1R - 427-316

REPORTS

DATE:

12-16-11

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 6068

December 16th, 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 Report on the Vadose Zone Remediation**
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 ownership/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 27 +/- 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.

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. RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID) for hydrocarbons. Representative samples from the bores were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers. Laboratory readings showed chloride numbers ranging from a high of 1,420 mg/kg at 6 ft bgs in SB-3 to a low of 240 mg/kg at 24 ft bgs in SB-2. Laboratory readings for GRO showed non-detect in all soil bores except in SB-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 SB-2 to a low of non-detect at 6 ft bgs in SB-3, at the surface and 6 ft bgs in SB-4, and throughout SB-5. SB-2 at 21 and 24 ft bgs and SB-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 SB-2 to a low of 0.274 mg/kg at 24 ft in SB-6. Ethyl-benzene ranged from a high of 0.796 mg/kg at 21 ft bgs in SB-6 to a low of 0.29 mg/kg at 24 ft in SB-2. Finally, total xylenes ranged from a high of 5.54 at 21 ft bgs in SB-6 to a low of 1.83 at 24 ft bgs in SB-2.

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

On July 15th, 2011, ROC submitted an ICP Report and Corrective Action Plan (CAP) to NMOCD which was approved on August 18th, 2011. In the ICP Report and CAP, ROC proposed a vadose zone remedy that entailed placing a 20-mil reinforced poly liner measuring 42 ft x 58 ft at 5-4 ft bgs. The soils placed above the liner would have a laboratory chloride reading no greater than 500 mg/kg and a field PID measurement below 100 ppm. Excavated soil would be evaluated for use as backfill, and any soil requiring disposal would be properly disposed of at a NMOCD approved facility. In addition, ROC proposed to delineate groundwater quality by placing a near-source monitor well and an up gradient monitor well at the site and sampling these two wells quarterly.

Vadose Zone Remediation

Beginning October 3, 2011, the site was excavated to approximately 42 ft x 58 ft x 5 ft deep and the bottom of the excavation was padded with 6 inches of imported blow sand to protect the liner from punctures. A 20-mil reinforced plastic liner was installed and properly seated at approximately 4.5 ft bgs (Figure 3). An additional 6 inches of blow sand was used to pad the top of the liner. The imported blow sand used to pad the liner was screened in the field for hydrocarbons with a photo-ionization detector (PID) and resulted in a PID reading of 0.5 ppm (Appendix A). The composite sample was then taken to a commercial laboratory for analysis of chlorides and resulted in a chloride reading of non-detect (Appendix B).

A total of 156 yards of the excavated soil was taken for disposal at an NMOCD approved facility. The remaining soil was blended on site to use as backfill. The blended soil was tested for hydrocarbons using a PID meter with a result of 2.5 ppm (Appendix A). The composite sample was then taken to a commercial laboratory for analysis of chlorides and returned a chloride reading of 192 mg/kg (Appendix B). The excavation was backfilled up to 6 inches bgs with the blended, excavated soil. Since the site is located next to a lease road and lease pad, the site was topped with 6 inches of imported caliche (72 yards) and seeding was not required. Photo documentation of these activities will be found in Appendix C.

Monitor Well Installation

On August 29th, 2011, RECS personnel were on site to install the near-source and up gradient monitor wells (Figure 4). The up gradient monitor well, MW-2, was field tested for chlorides and screened in the field for hydrocarbons. Two samples from MW-2 were taken to a commercial laboratory for confirmation of field numbers (Appendix D). Laboratory readings for the 15 ft sampled returned a chloride result of 464 mg/kg and GRO and DRO readings of non-detect. Laboratory readings for the 25 ft sample returned a chloride reading of 192 mg/kg and GRO and DRO readings of non-detect. These laboratory chloride and hydrocarbon numbers accurately reflect background soil concentrations near the site.

Since their installation, the monitor wells have been sampled twice. MW-2, the up gradient well, has chlorides coming onto the site averaging 670 mg/kg. MW-1, the near-source well has an average chloride reading of 990 mg/kg. RECS recommends that the monitor wells be sampled two more quarters prior to submitting a remedy for the groundwater. This will give ROC time to accurately delineate groundwater quality. Once this delineation is completed, ROC will submit a groundwater remedy to NMOCD which will include a chloride mass calculation and a groundwater extraction plan.

