1R - 427-320

WORKPLANS

Date:

7-21-11

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

CERTIFIED MAIL
RETURN RECIEPT NO. 7007 2560 0003 0323 9179

July 21st, 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 C-1 EOL (1R427-~~130~~320): UL/C sec. 1 T20S R36E

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 is located approximately 3 miles south-west of Monument, New Mexico at UL/C sec. 1 T20S R36E as shown on the Site Location Map (Figure 1 and Figure 2). After one quarter of monitor well sampling completed at the site, depth to groundwater has been determined to be 36 ft.

Background and Previous work

Junction Box Investigation

In 2005, ROC initiated work on the former EME C-1 EOL junction. The site was delineated using a backhoe to form a 10 x 10 x 12 ft deep excavation and soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation, the 4 wall composite, the bottom composite, and the remediated backfill samples were taken for laboratory verification. Laboratory tests of the site showed substantial gasoline range organics (GRO) and diesel range organics (DRO) in the 4-wall composite, bottom composite, and the remediated backfill. Chloride concentrations from the excavation did not relent with depth with depth or breadth. The 4-wall composite had a reading of 1,690 ppm and the bottom composite had a reading of 1,960 ppm. The soil from the excavation was blended on site and backfilled into the excavation. 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 consideration. NMOCD was notified of potential groundwater impact on December 7, 2005 and a junction box disclosure report was submitted to NMOCD with all the 2005 junction box closures and disclosures.

ICP Results

As part of the Investigation and Characterization Plan approved by NMOCD on December 22nd, 2010, eight soil bores were advanced through the former junction box site to a depth of 40 ft bgs on December 7th and 8th, 2010 (Figure 3). ROC 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 high of 1,800 mg/kg in soil bore #3 at 15 ft bgs to a low of 64 mg/kg in soil bore #7 at 30 ft bgs. GRO ranged from a high of 139 mg/kg in soil bore #3 at 30 ft bgs to a low of non-detect encountered in many of the bores. DRO ranged from a high of 1,530 mg/kg in soil bore #3 at 30 ft bgs to a low of non-detect encountered at various depths and in various bores. BTEX was also encountered in the bores.

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 23rd, 2011. The C-1 EOL site was believed to be located within a regionally impacted groundwater area (Figure 5). As such, RECS recommended that ROC install a 4 inch, near source well approximately 18 ft southeast of the former junction box site and a 2 inch, up-gradient monitor well south of the lease road. ROC also proposed additional lateral delineation of soils surrounding the former box to determine the dimensions of an infiltration barrier. Upon completion of the proposed work and monitor well sampling, a Corrective Action Plan (CAP) would be submitted to NMOCD with recommendations.

On March 23rd, 2011, two additional soil bores (SB-9 and SB-10) and two monitor wells (MW-1 and MW-2) were installed at the site (Figure 3). ROC personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID). Representative samples from the bores and wells 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 1,070 mg/kg in soil bore #10 at 10 ft bgs to a low of 64 mg/kg in monitor well #2 at 35 ft bgs. GRO ranged from a high of 245 mg/kg in monitor well #2 at 35 ft bgs to a low of non-detect at 10 ft bgs in both bores and in monitor well #1. DRO ranged from a high of 979 mg/kg in monitor well #2 at 35 ft bgs to a low of non-detect in soil bore #10 and monitor well #1 at 10 ft bgs. BTEX was encountered in both bores and both wells.

The monitor wells have been sampled once on April 8th, 2011, since their installation (Figure 4). The at-source monitor well (MW-1) showed a laboratory chloride reading of 5,800 mg/L and the up-gradient monitor well (MW-2) showed a laboratory chloride reading of 5,500 mg/L indicating up-gradient impairment of the groundwater (Figure 2). Neither monitor well showed elevated BTEX readings above WQCC standards (Appendix B).

Recommendations

Since the EME C-1 EOL site is in a regionally impacted groundwater area, RECS submits the following as a Corrective Action Plan.

Soil Remedy

ROC proposes to excavate the site to dimensions of 51 ft x 44 ft and properly seat a 20-mil, reinforced poly liner at 4 ft bgs (Figure 3). 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.

Upon completion of backfilling, the site will be seeded with native vegetation. 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.

Groundwater Remedy

Given the elevated chloride concentrations in the up-gradient monitoring well, ROC proposes to remove chloride impacted water from the first available recovery system located in EME. Removed groundwater will be utilized for pipeline and well maintenance. Our estimate conservatively reflects the net impact to groundwater at the site resulting from the former junction box site. It does not take into account other sources or regional groundwater conditions that may exist up gradient of the site.

- **Estimated chloride mass in the vadose zone**
  To determine if residual chlorides in the vadose zone pose a threat to groundwater quality, Texerra ran the U.S. Environmental Protection Agency Exposure Assessment Multimedia Model (MULTIMED Version 1.5, 2005). Data inputs and model outputs are included in Appendix C. With the proposed infiltration barrier measuring 51 x 44 ft, the model output concludes that the peak concentration of chlorides in the groundwater contributed by the vadose zone soils would be approximately 39 mg/kg in 401 years. Since the estimated increase in chloride concentrations in groundwater from residual chloride migration is below the WQCC standard of 250 mg/L, no further action will be warranted for the vadose zone of this site.

- **Estimated chloride mass in the groundwater**
  The estimated release area at the site is approximately 2,244 square feet. The aquifer thickness is estimated to be 30 ft thick. The porosity of the soil is estimated at 0.25. The volume of the impacted groundwater beneath the site is determined by multiplying the release area by the aquifer thickness by the porosity. The volume of impacted groundwater beneath the site is then 16,830 cubic feet. The result is then converted to liters giving us 476,573 liters. The chloride concentration added to the soil from the source is the difference between the highest concentration observed in monitor well #1

and the lowest concentration observed in monitor well #2 which is determined to be 300 mg/L. The total chloride mass in the groundwater is then determined by multiplying the volume of impacted groundwater beneath the site by the chloride concentration added to the soil from the site. This is then converted to kilograms. Thus, the total chloride mass beneath the site is 143 kg.

Estimate of Chloride Mass in Groundwater

Parameter	Unit	Value	Description
Release area	ft^2	2,244	Estimated Area of Plume
Aquifer Thickness	ft	11	NMOCD Approved Estimation
Porosity	%	0.25	Professional Estimate for Water Saturated Pore Volume
Volume of Impacted Groundwater Below Site	ft^3	16,830	Release Area x Aquifer Thickness x Porosity
Volume of Impacted Groundwater Below Site	L	476,573	Conversion from ft^3 to Liters
Chloride Concentration Added to Soil from Source	mg/L	300	Difference between Concentrations in Monitor Wells
TOTAL CHLORIDE MASS	**kg**	**143**	Volume of Impacted Groundwater Below Site x Chloride Concentration Added to Soil from Source

- **Estimated groundwater recovery system removal**
  Once this CAP is approved by NMOCD, ROC will begin water recovery at the first available recovery system in EME. Once the groundwater recovery system is identified in EME, ROC will provide NMOCD with the groundwater concentration of the water from the recovery well, the pumping rate, and volume of water needed to be removed to eliminate the chloride mass resulting from the EME C-1 EOL site.

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:

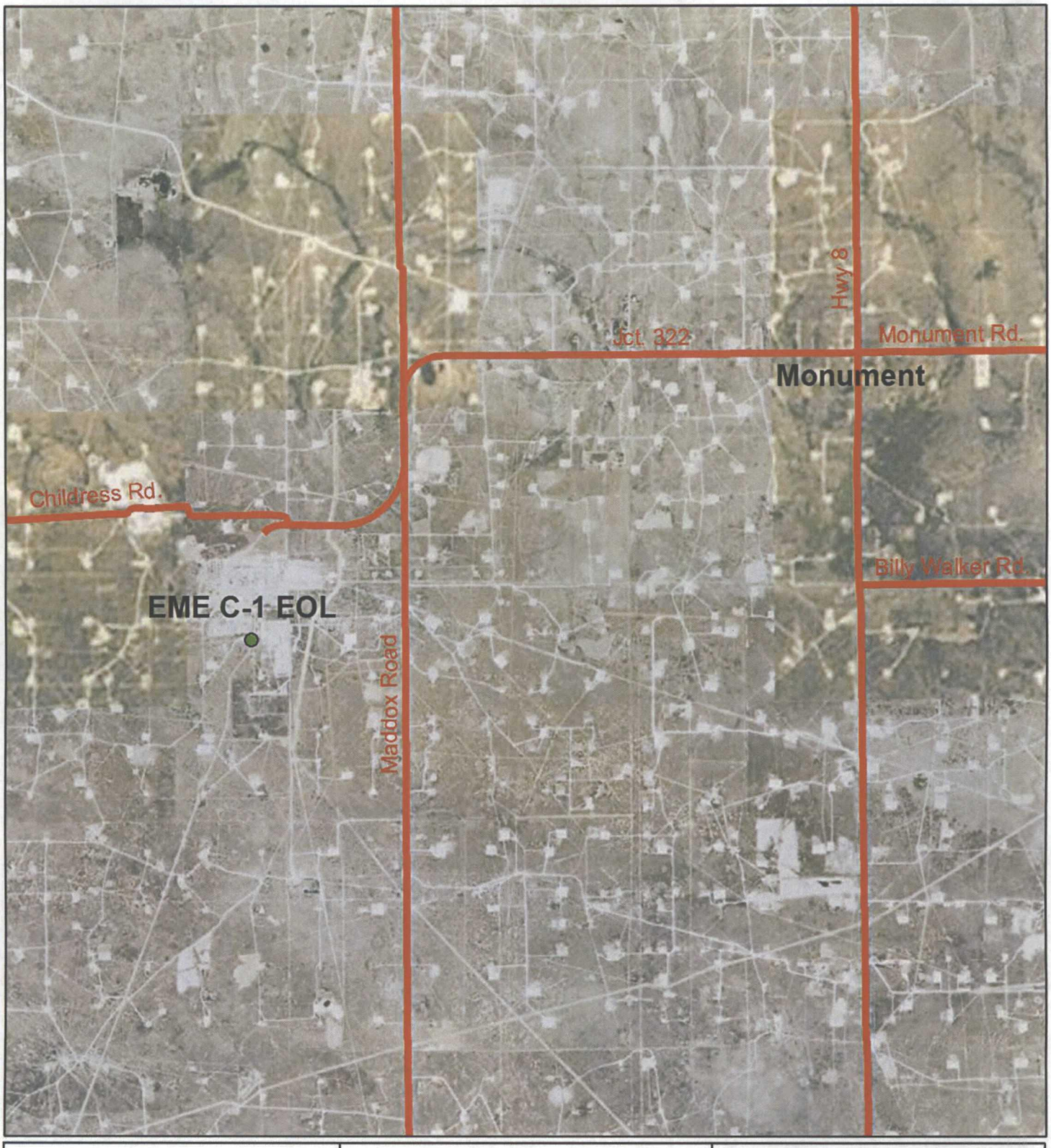
Figure 1 – Site location map
Figure 2 – Up gradient site map
Figure 3 – Soil bore information and proposed liner plat
Figure 4 – Monitor well sampling plat
Figure 5 – Groundwater contamination plat

Appendix A – Soil bore and monitor well logs and laboratory confirmation
Appendix B – Monitor well sampling confirmatory laboratories
Appendix C – Chloride Exposure Assessment

