	✓	✓				
10	SB 5 @ 12'	G	1			✓					✓		"	11:15	✓	✓				

Relinquished By: Jordan Woodfin	**Date:** 5/25/11 **Time:** 7:30	**Received By:**	
Relinquished By:	**Date:** 5/25/11 **Time:** 8:15	**Received By:** Jodi Henson	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	**Sample Condition** Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	**CHECKED BY: (Initials)**	

Phone Result: ☐ Yes ☑ No **Add'l Phone #:**
Fax Result: ☐ Yes ☑ No **Add'l Fax #:**
REMARKS:

email results

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

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

#26

NEED SAMPLES BACK, PLEASE

CARDINAL Laboratories

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

May 27, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME JCT K-8-1

Enclosed are the results of analyses for samples received by the laboratory on 05/25/11 8:15.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	05/25/2011	Sampling Date:	05/24/2011
Reported:	05/27/2011	Sampling Type:	Soil
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 5 @ 24' (H101066-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**272**	16.0	05/26/2011	ND	464	116	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/26/2011	ND	192	95.8	200	1.14	
DRO >C10-C28	<10.0	10.0	05/26/2011	ND	164	81.8	200	5.38	

Surrogate 1-Chlorooctane	*98.2 %*	*70-130*
Surrogate. 1-Chlorooctadecane	*103 %*	*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:	05/25/2011	Sampling Date:	05/24/2011
Reported:	05/27/2011	Sampling Type:	Soil
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 6 @ 21' (H101066-02)

BTEX 8021B mg/kg **Analyzed By: CMS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	05/25/2011	ND	2.16	108	2.00	1.64	
Toluene*	**0.378**	0.200	05/25/2011	ND	2.10	105	2.00	1.47	
Ethylbenzene*	**0.796**	0.200	05/25/2011	ND	2.15	107	2.00	1.46	
Total Xylenes*	**5.54**	3.00	05/25/2011	ND	6.32	105	6.00	1.43	

Surrogate: 4-Bromofluorobenzene (PIL *97.0 %* *70-130*

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	05/26/2011	ND	464	116	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	05/26/2011	ND	192	95.8	200	1.14	
DRO >C10-C28	**846**	100	05/26/2011	ND	164	81.8	200	5.38	

Surrogate: 1-Chlorooctane *95.2 %* *70-130*

Surrogate: 1-Chlorooctadecane *99.8 %* *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:	05/25/2011	Sampling Date:	05/24/2011
Reported:	05/27/2011	Sampling Type:	Soil
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 6 @ 24' (H101066-03)

BTEX 8021B mg/kg **Analyzed By: CMS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	05/25/2011	ND	2.16	108	2.00	1.64	
Toluene*	**0.274**	0.200	05/25/2011	ND	2.10	105	2.00	1.47	
Ethylbenzene*	**0.621**	0.200	05/25/2011	ND	2.15	107	2.00	1.46	
Total Xylenes*	**4.04**	3.00	05/25/2011	ND	6.32	105	6.00	1.43	

Surrogate: 4-Bromofluorobenzene (PIL *98.2 %* *70-130*

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	05/26/2011	ND	464	116	400	3.51	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	05/26/2011	ND	192	95.8	200	1.14	
DRO >C10-C28	**474**	100	05/26/2011	ND	164	81.8	200	5.38	

Surrogate: 1-Chlorooctane *91.0 %* *70-130*

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

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

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 K-8-1		**State:** **Zip:**	
Project Location: EME Jct K-8-1		**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					
H10106																								
-1	SB 5 @ 24'	G	1			✓					✓		5/24/11	11:30	✓	✓									
2	SB 6 @ 21'	G	1			✓					✓		"	12:00	✓	✓	✓								
3	SB 6 @ 24'	G	1			✓					✓		"	12:15	✓	✓	✓								

Relinquished By: Jordan Woodfin	**Date:** 5/25/11 **Time:** 7:00	**Received By:**	**Phone Result:** ☐ Yes ☑ No **Add'l Phone #:**
Relinquished By:	**Date:** 5/25/11 **Time:** 8:15	**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 jct. K-8-1

Unit K, Section 8, T20S, R37E

Drilling SB-2, facing north west 5/24/2011

Plugging SB-2 in total with bentonite 5/24/2011

Drilling SB-3, facing west 5/24/2011

Drilling SB-4, facing southwest 5/24/2011

Plugging SB-3 in total with bentonite 5/24/2011

Plugging SB-4 in total with bentonite 5/24/2011

Drilling SB-5, facing southwest 5/24/2011

Drilling SB-6, facing southwest 5/24/2011

Plugging SB-5 in total with bentonite 5/24/2011

Plugging SB-6 in total with bentonite 5/24/2011