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

Sincerely,

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

- Figure 1 – Geographical Location Map
- Figure 2 – Site Location Map
- Figure 3 – NMOCD Approved Liner
- Figure 4 – Monitor Well Installation and MW Sampling Data
- Appendix A – PID Sheets
- Appendix B – Imported Sand and 8 pt. Composite Lab Confirmation
- Appendix C – Photo-documentation
- Appendix D – Monitor Well Installation Logs and Lab 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 RECS CONSULTING & SAFETY, LLC

EME jct. K-8-1

LEGALS: UL/K sec. 8
T20S R37E

NMOCD Case#: 1R427-316

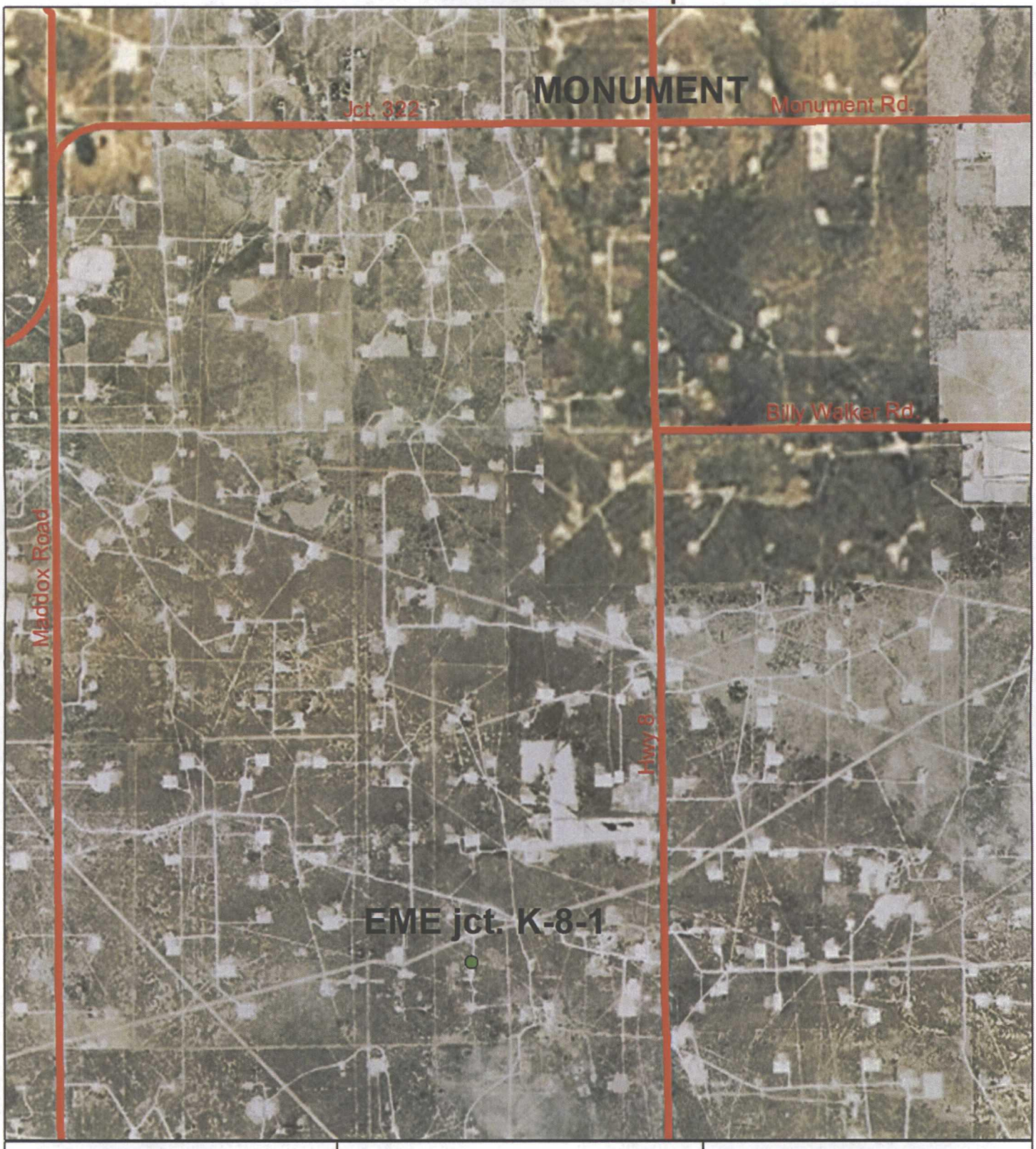
Figure 1

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

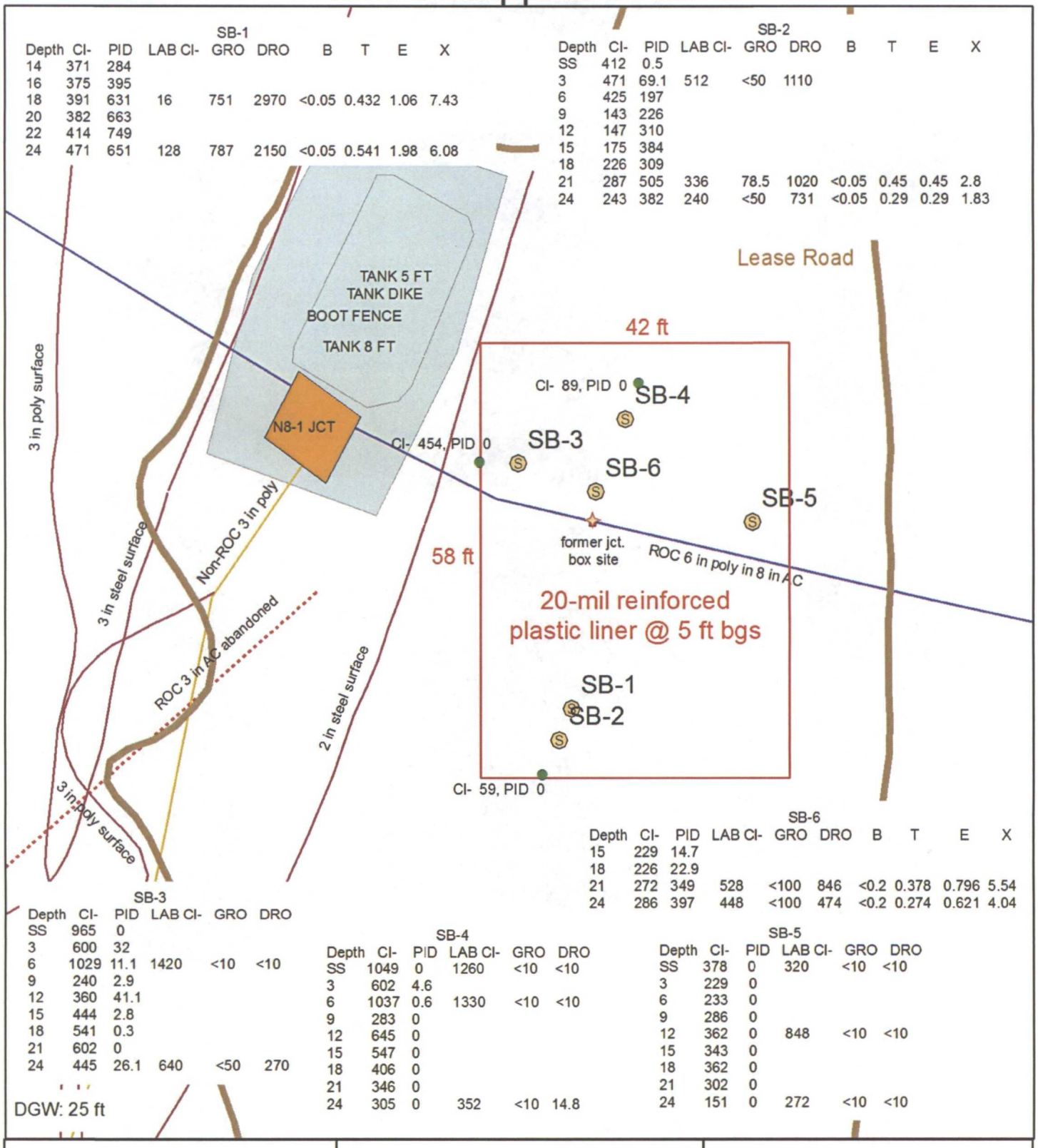
Figure 2

N
W E
S

0 750 1,500 3,000
Feet

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

NMOCD Approved 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

RECS

EME jct. K-8-1

LEGALS: UL/K sec. 8
T20S R37E

NMOCD Case#: 1R427-316

Figure 3

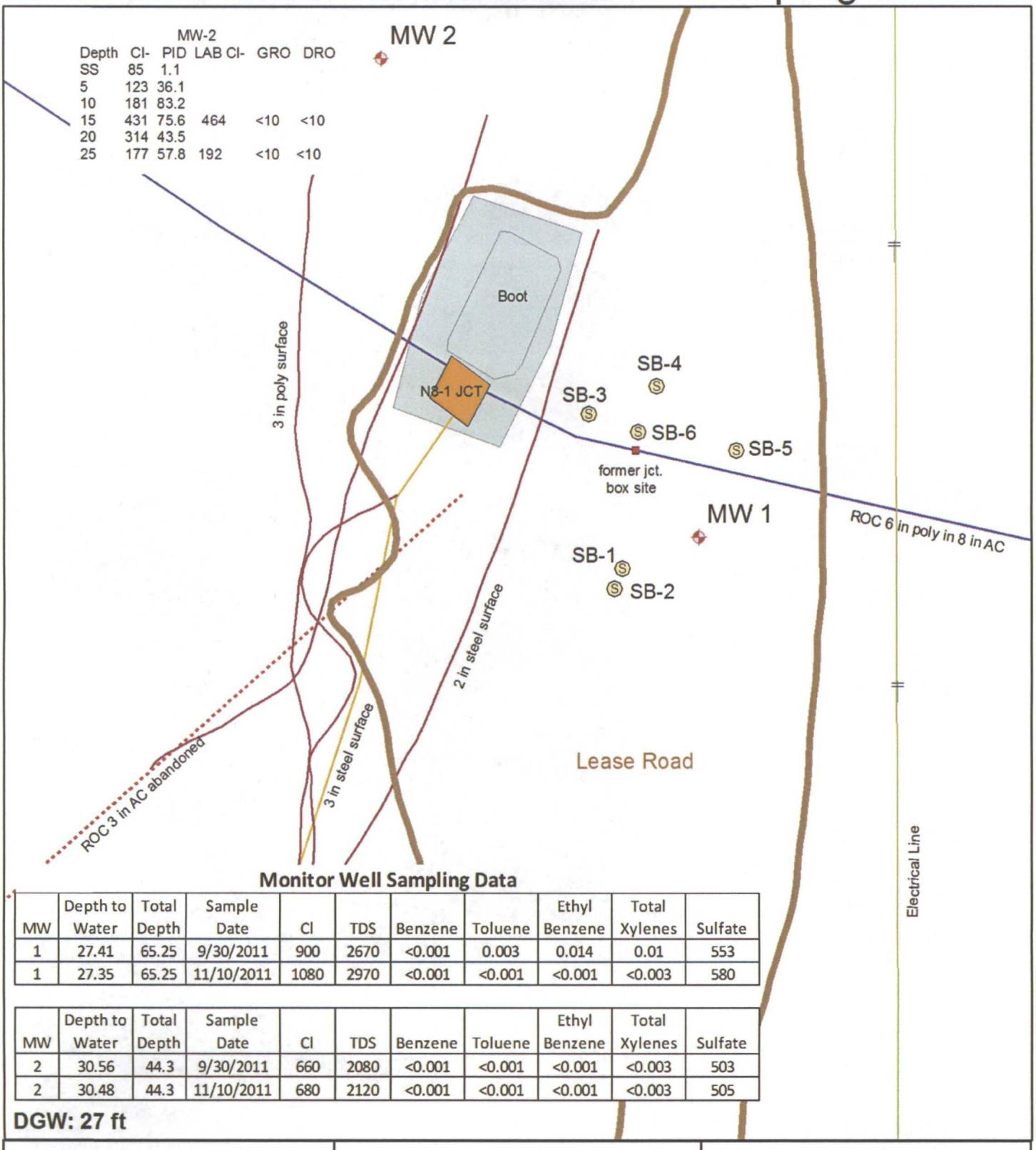
N W E S

● Surface Sample points

0 5 10 20 Feet

Drawing date: 12-13-11