Figures

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

Site location map



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS

EME C-1 EOL

Legals: UL/C sec. 1
T20S R36E

Case #: 1R427-320

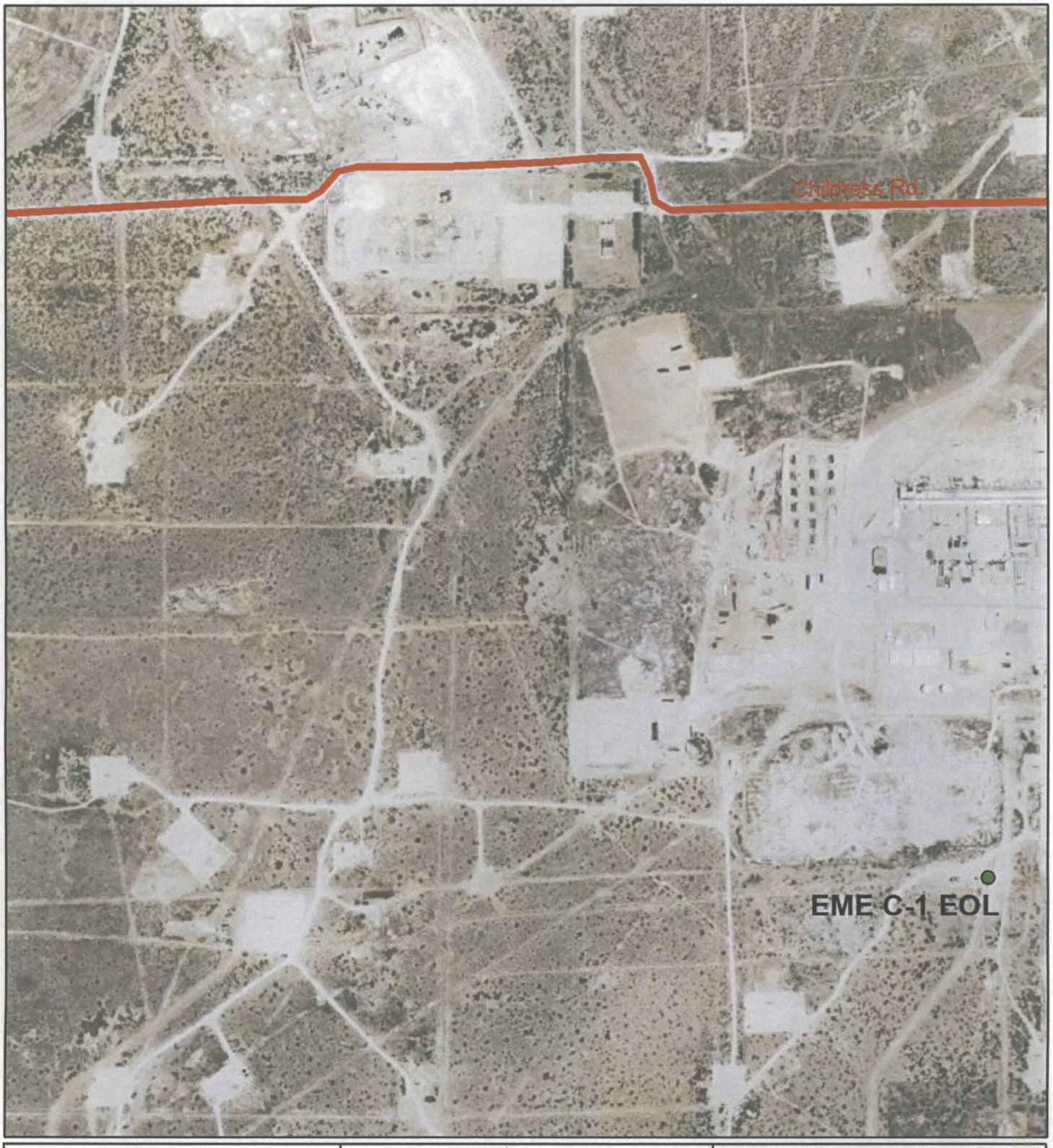
Figure 1

N W E S

0 0.25 0.5 1 Miles

Drawing date:11-1-10
Drafted by: L. Weinheimer

Up gradient site map



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

EME C-1 EOL

Legals: UL/C sec. 1
T20S R36E

Case #: 1R427-320

Figure 2

N
W E
S

Miles
0 0.05 0.1 0.2

Drawing date:7-5-11
Drafted by: L. Weinheimer

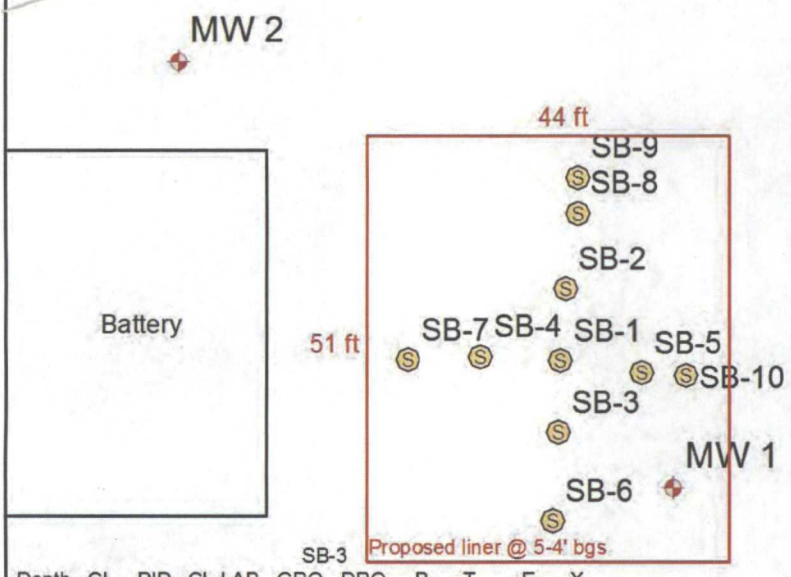
Soil Bore Installation and Proposed Liner

SB-9

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
5	334	1							
10	726	1	938	<10	19.0				
15	529	181							
20	290	767	304	66.5	666	<0.05	0.071	0.401	1.63
25	297	486							
30	172	395							
35	169	184							
40	198	106	288	15.0	173	<0.05	<0.05	<0.05	<0.15

SB-10

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
5	701	6.1							
10	895	5.2	1070	<10	<10				
15	360	856							
20	262	861							
25	193	1079	224	67.1	346	<0.05	0.084	0.724	2.9
30	176	648	144	74.0	708	<0.05	0.141	0.911	2.64



SB-3

Depth	Cl-	PID	Cl- LAB	GRO	DRO	B	T	E	X
5	340	5							
10	837	1.2							
15	1151	40.3	1800	<10	<10				
20	813	329							
25	613	153							
30	610	876	736	139	1530	<0.2	0.595	2.92	7.68
35	604	323							
40	381	209	624	<10	266	<0.05	0.1	0.322	0.924

SB-4

Depth	Cl-	PID	Cl- LAB	GRO	DRO	B	T	E	X
5	361	1.2							
10	287	1.2							
15	206	327							
20	212	589							
25	267	385							
30	286	707	352	<10	459	<0.05	0.208	1.12	2.7
35	260	183							
40	487	173	544	<10	280	<0.05	<0.05	0.075	0.288

SB-5

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
5	615	10							
10	690	4.3	1300	<10	<10	<0.05	<0.05	<0.05	<0.15
15	772	450							
20	428	501							
25	420	597	480	<10	384	<0.05	0.109	0.535	1.89
30	257	501							
35	249	197							
40	465	198	592	<10	268	<0.05	0.099	0.321	0.929

SB-6

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
5	148	17.2							
10	503	11.5							
15	636	12.8	656	<10	43.2				
20	440	709							
25	344	777	416	16.8	427				
30	427	674							
35	495	336							
40	320	107	480	<10	12.4	<0.05	<0.05	<0.05	0.15

MW-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
5	143	10.1							
10	665	6.9	848	<10	<10				
15	766	7.1							
20	562	782							
25	340	636							
30	313	751							
35	417	961	656	208	911	<0.05	0.478	1.36	3.53
40	417	76.6	816	14.5	44.3				

MW-2

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
5	87	23.9							
10	90	531							
15	62	971							
20	122	1358							
25	89	776							
30	199	1176							
35	171	1394	64	245	979	<0.05	0.448	1.94	5.27
40	390	34.5	560	101	556				

Non-ROC pipeline ROW

SB-7

Depth	Cl-	PID	Cl- LAB	GRO	DRO	B	T	E	X
5	177	0							
10	179	0							
15	184	687							
20	181	710							
25	178	905							
30	180	1219	64	64.1	455	<0.05	0.334	1.36	3.22
35	156	195							
40	304	110	336	<10	105	<0.05	<0.05	<0.05	<0.15

SB-8

Depth	Cl-	PID	Cl- LAB	GRO	DRO	B	T	E	X
5	717	0	800	<10	<10				
10	660	0							
15	550	204							
20	543	523							
25	449	157							
30	317	637	384	97.4	598	<0.05	0.24	1.29	3.1
35	307	287							
40	376	100	512	<10	174	<0.05	0.163	0.412	0.9

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME C-1 EOL

Legals: UL/C sec. 1
T20S R36E

Case #: 1R427-130

Figure 3

N W E S

0 10 20 40

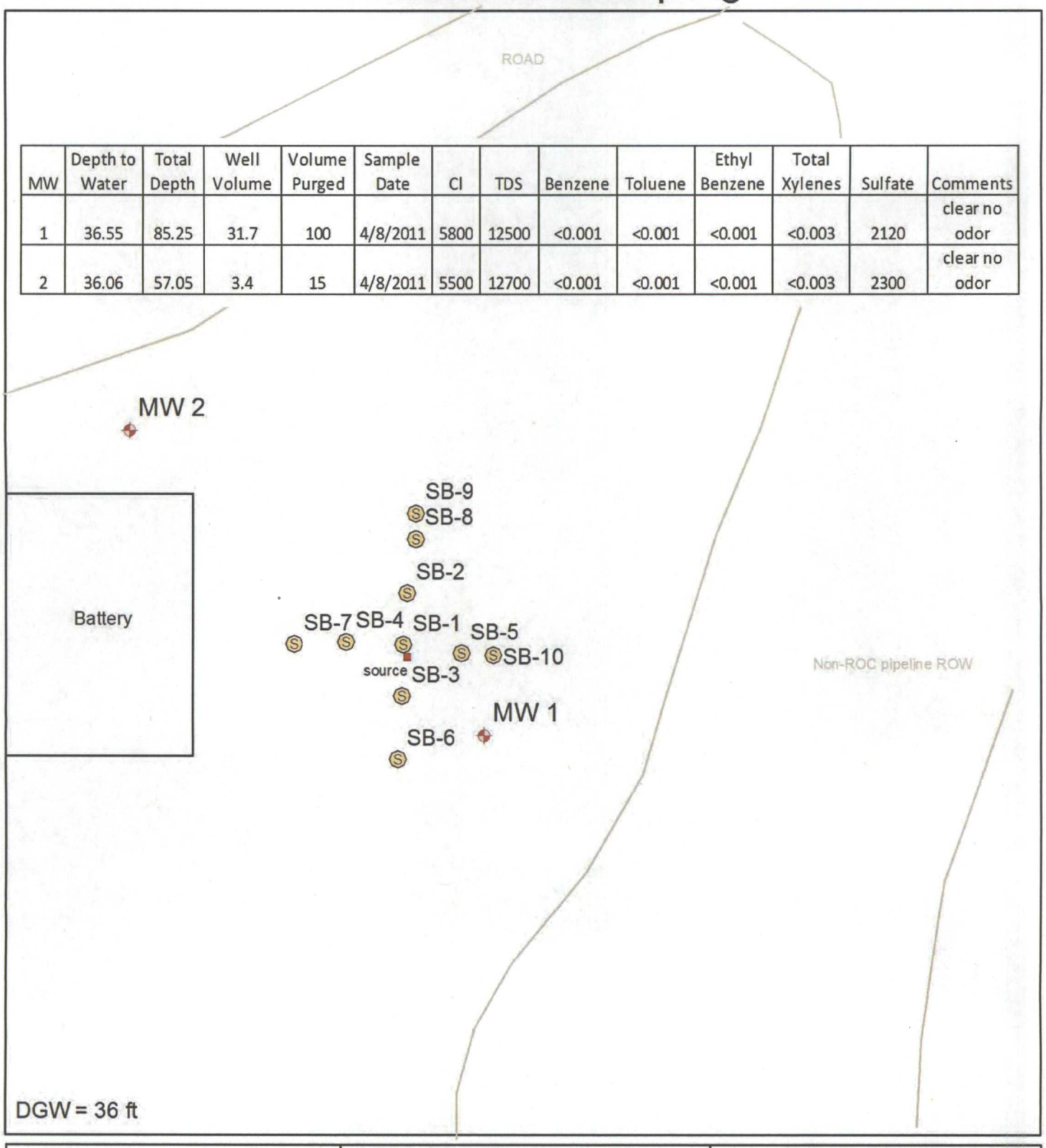
Feet

Drawing date:4-12-11
Drafted by: L. Weinheimer

DGW = 40 ft

Monitor Well Sampling

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	36.55	85.25	31.7	100	4/8/2011	5800	12500	<0.001	<0.001	<0.001	<0.003	2120	clear no odor
2	36.06	57.05	3.4	15	4/8/2011	5500	12700	<0.001	<0.001	<0.001	<0.003	2300	clear no odor



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME C-1 EOL

Legals: UL/C sec. 1
T20S R36E

Case #: 1R427-130

Figure 4

N W E S

0 10 20 40 Feet

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

Soil Bore Installation and Proposed Liner

SB-9

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
5	334	1							
10	726	1	938	<10	19.0				
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25	297	486							
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SB-10

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
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15	360	856							
20	262	861							
25	193	1079	224	67.1	346	<0.05	0.084	0.724	2.9
30	176	648	144	74.0	708	<0.05	0.141	0.911	2.64

ROAD

SB-5

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
5	615	10							
10	690	4.3	1300	<10	<10	<0.05	<0.05	<0.05	<0.15
15	772	450							
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40	465	198	592	<10	268	<0.05	0.099	0.321	0.929

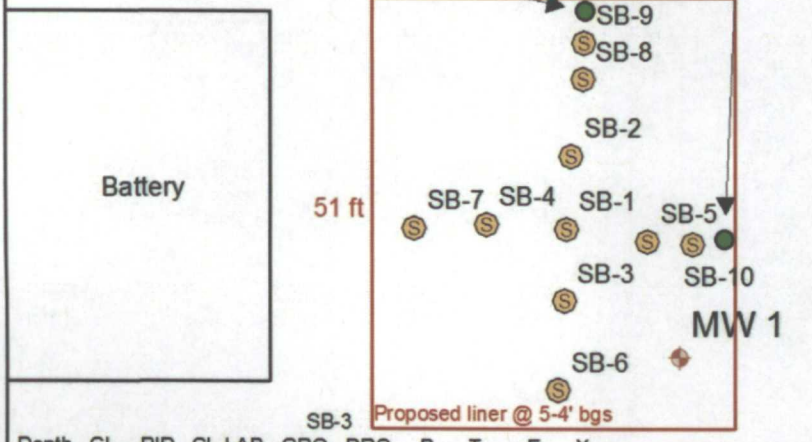
SB-6

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
5	148	17.2							
10	503	11.5							
15	636	12.8	656	<10	43.2				
20	440	709							
25	344	777	416	16.8	427				
30	427	674							
35	495	336							
40	320	107	480	<10	12.4	<0.05	<0.05	<0.05	0.15

MW 2

surface sample cl- 296, PID 0

surface sample cl- 287, PID 0.3



MW-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
5	143	10.1							
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40	417	76.6	816	14.5	44.3				

MW-2

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
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20	122	1358							
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40	390	34.5	560	101	556				

Non-ROC pipeline ROW

SB-3

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SB-4

Depth	Cl-	PID	Cl- LAB	GRO	DRO	B	T	E	X
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10	287	1.2							
15	206	327							
20	212	589							
25	267	385							
30	286	707	352	<10	459	<0.05	0.208	1.12	2.7
35	260	183							
40	487	173	544	<10	280	<0.05	<0.05	0.075	0.288

SB-7

Depth	Cl-	PID	Cl- LAB	GRO	DRO	B	T	E	X
5	177	0							
10	179	0							
15	184	687							
20	181	710							
25	178	905							
30	180	1219	64	64.1	455	<0.05	0.334	1.36	3.22
35	156	195							
40	304	110	336	<10	105	<0.05	<0.05	<0.05	<0.15

SB-8

Depth	Cl-	PID	Cl- LAB	GRO	DRO	B	T	E	X
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10	660	0							
15	550	204							
20	543	523							
25	449	157							
30	317	637	384	97.4	598	<0.05	0.24	1.29	3.1
35	307	287							
40	376	100	512	<10	174	<0.05	0.163	0.412	0.9

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME C-1 EOL

Legals: UL/C sec. 1
T20S R36E

Case #: 1R427-130

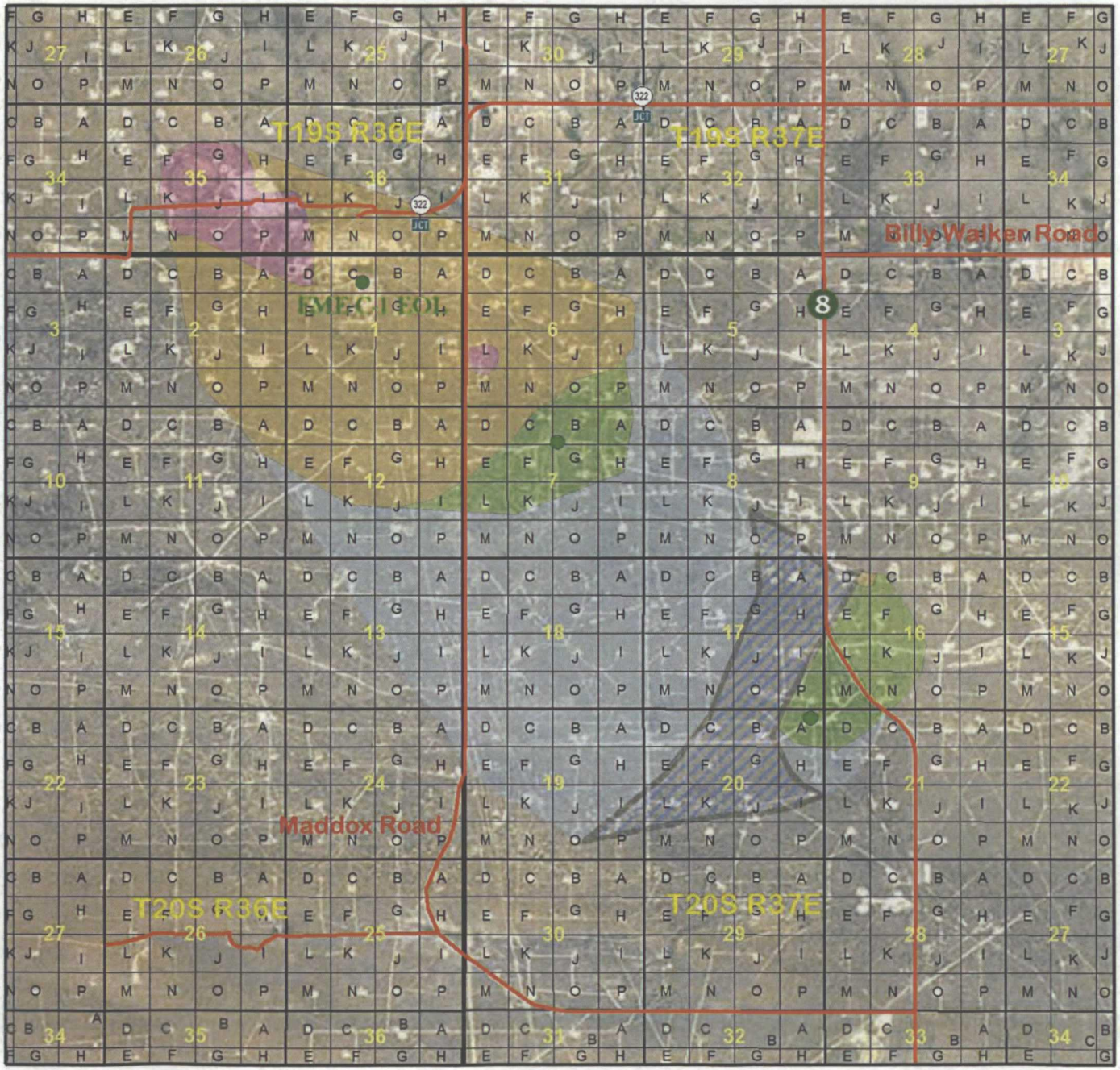
DGW = 40 ft

N W E S

0 10 20 40 Feet

Drawing date: 8-5-11
Drafted by: L. Weinheimer

EME Groundwater Contamination



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

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.

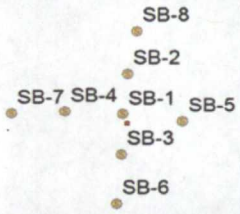
Drawing date: 12-15-09
Revision date:1-11-11
Drafted by: Lara Weinheimer

Figure 5

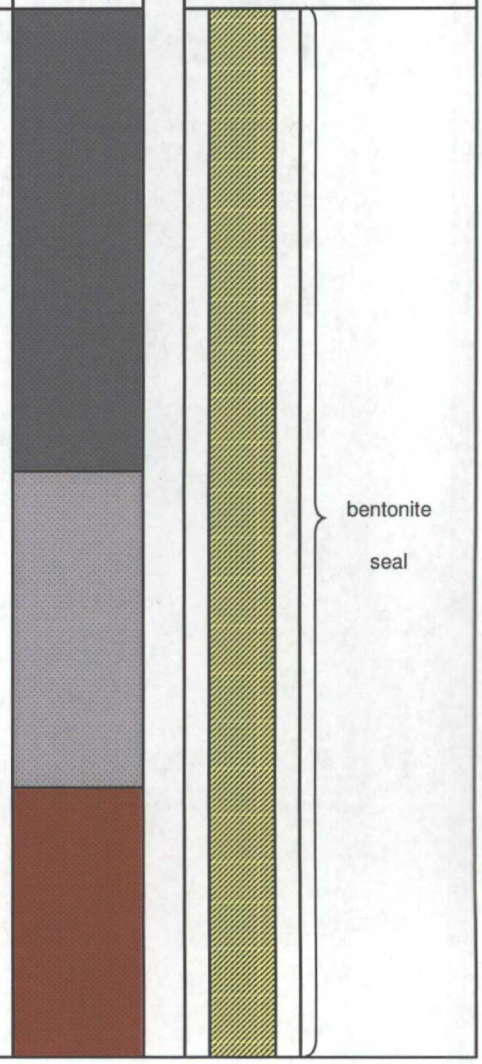
Appendix A

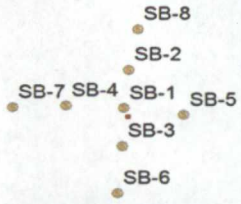
Soil bore and monitor well logs and laboratory confirmation

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

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME C-1 EOL **Well ID:** SB-1
Start Date:	12/7/2010		
End Date:	12/7/2010		**Project Consultant:** RECS
Comments: Located at the source of the former junction box site.			**Location:** UL/C sec. 1 T20S R36E
DRAFTED BY: L. Weinheimer			**Lat:** 32°36'23.399"N **County**: LEA
TD = 40 ft	GW = 40 ft		**Long:** 103°18'38.252"W **State**: NM

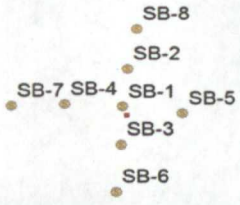
Depth (feet)	chloride field tests	LAB	PID	Description
				Black silty sand with small caliche fragments (hydrocarbon odor)
15 ft	409		479	
20 ft	394	Cl- 480	567	
B <0.05 T = 0.368		GRO 138		
E = 1.95 X = 6.01		DRO 973		
25 ft	347		333	
				Gray silty sand with small caliche fragments (hydrocarbon odor)
30 ft	348		180	
35 ft	466		127	
				Red coarse sand with gravel mixture (hydrocarbon odor)
40 ft	373	Cl- 464	111	
B <0.05 T = 0.053		GRO <10		
E <0.05 X <0.15		DRO 103		



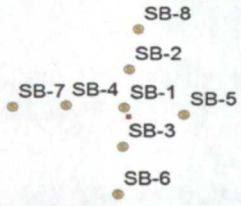
Logger:	Jordan Woodfin		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME C-1 EOL **Well ID:** SB-2
Start Date:	12/7/2010		
End Date:	12/7/2010		**Project Consultant:** RECS
Comments: Located 8 ft north of the former junction box site.			**Location:** UL/C sec. 1 T20S R36E
DRAFTED BY: L. Weinheimer			**Lat:** 32°36'23.485"N **County**: LEA
TD = 40 ft	GW = 40 ft		**Long:** 103°18'38.241"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Light brown silty sand		
5 ft	600		4.8			
				Yellowish tan silty sand with caliche fragments		
10 ft	675		0.1			
				Light brown silty sand with caliche fragments (hydrocarbon odor)		
15 ft	456		304			
20 ft	363	Cl- 560	600			
B <0.05 T = 0.207		GRO 100				
E = 1.05 X = 3.71		DRO 1120				
25 ft	733		339			
30 ft	863	Cl- 1230	334			
B <0.05 T = 0.125		GRO 34.5		Gray coarse sand and silt with caliche fragments (hydrocarbon odor)		
E = 0.436 X = 1.23		DRO 730				
35 ft	443		290			
40 ft	596	Cl- 880	163			
B <0.05 T = 0.135		GRO 65.0				
E = 0.445 X = 1.30		DRO 1460				