Drafted by: L. Weinheimer

Monitor Well Installation and MW Sampling Data



Monitor Well Sampling Data

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
1	27.41	65.25	9/30/2011	900	2670	<0.001	0.003	0.014	0.01	553
1	27.35	65.25	11/10/2011	1080	2970	<0.001	<0.001	<0.001	<0.003	580

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
2	30.56	44.3	9/30/2011	660	2080	<0.001	<0.001	<0.001	<0.003	503
2	30.48	44.3	11/10/2011	680	2120	<0.001	<0.001	<0.001	<0.003	505

DGW: 27 ft

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME jct. K-8-1

LEGALS: UL/K sec. 8
T20S R37E

NMOCD Case#: 1R427-316

Figure 4

N W E S

0 10 20 40 Feet

Drawing date: 12-15-11
Drafted by: L. Weinheimer

Appendix A

PID Sheets

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

122 West Taylor Hobbs, NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471

PID METER CALIBRATION & FIELD REPORT FORM

CK. MODEL NO.			
		MODEL: PGM 7300	SERIAL NO: 590-000508
	x	MODEL: PGM 7300	SERIAL NO: 590-000504
		MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM 7300	SERIAL NO: 590-000183
		MODEL: PGM 7600	SERAIL NO: 110-013744

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 930360	EXPIRATION: 5/24/2013
METER READING ACCURACY: 100	

ACCURACY : +/- 2%

COMPANY
Rice Operating Company

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	Jct K-8-1	K	8	20S	37E

SAMPLE ID	PID	SAMPLE ID	PID
Imported Blow Sand Wallach	0.5		
8 Point Composite Backfill	2.5		

I verify that I have calibrated the above instrument in accordance to the manufacture operation manual.

SIGNATURE: Kyle Norman DATE: 10/4/2011

Appendix B

Imported Sand and 8 pt. Composite Lab Confirmation

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

October 06, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME K-8-1 JCT (20/37)

Enclosed are the results of analyses for samples received by the laboratory on 10/04/11 16:12.

Cardinal Laboratories is accredited through Texas NELAP for:

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/04/2011	Sampling Date:	10/04/2011
Reported:	10/06/2011	Sampling Type:	Soil
Project Name:	EME K-8-1 JCT (20/37)	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: IMPORTED BLOW SAND (H102129-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	10/05/2011	ND	432	108	400	7.14	

Sample ID: 8 PT. COMP BACKFILL (H102129-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**192**	16.0	10/05/2011	ND	432	108	400	7.14	

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, 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		BILL TO	
Project Manager: Hack Conder		P.O. #:	
Address:		Company:	
City:	State: NM Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location: EME K-8-1 Tank		Phone #:	
Sampler Name: Kyle Norman		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	TDS
H102129																				
1	Imported Blow Sand	G	1			✓							10-4-11	3:00	✓					
2	8pt Composite Backfill	C	1			✓							10-4-11	3:15	✓					

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 consequental 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: Kyle Norman	Date: 10-4-11 Time: 4:12	Received By:	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☐ Yes ☑ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) Cok	

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

email results
kjones@riceswd.com; knorman@rice-ecs.com;
Zconder@rice-ecs.com; Bbaker@rice-ecs.com;
hconder@rice-ecs.com; Lweinheimer@rice-ecs.com

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

#210

Appendix C

Photo-documentation

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

EME Jct. K-8-1 (1R427-316)
Unit K, Section 8, T-20-S, R-37-E

site prior to excavation, facing south

excavating the site, facing south

exporting excavated soil, facing west

importing soil, facing west

58x42x5 ft deep excavation complete with 6 inches of blow sand, facing north

58x42 ft 20-mil, reinforced liner, facing northeast

installing a 6 inch blow sand pad above the liner, facing north

backfilling the excavation with excavated soil, facing south

backfilling the excavation with excavated soil, facing southwest

importing caliche, facing south

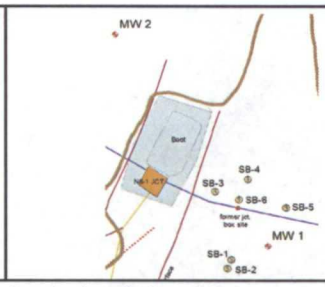
leveling the site with caliche, facing southwest

site complete, facing west

Appendix D

Monitor Well Installation Logs and Lab Confirmation

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

Logger:	Kyle Norman		**Project Name:** EME jct. K-8-1 **Well ID:** MW-1
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	8/29/2011		
End Date:	8/29/2011		

Comments: Samples were not taken during the installation of the well. The well is located 23 ft southeast from the former junction box site.

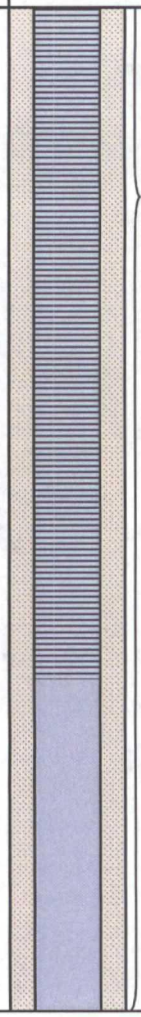
DRAFTED BY: L. Weinheimer

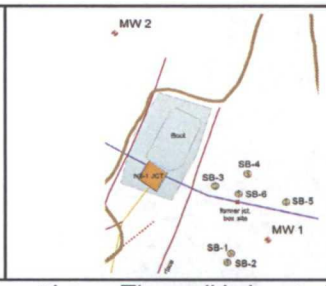
TD = 72 ft GW = 27 ft

Location: UL/K sec. 8 T20S R37E

Lat: 32°35'4.167"N **Long:** 103°16'32.902"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				NO SAMPLES TAKEN		4 in PVC; bentonite seal
SS						
5 ft						
10 ft						
15 ft						
20 ft						
25 ft						
30 ft						
35 ft						
40 ft						

Depth (feet)	Chloride field tests	LAB	PID	Description		Lithology		Well Construction
				NO SAMPLES TAKEN				
45 ft								
50 ft								
55 ft								
60 ft								
65 ft								
70 ft								
72 ft								

Logger:	Kyle Norman		**Project Name:** EME jct. K-8-1 **Well ID:** MW-2
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	8/29/2011		
End Date:	8/29/2011		

Comments: All samples were from cuttings. The well is located 100 ft northwest from the former junction box site.