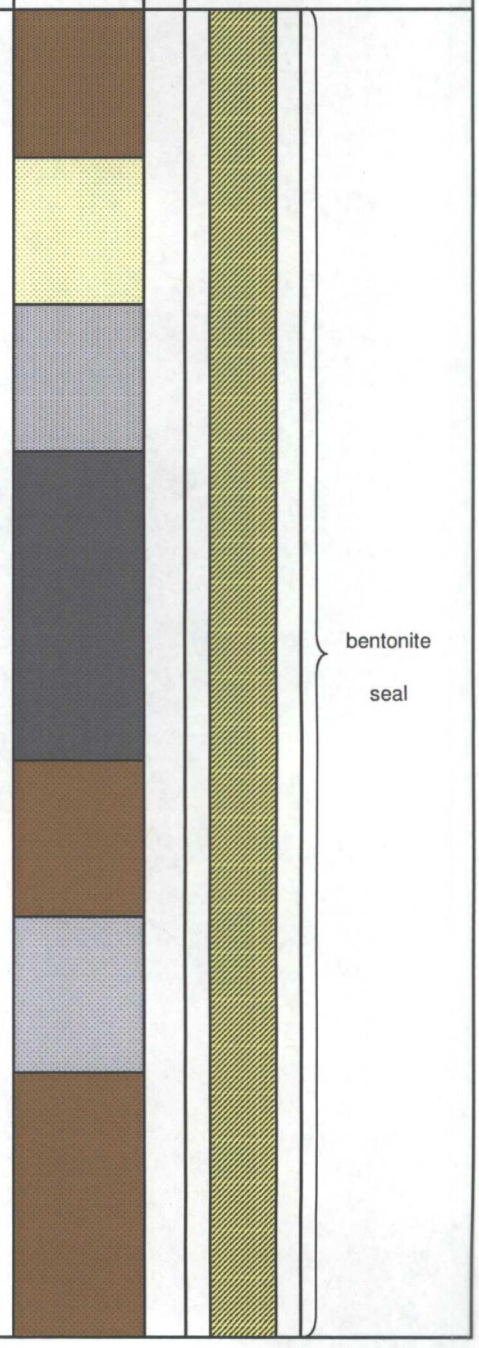
bentontie seal

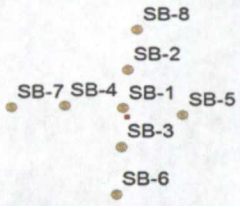
Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME C-1 EOL **Well ID:** SB-3
Start Date:	12/7/2010		
End Date:	12/7/2010		**Project Consultant:** RECS
Comments: Located 8 ft south of the former junction box site.			**Location:** UL/C sec. 1 T20S R36E
DRAFTED BY: L. Weinheimer			**Lat:** 32°36'23.31"N **County**: LEA
TD = 40 ft	GW = 40 ft		**Long:** 103°18'38.255"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown very fine sand		
5 ft	340		5			
				Brown very fine silty sand		
10 ft	837		1.2			
				Light brown silty sand with small caliche fragments (hydrocarbon odor)		
15 ft	1,151	Cl- 1800	40.3			
		GRO <10		Black silty sand (hydrocarbon odor)		
		DRO <10				
20 ft	813		329			
				Brownish yellow silty sand (hydrocarbon odor)		bentonite seal
25 ft	613		153			
				Brownish grey medium sand with small caliche fragments (hydrocarbon odor)		
30 ft	610	Cl- 736	876			
B <0.2 T = 0.595		GRO 139				
E = 2.92 X = 7.68		DRO 1530				
35 ft	604		323			
40 ft	381	Cl- 624	209			
B <0.05 T = 0.1		GRO <10				
E = 0.322 X =0.924		DRO 266				

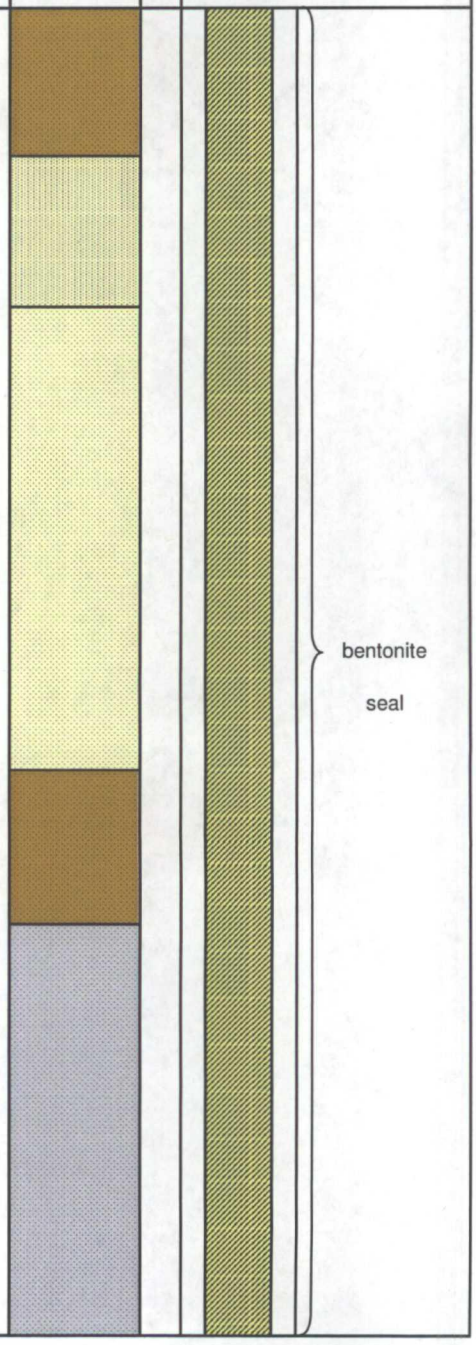
Logger:	Jordan Woodfin		**Project Name:** EME C-1 EOL **Well ID:** SB-4
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	12/8/2010		
End Date:	12/8/2010		
Comments: Located 10 ft west of the former junction box site.			**Location:** UL/C sec. 1 T20S R36E
DRAFTED BY: L. Weinheimer			**Lat:** 32°36'23.404"N **County**: LEA
TD = 40 ft	GW = 40 ft		**Long:** 103°18'38.363"W **State**: NM

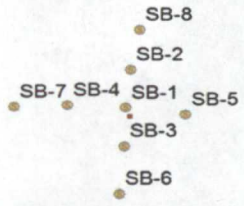
Depth (feet)	chloride field tests	LAB	PID	Description
				Light brown very fine sand
5 ft	361		1.2	
				Tannish to yellow silty sand
10 ft	287		1.2	
				Gray fine sand with small caliche fragments (hydrocarbon odor)
15 ft	206		327	
				Light black silty sand with small caliche fragments (hydrocarbon odor)
20 ft	212		589	
25 ft	267		385	
				Light brown very fine silty sand (hydrocarbon odor)
30 ft	286	Cl- 352	707	
B <0.05 T = 0.208		GRO <10		Gray silt with some very fine sand (hydrocarbon odor)
E = 1.12 X = 2.7		DRO 459		
35 ft	260		183	
				Light brown very fine silty sand (hydrocarbon odor)
40 ft	487	Cl- 544	173	
B <0.05 T <0.05		GRO <10		
E = 0.075 X = 0.288		DRO 280		



Logger:	Jordan Woodfin		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME C-1 EOL **Well ID:** SB-5
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	12/8/2010		
End Date:	12/8/2010		
Comments: Located 9 ft east of the former junction box site.			**Location:** UL/C sec. 1 T20S R36E
DRAFTED BY: L. Weinheimer			**Lat:** 32°36'23.382"N **County**: LEA
TD = 40 ft	GW = 40 ft		**Long:** 103°18'38.135"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Light brown very fine sand
5 ft	615		10	
				Tan silty sand with large caliche fragments
10 ft	690	Cl- 1300	4.3	
B <0.05 T <0.05		GRO <10		Tan silty sand with small caliche fragments (hydrocarbon odor)
E <0.05 X <0.15		DRO <10		
15 ft	772		450	
				Tan silty sand with small caliche fragments and one large red clay fragments (hydrocarbon odor)
20 ft	428		501	
				Tan silty sand with small caliche fragments (hydrocarbon odor)
25 ft	420	Cl- 480	597	
B <0.05 T = 0.109		GRO <10		Light brown to grey sitly sand with small caliche fragments
E = 0.535 X = 1.89		DRO 384		
30 ft	257		501	
				Gray silty sand (hydrocarbon odor)
35 ft	249		197	
40 ft	465	Cl- 592	198	
B <0.05 T = 0.099		GRO <10		
E = 0.321 X = 0.929		DRO 268		



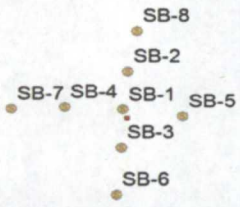
Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME C-1 EOL **Well ID:** SB-6
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	12/8/2010		
End Date:	12/8/2010		
Comments: Located 17 ft south of the former junction box site.			**Location:** UL/C sec. 1 T20S R36E
DRAFTED BY: L. Weinheimer			**Lat:** 32°36'23.208"N **County**: LEA
TD = 40 ft	GW = 40 ft		**Long:** 103°18'38.263"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Tan very fine sand
5 ft	148		17.2	
				Tan silty sand with a lot of medium sized caliche fragments
10 ft	503		11.5	
				Light brown very fine silty sand
15 ft	636	Cl- 656	12.8	
		GRO <10		Light brown very fine silty sand (hydrocarbon odor)
		DRO 43.2		
20 ft	440		709	
				Light brown very fine silty sand with small caliche fragments (hydrocarbon odor)
25 ft	344	Cl- 416	777	
		GRO 16.8		Tan silty sand with small caliche fragments (hydrocarbon odor)
		DRO 427		
30 ft	427		674	
				Gray medium sand with small caliche fragments (hydrocarbon odor)
35 ft	495		336	
				Red silty sand (moist) (hydrocarbon odor)
40 ft	320	Cl- 480	107	
B <0.05 T <0.05		GRO <10		
E < 0.05 X < 0.15		DRO 12.4		

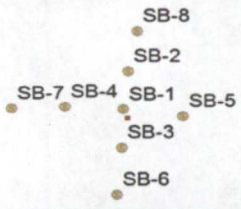
Lithology

Well Construction

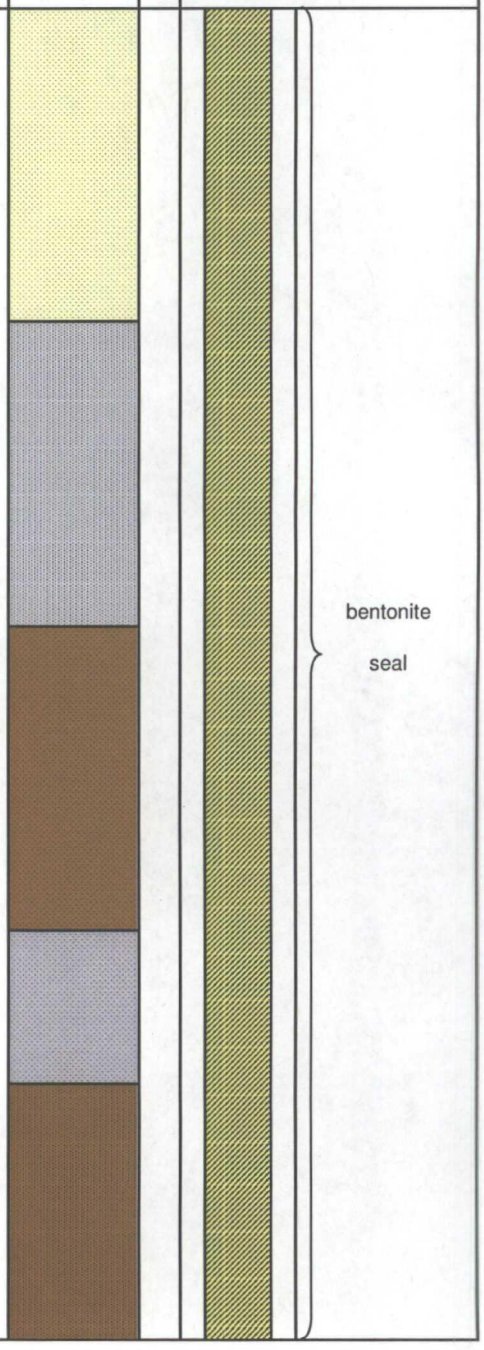
bentonite seal

Logger:	Jordan Woodfin		**Project Name:** EME C-1 EOL **Well ID:** SB-7
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	12/8/2010		
End Date:	12/8/2010		
Comments: Located 19 ft west of the former junction box site.			**Location:** UL/C sec. 1 T20S R36E
DRAFTED BY: L. Weinheimer			**Lat:** 32°36'23.4"N **County**: LEA
TD = 40 ft		GW = 40 ft	**Long:** 103°18'38.468"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Light brown very fine sand with small caliche rubble		
5 ft	177		0			
				Tan very fine silty sand		
10 ft	179		0			
				Gray very fine silty sand (hydrocarbon odor)		
15 ft	184		687			
				Gray fine sand with small caliche fragments (hydrocarbon odor)		
20 ft	181		710			
				Tan to grey fine silty sand (hydrocarbon odor)		bentonite seal
25 ft	178		905			
				Tan silty sand with medium sized caliche fragments (hydrocarbon odor)		
30 ft	180	Cl- 64	1219			
B <0.05 T = 0.334		GRO 64.1		Gray coarse sand with small caliche fragments (hydrocarbon odor)		
E = 1.36 X = 3.22		DRO 455				
35 ft	156		195			
				Red and grey fine silty sand with small caliche fragments (hydrocarbon odor)		
40 ft	304	Cl- 336	110			
B <0.05 T <0.05		GRO <10				
E < 0.05 X < 0.15		DRO 105				

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME C-1 EOL **Well ID:** SB-8
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	12/8/2010		
End Date:	12/8/2010		
Comments: Located 20 ft north of the former junction box site.			**Location:** UL/C sec. 1 T20S R36E
DRAFTED BY: L. Weinheimer			**Lat:** 32°36'23.574"N **County**: LEA
TD = 40 ft		GW = 40 ft	**Long:** 103°18'38.224"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Tan very fine sand
5 ft	717	Cl- 800	0	
		GRO <10		
		DRO <10		
10 ft	660		0	
				Gray very fine sand with small caliche fragments (hydrocarbon odor)
15 ft	550		204	
20 ft	543		523	
				Light brown fine silty sand (hydrocarbon odor)
25 ft	449		157	
30 ft	317	Cl- 384	637	
B <0.05 T = 0.24		GRO 97.4		Gray coarse sand with small caliche fragments (hydrocarbon odor)
E = 1.29 X = 3.1		DRO 598		
35 ft	307		287	
				Light brown coarse sand with small caliche fragments (hydrocarbon odor)
40 ft	376	Cl- 512	100	
B <0.05 T = 0.163		GRO <10		
E = 0.412 X = 0.9		DRO 174		



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 C-1 EOL

Enclosed are the results of analyses for samples received by the laboratory on 12/08/10 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:	12/08/2010	Sampling Date:	12/07/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #1 @ 20' (H021473-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/09/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.368**	0.050	12/09/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**1.95**	0.050	12/09/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**6.01**	0.150	12/09/2010	ND	6 33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *103 %* *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	**480**	16.0	12/08/2010	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: AB** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**138**	10.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	**973**	10.0	12/09/2010	ND	204	102	200	8.69	

Surrogate 1-Chlorooctane *77 2 %* *70-130*

Surrogate 1-Chlorooctadecane *43 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:	12/08/2010	Sampling Date:	12/07/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #1 @ 40' (H021473-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/09/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.053**	0.050	12/09/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	<0.050	0.050	12/09/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	<0.150	0.150	12/09/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *104 %* *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	**464**	16.0	12/08/2010	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: AB** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	**103**	10.0	12/09/2010	ND	204	102	200	8.69	

Surrogate 1-Chlorooctane *90 6 %* *70-130*

Surrogate 1-Chlorooctadecane *58 5 %* *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:	12/08/2010	Sampling Date:	12/07/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #2 @ 20' (H021473-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.207**	0.050	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**1.05**	0.050	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**3.71**	0.150	12/10/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *103 %* *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	**560**	16.0	12/08/2010	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**100**	10.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	**1120**	10.0	12/09/2010	ND	204	102	200	8.69	

Surrogate 1-Chlorooctane *106 %* *70-130*

Surrogate 1-Chlorooctadecane *83 5 %* *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:	12/08/2010	Sampling Date:	12/07/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #2 @ 30' (H021473-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.125**	0.050	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**0.436**	0.050	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**1.23**	0.150	12/10/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *103 %* *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	**1230**	16.0	12/08/2010	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**34.5**	10.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	**730**	10.0	12/09/2010	ND	204	102	200	8.69	

Surrogate 1-Chlorooctane *112 %* *70-130*

Surrogate 1-Chlorooctadecane *95.3 %* *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:	12/08/2010	Sampling Date:	12/07/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #2 @ 40' (H021473-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.135**	0.050	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**0.445**	0.050	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**1.30**	0.150	12/10/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *97.6 %* *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	**880**	16.0	12/08/2010	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**65.0**	10.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	**1460**	10.0	12/09/2010	ND	204	102	200	8.69	

Surrogate 1-Chlorooctane *92.1 %* *70-130*

Surrogate 1-Chlorooctadecane *74.9 %* *70-130*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

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

Received:	12/08/2010	Sampling Date:	12/07/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #3 @ 15' (H021473-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1800**	16.0	12/08/2010	ND	432	108	400	0.00	

TPH 8015M **mg/kg** **Analyzed By: AB** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	<10.0	10.0	12/09/2010	ND	204	102	200	8.69	

Surrogate 1-Chlorooctane	*86.7 %*	*70-130*
Surrogate 1-Chlorooctadecane	*56.2 %*	*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:	12/08/2010	Sampling Date:	12/07/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #3 @ 30' (H021473-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	12/11/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.595**	0.200	12/11/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**2.92**	0.200	12/11/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**7.68**	0.600	12/11/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *91.0 %* *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	**736**	16.0	12/08/2010	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**139**	10.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	**1530**	10.0	12/09/2010	ND	204	102	200	8.69	

Surrogate 1-Chlorooctane *93.9 %* *70-130*

Surrogate 1-Chlorooctadecane *72.2 %* *70-130*

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Celey D. Keene

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:	12/08/2010	Sampling Date:	12/07/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #3 @ 40' (H021473-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.100**	0.050	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**0.322**	0.050	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**0.924**	0.150	12/10/2010	ND	6.33	106	6.00	3.65	

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	**624**	16.0	12/08/2010	ND	432	108	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	**266**	10.0	12/09/2010	ND	204	102	200	8.69	

Surrogate 1-Chlorooctane *90 6 %* *70-130*

Surrogate 1-Chlorooctadecane *72 5 %* *70-130*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable
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 C-1 EOL		**State:** **Zip:**
Project Location:	EME C-1 EOL		**Phone #:**
Sampler Name:	Jordan Woodfin		**Fax #:**

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	**Sample I.D.**	(G)RAB OR (C)OMP	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	**DATE**	**TIME**	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TPH 8015 M Extended Thru C40						
H21473-1	SB # 1 @ 20'		1			✓					✓		12/7/10	01:45	✓	✓	✓								
2	SB # 1 @ 40'		1			✓					✓		12/7/10	02:15	✓	✓	✓								
3	SB # 2 @ 20'		1			✓					✓		12/7/10	02:30	✓	✓	✓								
4	SB # 2 @ 30'		1			✓					✓		12/7/10	02:45	✓	✓	✓								
5	SB # 2 @ 40'		1			✓					✓		12/7/10	03:00	✓	✓	✓								
6	SB # 3 @ 15'		1			✓					✓		12/7/10	03:15	✓	✓									
7	SB # 3 @ 30'		1			✓					✓		12/7/10	03:30	✓	✓	✓								
8	SB # 3 @ 40'		1			✓					✓		12/7/10	04:00	✓	✓	✓								

Relinquished By:	Jordan Woodfin	**Date:** 12/8/10 **Time:** 8:15	**Received By:**
Relinquished By:		**Date:** 12/8/10 **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@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 13, 2010

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME C-1 EOL

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 C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #4 @ 30' (H021479-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.208**	0.050	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**1.12**	0.050	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**2.70**	0.150	12/10/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *95.1 %* *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	**352**	16.0	12/09/2010	ND	432	108	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	12/09/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	**459**	10.0	12/09/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane *81.8 %* *70-130*

Surrogate 1-Chlorooctadecane *86.6 %* *70-130*

Cardinal Laboratories

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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:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #4 @ 40' (H021479-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	<0.050	0.050	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**0.075**	0.050	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**0.288**	0.150	12/10/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL	*106 %*	*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	**544**	16.0	12/09/2010	ND	432	108	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	12/09/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	**280**	10.0	12/09/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane	*95.5 %*	*70-130*
Surrogate 1-Chlorooctadecane	*97.4 %*	*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:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #5 @ 10' (H021479-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	<0.050	0.050	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	<0.050	0.050	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	<0.150	0.150	12/10/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *104 %* *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	**1300**	16.0	12/09/2010	ND	432	108	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	12/09/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	<10.0	10.0	12/09/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane *71.9 %* *70-130*

Surrogate 1-Chlorooctadecane *78.3 %* *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:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #5 @ 25' (H021479-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.109**	0.050	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**0.535**	0.050	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**1.89**	0.150	12/10/2010	ND	6.33	106	6.00	3.65	

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	**480**	16.0	12/09/2010	ND	432	108	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	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	**384**	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane *95.4 %* *70-130*

Surrogate 1-Chlorooctadecane *96.4 %* *70-130*

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

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Hack Conder
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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 C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #5 @ 40' (H021479-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.099**	0.050	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**0.321**	0.050	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**0.929**	0.150	12/10/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *101 %* *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	**592**	16.0	12/09/2010	ND	432	108	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	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	**268**	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane *96.4 %* *70-130*

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

Cardinal Laboratories

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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:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #6 @ 15' (H021479-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**656**	16.0	12/09/2010	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	**43.2**	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane	*84.5 %*	*70-130*
Surrogate 1-Chlorooctadecane	*86.1 %*	*70-130*

Sample ID: SB #6 @ 25' (H021479-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**416**	16.0	12/09/2010	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	**16.8**	10.0	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	**427**	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane	*92.1 %*	*70-130*
Surrogate 1-Chlorooctadecane	*91.6 %*	*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:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #6 @ 40' (H021479-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	<0.050	0.050	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	<0.050	0.050	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*'	<0.150	0.150	12/10/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *101 %* *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	**480**	16.0	12/09/2010	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	**12.4**	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane *92.7 %* *70-130*

Surrogate 1-Chlorooctadecane *96.5 %* *70-130*

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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 C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #7 @ 30' (H021479-09)

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	12/13/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.334**	0.050	12/13/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**1.36**	0.050	12/13/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**3.22**	0.150	12/13/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *79.8 %* *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	**64.0**	16.0	12/09/2010	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	**64.1**	10.0	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	**455**	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane *97.1 %* *70-130*

Surrogate 1-Chlorooctadecane *97.6 %* *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:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #7 @ 40' (H021479-10)

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	12/13/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	<0.050	0.050	12/13/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	<0.050	0.050	12/13/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	<0.150	0.150	12/13/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *110 %* *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	12/09/2010	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	**105**	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane *92.5 %* *70-130*