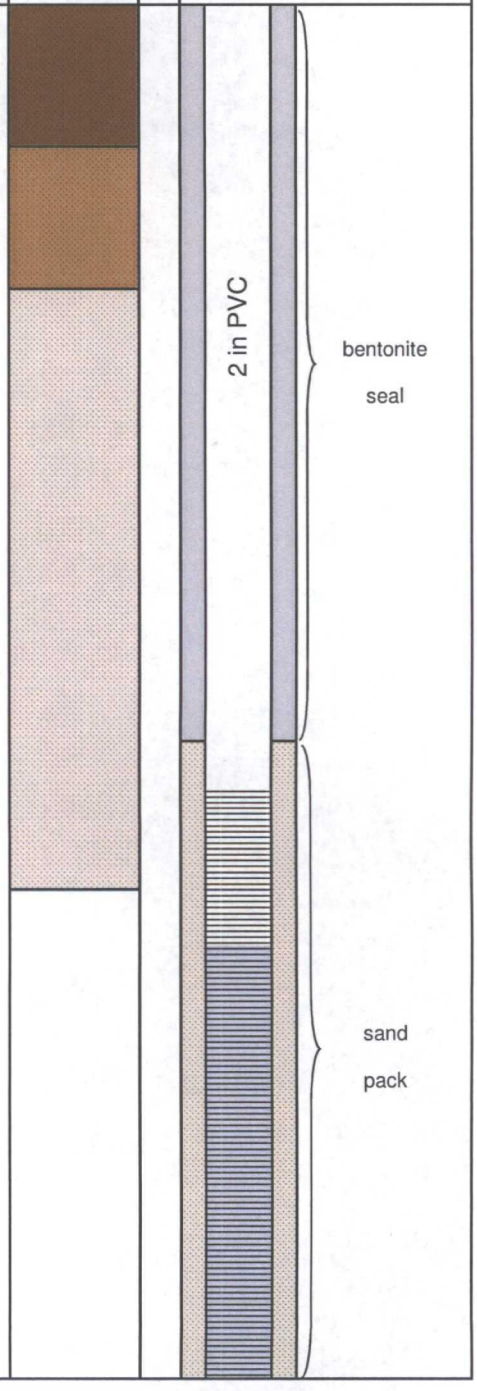
DRAFTED BY: L. Weinheimer

TD = 42 ft GW = 27 ft

Location: UL/K sec. 8 T20S R37E

Lat: 32°35'5.177"N **Long:** 103°16'33.693"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	85		1.1	
				Tanish Brown Sand
5 ft	123		36.1	
				Tan Sand
10 ft	181		83.2	
15 ft	431	Cl- 464	75.6	
		GRO <10		
		DRO <10		
20 ft	314		43.5	
25 ft	177	Cl- 192	57.8	
		GRO <10		NO SAMPLES TAKEN
		DRO <10		
30 ft				
35 ft				
40 ft				
42 ft				



CARDINAL Laboratories

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

September 02, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME K-8-1 JCT (20/37)

Enclosed are the results of analyses for samples received by the laboratory on 08/30/11 8:05.

Cardinal Laboratories is accredited through Texas NELAP for:

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/30/2011	Sampling Date:	08/29/2011
Reported:	09/02/2011	Sampling Type:	Soil
Project Name:	EME K-8-1 JCT (20/37)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: M W #2 @ 15' (H101832-01)

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	08/31/2011	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	09/01/2011	ND	163	81.5	200	1.53	
DRO >C10-C28	<10.0	10.0	09/01/2011	ND	161	80.3	200	2.07	

Surrogate: 1-Chlorooctane	*93.5 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*102 %*	*57.6-158*

Sample ID: M W #2 @ 25' (H101832-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**192**	16.0	08/31/2011	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	09/01/2011	ND	163	81.5	200	1.53	
DRO >C10-C28	<10.0	10.0	09/01/2011	ND	161	80.3	200	2.07	

Surrogate: 1-Chlorooctane	*112 %*	*55.5-154*
Surrogate: 1-Chlorooctadecane	*115 %*	*57.6-158*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

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	BILL TO
Project Manager: Hack Conder	P.O. #:
Address:	Company:
City: State: NM Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: EME K-8-1 Jct 20-37	Phone #:
Sampler Name: Kyle Norman	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS					
H1D1832																									
-1	MW #2 @ 15'	G	1			✓					✓		8-29-11	3:00	✓	✓									
2	MW #2 @ 25'	G	1			✓					✓		8-29-11	3:10	✓	✓									

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: Kyle N	Date: 8-30-11	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 7:15		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date: 8/30/11	Received By: Jodi Henson	REMARKS:
	Time: 8:05		email results
Delivered By: (Circle One)	Sample Condition: Cool ☑ Yes ☐ No / Intact ☑ Yes ☐ No	CHECKED BY: (Initials)	kJones@riceswd.com Knorman@rice-ecs.com
Sampler - UPS - Bus - Other:			Zconder@rice-ecs.com; Bbaker@riceswd.com
			hconder@riceswd.com; Lweinheimer@riceswd.com

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

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