Surrogate 1-Chlorooctadecane *97.2 %* *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:	12/09/2010	Sampling Date:	12/08/2010
Reported:	12/13/2010	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #8 @ 5' (H021479-11)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**800**	16.0	12/09/2010	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	*95.1 %*	*70-130*
Surrogate 1-Chlorooctadecane	*95.2 %*	*70-130*

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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 C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #8 @ 30' (H021479-12)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/11/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.240**	0.050	12/11/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**1.29**	0.050	12/11/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**3.10**	0.150	12/11/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *81.1 %* *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	**384**	16.0	12/09/2010	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	**97.4**	10.0	12/10/2010	ND	164	81.9	200	3.76	
DRO >C10-C28	**598**	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane *96.6 %* *70-130*

Surrogate 1-Chlorooctadecane *95.7 %* *70-130*

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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 C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #8 @ 40' (H021479-13)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/11/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	**0.163**	0.050	12/11/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	**0.412**	0.050	12/11/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	**0.900**	0.150	12/11/2010	ND	6.33	106	6.00	3.65	

Surrogate 4-Bromofluorobenzene (PIL *76.8 %* *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	**512**	16.0	12/09/2010	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	**174**	10.0	12/10/2010	ND	163	81.3	200	2.60	

Surrogate 1-Chlorooctane *90.4 %* *70-130*

Surrogate 1-Chlorooctadecane *99.0 %* *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

Notes and Definitions

QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
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 C-1 EOL		State: Zip:
Project Location:	EME C-1 EOL		Phone #:
Sampler Name:	Jordan Woodfin		Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST									
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TPH 8015 M Extended Thru C40					
H21479-1	SB # 4 @ 30'		1			✓					✓		12/8/10	08:00	✓	✓	✓								
2	SB # 4 @ 40'		1			✓					✓			08:30	✓	✓	✓								
3	SB # 5 @ 10'		1			✓					✓			09:00	✓	✓	✓								
4	SB # 5 @ 25'		1			✓					✓			09:15	✓	✓	✓								
5	SB # 5 @ 40'		1			✓					✓			09:30	✓	✓	✓								
6	SB # 6 @ 15'		1			✓					✓			10:00	✓	✓									
7	SB # 6 @ 25'		1			✓					✓			10:30	✓	✓									
8	SB # 6 @ 40'		1			✓					✓			10:45	✓	✓	✓								
9	SB # 7 @ 30'		1			✓					✓			11:00	✓	✓	✓								
10	SB # 7 @ 40'		1			✓					✓			11:30	✓	✓	✓								

Relinquished By:	Date: 12/9/10	Received By:		Phone Result: ☐ Yes ☑ No	Add'l Phone #:
Jordan Woodfin	Time: 2:30			Fax Result: ☐ Yes ☑ No	Add'l Fax #:
Relinquished By:	Date: 12/9/10	Received By:		REMARKS:	
	Time: 9:50			email results	
Delivered By: (Circle One)	Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials)		Hconder@riceswd.com; jwoodfin@riceswd.com; Lweinheimer@riceswd.com kjones@riceswd.com	
Sampler - UPS - Bus - Other:					

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

#20

NEED SAMPLES BACK, PLEASE

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 C-1 EOL	**State:** **Zip:**
Project Location: EME C-1 EOL	**Phone #:**
Sampler Name: Jordan Woodfin	**Fax #:**

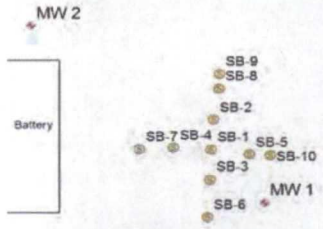
FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	**Sample I.D.**	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TPH 8015 M Extended Thru C40						
H21479-11	SB # 8 @ 5'		1			✓					✓		12/8/10	01:00	✓	✓									
12	SB # 8 @ 30'		1			✓					✓			01:15	✓	✓	✓								
13	SB # 8 @ 40'		1			✓					✓			01:30	✓	✓	✓								

Relinquished By: Jordan Woodfin	**Date:** 12/9/10 **Time:** 3:30	**Received By:**	**Phone Result:** ☐ Yes ☑ No **Add'l Phone #:**
Relinquished By:	**Date:** 12/9/10 **Time:** 4:50	**Received By:** Debi 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

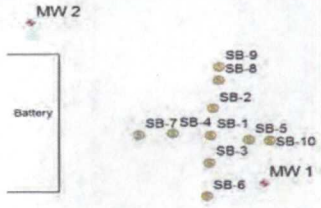
† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#96

NEED SAMPLES BACK, PLEASE

Logger:	Jordan Woodfin		**Project Name:** EME C-1 EOL **Well ID:** SB-9
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	3/25/2011		
End Date:	3/25/2011		
Comments: All samples are from cuttings. Located 22 ft north of the former junction box site. **DRAFTED BY: L. Weinheimer** TD = 40 ft GW = 40 ft			**Location:** UL/C sec. 1 T20S R36E **Lat:** 32°36'23.616"N **Long:** 103°18'38.221"W **County**: LEA **State**: NM

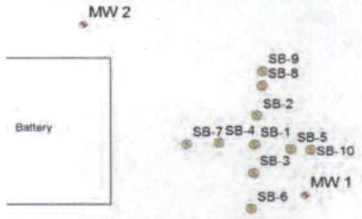
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Yellowish tan fine silty sand with caliche		bentonite seal
5 ft	334		1			
10 ft	726	Cl- 938	1			
		GRO <10				
		DRO 19.0				
15 ft	529		181			
				Light brown fine sandy silt with caliche		
20 ft	290	Cl- 304	767			
B <0.05 T 0.071		GRO 66.5		Brown fine sandy silt		
E 0.401 X 1.63		DRO 666				
25 ft	297		486			
30 ft	172		395			
				Light brown medium sand with caliche		
35 ft	169		184			
40 ft	198	Cl- 288	106			
B <0.05 T <0.05		GRO 15.0				
E <0.05 X <0.15		DRO 173				

Logger:	Jordan Woodfin		**Project Name:** EME C-1 EOL **Well ID:** SB-10
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	3/25/2011		
End Date:	3/25/2011		

Comments: All samples are from cuttings. Located 15 ft east of the former junction box site.
DRAFTED BY: L. Weinheimer
TD = 30 ft GW = 40 ft

Location: UL/C sec. 1 T20S R36E
Lat: 32°36'23.38"N **County**: LEA
Long: 103°18'38.073"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan fine sandy silt with caliche		bentonite seal
5 ft	701		6.1			
10 ft	895	Cl- 1070	5.2			
		GRO <10				
		DRO <10				
15 ft	360		856			
20 ft	262		861			
25 ft	193	Cl- 224	1079			
B <0.05 T 0.084		GRO 67.1				
E 0.724 X 2.90		DRO 346				
30 ft	176	Cl- 144	648			
B <0.05 T 0.141		GRO 74.0				
E 0.911 X 2.64		DRO 708				

Logger:	Jordan Woodfin		**Project Name:** EME C-1 EOL **Well ID:** MW-1
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	3/25/2011		
End Date:	3/25/2011		

Comments: All samples are from cuttings. Located 20 ft south- east of the former junction box site.

DRAFTED BY: L. Weinheimer

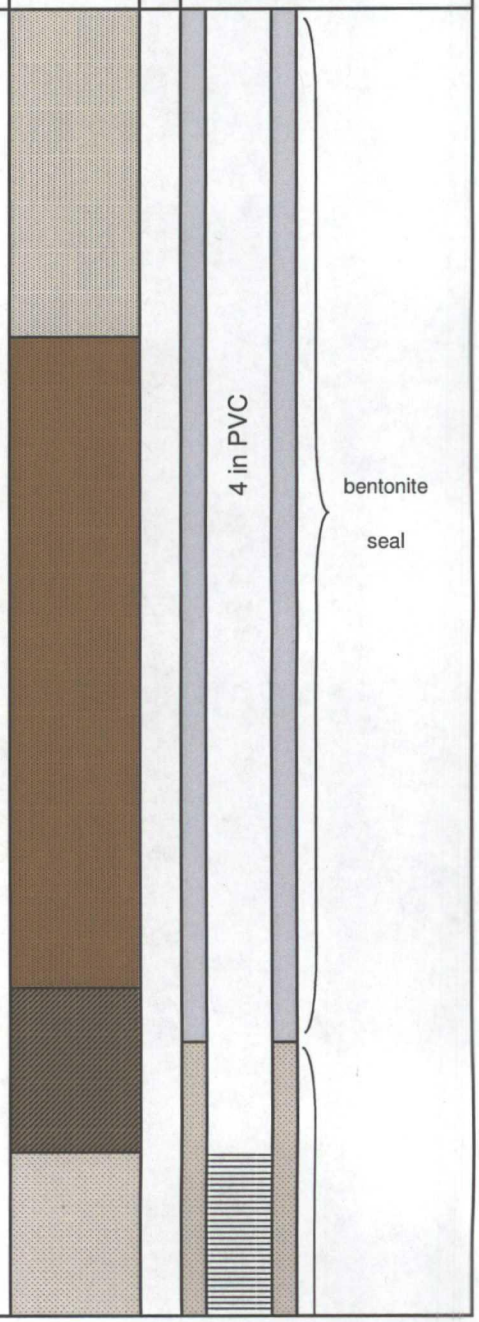
TD = 85 ft GW = 40 ft

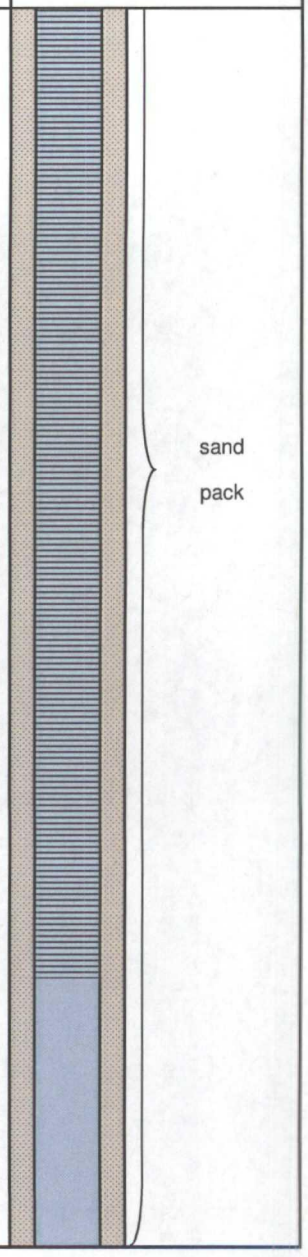
Location: UL/C sec. 1 T20S R36E

Lat: 32°36'23.243"N **County**: LEA

Long: 103°18'38.09"W **State**: NM

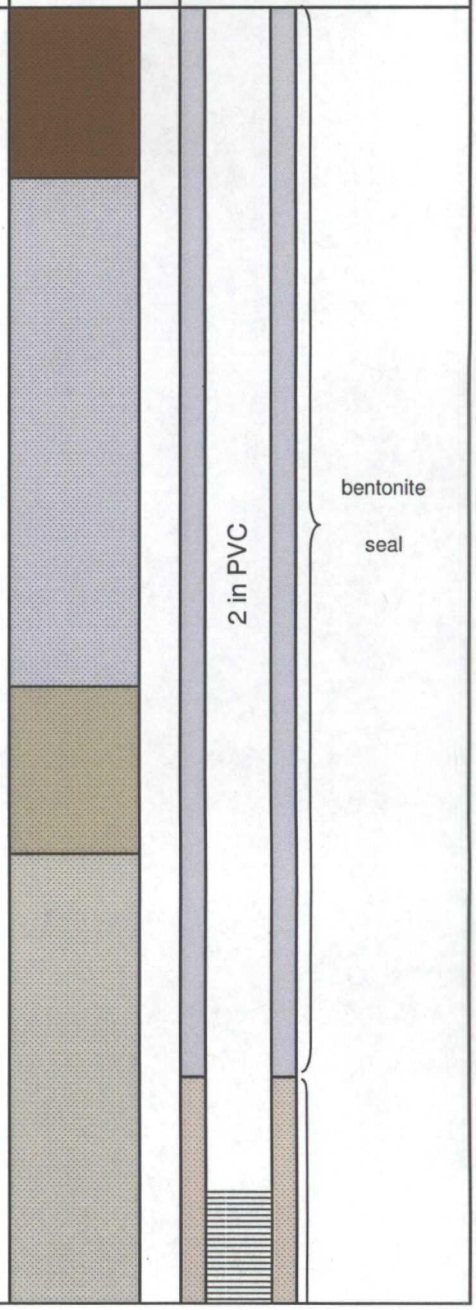
Depth (feet)	chloride field tests	LAB	PID	Description
				Tan very fine silty sand with caliche
5 ft	143		10.1	
10 ft	665	Cl- 848	6.9	
		GRO <10		Light brown fine silt with caliche
		DRO <10		
15 ft	766		7.1	
20 ft	562		782	
25 ft	340		636	
30 ft	313		751	
				Grey to brown medium sand with sandstone
35 ft	417	Cl- 656	961	
B <0.05 T 0.478		GRO 208		Tan very fine silty sand (moist)
E 1.36 X 3.53		DRO 911		
40 ft	417	Cl- 816	76.6	



Depth (feet)	chloride field tests	LAB	PID	Description		Lithology		Well Construction
		GRO 14.5		NO SAMPLES TAKEN				
		DRO 44.3						
45 ft								
50 ft								
55 ft								
60 ft								
65 ft								
70 ft								
75 ft								
80 ft								
85 ft								

Logger:	Jordan Woodfin		**Project Name:** EME C-1 EOL **Well ID:** MW-2
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	3/25/2011		
End Date:	3/25/2011		
Comments: All samples are from cuttings. Located 58 ft north-west of the former junction box site. **DRAFTED BY: L. Weinheimer** TD = 55 ft GW = 40 ft			**Location:** UL/C sec. 1 T20S R36E **Lat:** 32°36'23.758"N **Long:** 103°18'38.791"W **County**: LEA **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Brown very fine silty sand
5 ft	87		23.9	
				Grey very fine silty sand with caliche
10 ft	90		531	
15 ft	62		971	
20 ft	122		1358	
				Brown to grey very fine silty sand
25 ft	89		776	
				Tan to grey very fine silty sand
30 ft	199		1176	
35 ft	171	Cl- 64	1394	
B <0.05 T 0.448		GRO 245		
E 1.94 X 5.27		DRO 979		



Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
40 ft	390	Cl-560	34.5			
		GRO 101		NO SAMPLES TAKEN		
		DRO 556				sand pack
45 ft						
50 ft						
55 ft						

EME C-1 EOL
Unit C, Section 1, T-20-S, R-36-E

Drilling soil bores, facing east

Plugging the soil bore with bentonite

Completed soil bores

Drilling MW-1, facing south

Inserting the casing into the well

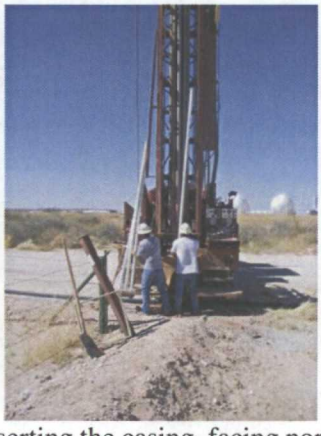
Inserting silica sand pack

Adding the bentonite seal

Sealing in the monument

Completed MW-1

Drilling MW-2



Inserting the casing, facing north

Adding the silica sand pack

Adding the bentonite seal

Sealing in the monument

Completed MW-2, facing south

CARDINAL Laboratories

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

April 05, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME C-1 EOL

Enclosed are the results of analyses for samples received by the laboratory on 03/28/11 8:30.

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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 9 @ 10 FT (H100600-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**938**	16.0	03/31/2011	ND	416	104	400	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/01/2011	ND	209	105	200	0.920	
DRO >C10-C28	**19.0**	10.0	04/01/2011	ND	225	113	200	0.583	

Surrogate 1-Chlorooctane	*112 %*	*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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 9 @ 20 FT (H100600-02)

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	04/01/2011	ND	1.81	90.6	2.00	3.31	
Toluene*	**0.071**	0.050	04/01/2011	ND	1.88	94.1	2.00	3.78	
Ethylbenzene*	**0.401**	0.050	04/01/2011	ND	1.93	96.7	2.00	3.41	
Total Xylenes*	**1.63**	0.150	04/01/2011	ND	5.72	95.4	6.00	3.22	

Surrogate 4-Bromofluorobenzene (PIL *96.6 %* *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	**304**	16.0	03/31/2011	ND	416	104	400	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**66.5**	10.0	04/01/2011	ND	209	105	200	0.920	
DRO >C10-C28	**666**	10.0	04/01/2011	ND	225	113	200	0.583	

Surrogate 1-Chlorooctane *127 %* *70-130*

Surrogate 1-Chlorooctadecane *127 %* *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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 9 @ 40 FT (H100600-03)

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	04/01/2011	ND	1.81	90.6	2.00	3.31	
Toluene*	<0.050	0.050	04/01/2011	ND	1.88	94.1	2.00	3.78	
Ethylbenzene*	<0.050	0.050	04/01/2011	ND	1.93	96.7	2.00	3.41	
Total Xylenes*	<0.150	0.150	04/01/2011	ND	5.72	95.4	6.00	3.22	

Surrogate 4-Bromofluorobenzene (PIL *93.1 %* *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	**288**	16.0	03/31/2011	ND	416	104	400	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**15.0**	10.0	04/01/2011	ND	209	105	200	0.920	
DRO >C10-C28	**173**	10.0	04/01/2011	ND	225	113	200	0.583	

Surrogate 1-Chlorooctane *114 %* *70-130*

Surrogate 1-Chlorooctadecane *114 %* *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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 10 @ 10 FT (H100600-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1070**	16.0	03/31/2011	ND	416	104	400	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/01/2011	ND	209	105	200	0.920	
DRO >C10-C28	<10.0	10.0	04/01/2011	ND	225	113	200	0.583	

Surrogate 1-Chlorooctane	*115 %*	*70-130*
Surrogate 1-Chlorooctadecane	*117 %*	*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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 10 @ 25 FT (H100600-05)

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	04/01/2011	ND	1.81	90.6	2.00	3.31	
Toluene*	**0.084**	0.050	04/01/2011	ND	1.88	94.1	2.00	3.78	
Ethylbenzene*	**0.724**	0.050	04/01/2011	ND	1.93	96.7	2.00	3.41	
Total Xylenes*	**2.90**	0.150	04/01/2011	ND	5.72	95.4	6.00	3.22	

Surrogate 4-Bromofluorobenzene (PIL *111 %* *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	**224**	16.0	03/31/2011	ND	416	104	400	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**67.1**	10.0	04/01/2011	ND	209	105	200	0.920	
DRO >C10-C28	**346**	10.0	04/01/2011	ND	225	113	200	0.583	

Surrogate 1-Chlorooctane *97.6 %* *70-130*

Surrogate 1-Chlorooctadecane *98.7 %* *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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 10 @ 30 FT (H100600-06)

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	04/01/2011	ND	1.81	90.6	2.00	3.31	
Toluene*	**0.141**	0.050	04/01/2011	ND	1.88	94.1	2.00	3.78	
Ethylbenzene*	**0.911**	0.050	04/01/2011	ND	1.93	96.7	2.00	3.41	
Total Xylenes*	**2.64**	0.150	04/01/2011	ND	5.72	95.4	6.00	3.22	

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	**144**	16.0	03/31/2011	ND	416	104	400	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**74.0**	10.0	04/01/2011	ND	209	105	200	0.920	
DRO >C10-C28	**708**	10.0	04/01/2011	ND	225	113	200	0.583	

Surrogate 1-Chlorooctane *118 %* *70-130*

Surrogate 1-Chlorooctadecane *117 %* *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

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 C-1 EOL	State: Zip:
Project Location: EME C-1 EOL	Phone #:
Sampler Name: Jordan Woodfin	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TPH 8015 M Extended Thru C40					
H10000-1	SB 9 @ 10ft		1			✓					✓		3/25/11	10:00	✓	✓									
2	SB 9 @ 20ft		1			✓					✓			10:15	✓	✓									
3	SB 9 @ 40ft		1			✓					✓			10:30	✓	✓									
4	SB 10 @ 10ft		1			✓					✓			11:00	✓	✓									
5	SB 10 @ 25ft		1			✓					✓			11:15	✓	✓									
6	SB 10 @ 30ft		1			✓					✓			11:30	✓	✓									

Relinquished By: Jordan Woodfin	Date: 3/28/11 Time: 0830	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@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

CARDINAL Laboratories

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

April 05, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME C-1 EOL

Enclosed are the results of analyses for samples received by the laboratory on 03/28/11 8:30.

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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: MW - 1 @ 10FT (H100599-01)

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	03/31/2011	ND	416	104	400	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/29/2011	ND	238	119	200	1.53	
DRO >C10-C28	<10.0	10.0	03/29/2011	ND	235	117	200	2.13	

Surrogate 1-Chlorooctane	*105 %*	*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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: MW - 1 @ 35FT (H100599-02)

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	04/01/2011	ND	1.81	90.6	2.00	3.31	
Toluene*	**0.478**	0.050	04/01/2011	ND	1.88	94.1	2.00	3.78	
Ethylbenzene*	**1.36**	0.050	04/01/2011	ND	1.93	96.7	2.00	3.41	
Total Xylenes*	**3.53**	0.150	04/01/2011	ND	5.72	95.4	6.00	3.22	

Surrogate 4-Bromofluorobenzene (PIL *70 8 %* *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	**656**	16.0	03/31/2011	ND	416	104	400	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**208**	10.0	03/29/2011	ND	238	119	200	1.53	
DRO >C10-C28	**911**	10.0	03/29/2011	ND	235	117	200	2.13	

Surrogate 1-Chlorooctane *109 %* *70-130*

Surrogate 1-Chlorooctadecane *94 1 %* *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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: MW - 1 @ 40FT (H100599-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**816**	16.0	03/31/2011	ND	416	104	400	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**14.5**	10.0	03/29/2011	ND	238	119	200	1.53	
DRO >C10-C28	**44.3**	10.0	03/29/2011	ND	235	117	200	2.13	

Surrogate 1-Chlorooctane	*105 %*	*70-130*
Surrogate 1-Chlorooctadecane	*108 %*	*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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: MW - 2 @ 35 FT (H100599-04)

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	04/01/2011	ND	1.81	90.6	2.00	3.31	
Toluene*	**0.448**	0.050	04/01/2011	ND	1.88	94.1	2.00	3.78	
Ethylbenzene*	**1.94**	0.050	04/01/2011	ND	1.93	96.7	2.00	3.41	
Total Xylenes*	**5.27**	0.150	04/01/2011	ND	5.72	95.4	6.00	3.22	

Surrogate 4-Bromofluorobenzene (PIL 96.3 % 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	**64.0**	16.0	03/31/2011	ND	416	104	400	3.92	

TPH 8015M mg/kg Analyzed By: AB

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**245**	10.0	03/29/2011	ND	238	119	200	1.53	
DRO >C10-C28	**979**	10.0	03/29/2011	ND	235	117	200	2.13	

Surrogate 1-Chlorooctane 120 % 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:	03/28/2011	Sampling Date:	03/25/2011
Reported:	04/05/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: MW - 2 @ 40 FT (H100599-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**560**	16.0	03/31/2011	ND	416	104	400	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**101**	50.0	03/29/2011	ND	238	119	200	1.53	
DRO >C10-C28	**556**	50.0	03/29/2011	ND	235	117	200	2.13	

Surrogate 1-Chlorooctane	*101 %*	*70-130*
Surrogate 1-Chlorooctadecane	*95 9 %*	*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

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

		BILL TO	
Company Name:	Rice Operating Company	P.O.#:	
Project Manager:	Hack Conder	Company:	
Address:	122 West Taylor	Attn:	
City:	Hobbs State: NM Zip: 88240	Address:	
Phone #:	575-393-9174 Fax #: 575-397-1471	City:	
Project #:	Project Owner:	State: Zip:	
Project Name:	EME C-1 EOL	Phone #:	
Project Location:	EME C-1 EOL	Fax #:	
Sampler Name:	Jordan Woodfin		

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					
H100599-1	MW-1@10ft		1			✓					✓		3/25/11	01:30	✓	✓								
2	MW-1@35ft		1			✓					✓			01:45	✓	✓								
3	MW-1@40ft		1			✓					✓			02:00	✓	✓								
~~MW~~	~~MW-2@30ft~~		1			✓					✓			02:30	✓	✓								
4	MW-2@35ft		1			✓					✓			02:45	✓	✓								
5	MW-2@40ft		1			✓					✓			03:00	✓	✓								

Relinquished By:	Jordan Woodfin	Date: 3/28/11 Time: 8:30	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) CHH	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

Appendix B

Monitor well sampling confirmatory laboratories

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 C-1 EOL

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

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 C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T20S-R36E-SEC1 C-LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H100735-01)

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	*87.3 %*	*80-120*
Surrogate Toluene-d8	*88.2 %*	*80-120*
Surrogate 4-Bromofluorobenzene	*81.6 %*	*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	**5800**	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	**2120**	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	**12500**	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 C-1 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T20S-R36E-SEC1 C-LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H100735-02)

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	*88.6 %*	*80-120*
Surrogate Toluene-d8	*88.8 %*	*80-120*
Surrogate 4-Bromofluorobenzene	*81.4 %*	*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	**5500**	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	**2300**	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	**12700**	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

Cardinal Laboratories

*=Accredited Analyte

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 C-1 EOL
Project Location: T20S-R36E-Sec1 C - 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
H10035-1	Monitor Well #1	G	3	X				2				1		4-8	11:50
-2	Monitor Well #2	G	3	X				2				1		4-8	9:30

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: 1220	Received by: Jodi Henson
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)

Date: 4-12-11 Time: 1221

Phone Results: [ ] Yes [ ] No

Fax Results: [ ] Yes [ ] No Additional Fax Number:

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

Sample Condition: Cool: Yes [✓] No [ ] Intact: Yes [✓] No [ ]

CHECKED BY: (Initials) JH

REMARKS:

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

Appendix C

Chloride Exposure Assessment

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

MULTIMED V1.01 DATE OF CALCULATIONS: 21-JUL-2011 TIME: 10:44:26

U. S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.50, 2005)

Switched to Stehfest algorithm to avoid numerical problems
with Convolution algorithm. Problems were caused by
high source decay rate. Everything ok now, execution continuing...

1

Run options
--- -------

Chemical simulated is Chloride

Option Chosen Saturated and unsaturated zone models
Run was DETERMIN
Infiltration Specified By User: 6.350E-03 m/yr
Run was transient
Well Times: Entered Explicitly
Reject runs if Y coordinate outside plume
Reject runs if Z coordinate outside plume
Gaussian source used in saturated zone model

1
1

UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)

NP	- Total number of nodal points	240
NMAT	- Number of different porous materials	1
KPROP	- Van Genuchten or Brooks and Corey	1
IMSHGN	- Spatial discretization option	1
NVFLAYR	- Number of layers in flow model	1

OPTIONS CHOSEN
------- ------
Van Genuchten functional coefficients
User defined coordinate system

1

Layer information

LAYER NO.	LAYER THICKNESS	MATERIAL PROPERTY
1	11.00	1

DATA FOR MATERIAL 1

VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	STD DEV	LIMITS MIN	MAX
Saturated hydraulic conductivity	cm/hr	CONSTANT	3.60	-999.	-999.	-999.
Unsaturated zone porosity	--	CONSTANT	0.250	-999.	-999.	-999.
Air entry pressure head	m	CONSTANT	0.700	-999.	-999.	-999.
Depth of the unsaturated zone	m	CONSTANT	11.0	0.000	0.000	0.000

DATA FOR MATERIAL 1

VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	STD DEV	LIMITS MIN	MAX
Residual water content	--	CONSTANT	0.116	-999.	-999.	-999.
Brook and Corey exponent,EN	--	CONSTANT	-999.	-999.	-999.	-999.
ALFA coefficient	1/cm	CONSTANT	0.500E-02	-999.	-999.	-999.
Van Genuchten exponent, ENN	--	CONSTANT	1.09	-999.	-999.	-999.

1

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY	- Number of different layers used		1
NTSTPS	- Number of time values concentration calc		40
DUMMY	- Not presently used		1
ISOL	- Type of scheme used in unsaturated zone		1
N	- Stehfest terms or number of increments		18
NTEL	- Points in Lagrangian interpolation		3
NGPTS	- Number of Gauss points		104
NIT	- Convolution integral segments		2
IBOUND	- Type of boundary condition		3
ITSGEN	- Time values generated or input		1
TMAX	- Max simulation time	--	0.0
WTFUN	- Weighting factor	--	1.2

OPTIONS CHOSEN

Stehfest numerical inversion algorithm
Exponentially decaying continuous source
Computer generated times for computing concentrations

1

DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Thickness of layer	m	CONSTANT	11.0	-999.	-999.	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	-999.	-999.
Percent organic matter	--	CONSTANT	0.000	-999.	-999.	-999.
Bulk density of soil for layer	g/cc	CONSTANT	1.83	-999.	-999.	-999.
Biological decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.

1

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Solid phase decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Dissolved phase decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Overall chemical decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Acid catalyzed hydrolysis rate	l/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Base catalyzed hydrolysis rate	l/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Reference temperature	C	CONSTANT	25.0	-999.	-999.	-999.
Normalized distribution coefficient	ml/g	CONSTANT	0.000	-999.	-999.	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Air diffusion coefficient	cm2/s	CONSTANT	-999.	-999.	-999.	-999.
Reference temperature for air diffusion	C	CONSTANT	-999.	-999.	-999.	-999.
Molecular weight	g/M	CONSTANT	-999.	-999.	-999.	-999.
Mole fraction of solute	--	CONSTANT	-999.	-999.	-999.	-999.
Vapor pressure of solute	mm Hg	CONSTANT	-999.	-999.	-999.	-999.
Henry's law constant	atm-m^3/M	CONSTANT	-999.	-999.	-999.	-999.
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000	0.000	0.000	1.00
Not currently used		CONSTANT	0.000	0.000	0.000	0.000
Not currently used		CONSTANT	0.000	0.000	0.000	0.000

1

SOURCE SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Infiltration rate	m/yr	CONSTANT	0.635E-02	-999.	-999.	-999.
Area of waste disposal unit	m^2	DERIVED	0.139E+04	-999.	-999.	-999.
Duration of pulse	yr	DERIVED	50.0	-999.	-999.	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	-999.	-999.
Recharge rate	m/yr	CONSTANT	0.000	-999.	-999.	-999.
Source decay constant	1/yr	CONSTANT	0.500E-01	0.000	0.000	0.000
Initial concentration at landfill	mg/l	CONSTANT	482.	-999.	-999.	-999.

Length scale of facility	m	CONSTANT	16.0	-999.	-999.	-999.
Width scale of facility	m	CONSTANT	13.0	-999.	-999.	-999.
Near field dilution		DERIVED	1.00	0.000	0.000	1.00

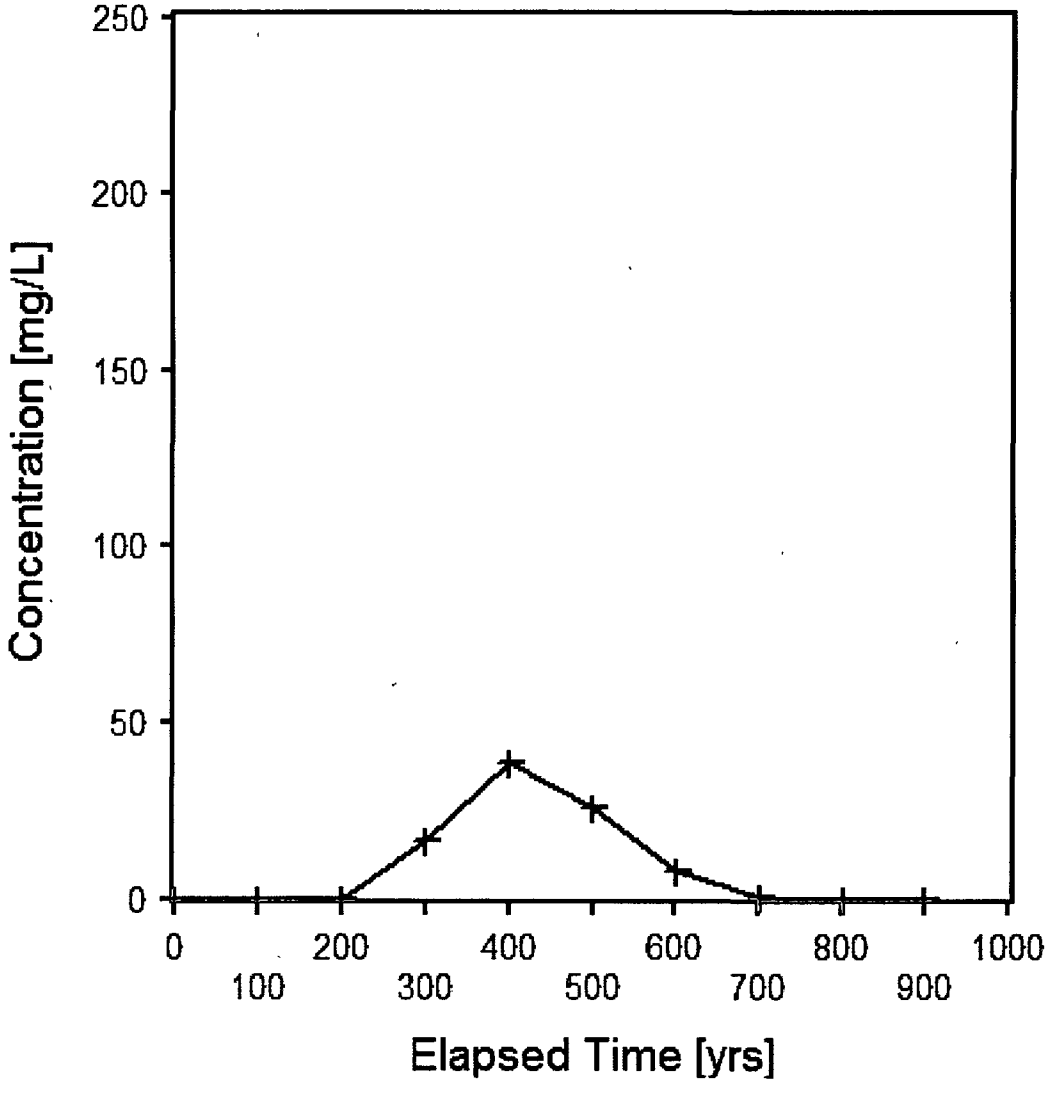
1

AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS		LIMITS	
			MEAN	STD DEV	MIN	MAX
Particle diameter	cm	CONSTANT	-999.	-999.	-999.	-999.
Aquifer porosity	--	CONSTANT	0.300	-999.	-999.	-999.
Bulk density	g/cc	CONSTANT	1.70	-999.	-999.	-999.
Aquifer thickness	m	CONSTANT	10.0	-999.	-999.	-999.
Source thickness (mixing zone depth)	m	DERIVED	3.00	-999.	-999.	-999.
Conductivity (hydraulic)	m/yr	CONSTANT	30.0	-999.	-999.	-999.
Gradient (hydraulic)		CONSTANT	0.300E-02	-999.	-999.	-999.
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	-999.	-999.
Retardation coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Longitudinal dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Transverse dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Vertical dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Temperature of aquifer	C	CONSTANT	20.0	-999.	-999.	-999.
pH	--	CONSTANT	7.00	-999.	-999.	-999.
Organic carbon content (fraction)		CONSTANT	0.000	-999.	-999.	-999.
Well distance from site	m	CONSTANT	1.00	-999.	-999.	-999.
Angle off center	degree	CONSTANT	0.000	-999.	-999.	-999.
Well vertical distance	m	CONSTANT	0.000	-999.	-999.	-999.

1

TIME	CONCENTRATION
0.100E+01	0.00000E+00
0.101E+03	0.00000E+00
0.201E+03	0.00000E+00
0.301E+03	0.16662E+02
0.401E+03	0.38761E+02
0.501E+03	0.25810E+02
0.601E+03	0.77777E+01
0.701E+03	0.98112E+00
0.801E+03	0.00000E+00
0.901E+03	0.00000E+00



EME C-1 – Projected groundwater chloride concentrations over time (using the Multi-Med model) beneath site.