

1R - 427-03

WORKPLANS

Date:

5-11-12



Infrastructure, environment, buildings

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Mr. Ed Hansen

New Mexico Energy, Minerals, & Natural Resources Dept.

Oil Conservation Division, Environmental Bureau

1220 S. St. Francis Drive

Santa Fe, New Mexico 87505

Subject:

ICP Report and Corrective Action Plan (CAP)

EME G-11

Unit G, SEC. 11, T20S, R36E, Monument, Lea County, New Mexico

NMOCD CASE # 1R427-03

Mr. Hansen:

RICE Operating Company (ROC) has retained ARCADIS U.S., Inc. (ARCADIS) to address potential environmental concerns at the above-referenced site. ROC is the service provider (agent) for the EME SWD System and has no ownership of any portion of the pipeline, well, or facility. The System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis. Environmental projects of this nature require System Party AFE approval prior to work commencing at the site. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission is greatly appreciated.

On behalf of ROC, ARCADIS respectfully submits this ICP Report and Corrective Action Plan (CAP) for the above-referenced site.

SITE HISTORY AND BACKGROUND

The site is located approximately four miles southwest of Monument, New Mexico. Groundwater at the site occurs at an approximate depth of 46 feet below ground surface (bgs). The junction box, located directly south of an abandoned production facility, was eliminated. Initial delineation began on January 30, 2003 and was completed on February 25, 2003. Soil samples were collected at regular intervals

ARCADIS U.S., Inc.

1004 North Big Spring Street

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Midland

Texas 79701

Tel 432.687.5400

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www.arcadis-us.com

Environmental

Date:

May 11, 2012

Contact:

Sharon Hall

Phone:

432.687.5400

Email:

sharon.hall@arcadis-us.com

Our ref:

MT001085.0001

ARCADIS U.S., Inc.

TX Engineering License # F-533

and analyzed in the field for chlorides using field-adapted Standard Method 4500-Cl⁻ B and screened in the field using a photoionization detector (PID).

A backhoe was used to excavate soils from an excavation around the former junction box measuring 30 feet by 30 feet by 18 feet deep. A four-point wall composite sample was collected from each of the four walls and a five-point composite sample was collected from the bottom of the excavation and submitted to Environmental Lab of Texas for analysis of gasoline range organics (GRO), diesel range organics (DRO), benzene, toluene, ethylbenzene and xylenes (BTEX) and chloride analysis. DRO was detected at a concentration of 36.6 milligrams per kilo gram (mg/kg) in the five-point bottom composite sample. Chlorides were detected at a concentration of 656 mg/kg in the four-point composite sidewall sample and at a concentration of 1,440 mg/kg in the five-point composite bottom sample. GRO and BTEX were not detected in either of the samples.

Based on the results of the soil sampling analytical results, elevated chloride concentrations are present at the subject site.

A 20-mil poly liner was installed at the base of the excavation and up the sidewalls of the excavation. Excavated soils were backfilled into the excavation. The area was contoured to the surrounding landscape and seeded with native vegetation.

A sample of the backfill material was submitted to Environmental Lab of Texas for GRO, DRO, BTEX and chloride analysis. GRO was detected at a concentration of 10.2 mg/kg. DRO was detected at a concentration of 131 mg/kg and chlorides were detected at a concentration of 372 mg/kg. BTEX was detected at concentrations of 0.027 mg/kg, 0.039 mg/kg, 0.031 mg/kg and 0.125 mg/kg, respectively.

ROC disclosed potential groundwater impact at the site to New Mexico Oil Conservation Division (NMOCD) via e-mail on February 24, 2003. A disclosure report was submitted to NMOCD with all the ROC 2003 junction box closures and disclosures.

ROC submitted an ICP to NMOCD on August 9, 2010 and was approved by NMOCD on August 24, 2010.

ICP INVESTIGATION RESULTS

Five soil borings (SB-1 through SB-5) were drilled at the site on October 4 and 5, 2010. The soil borings were drilled to depths of 36 to 42 feet bgs. Soil samples were collected every three feet and analyzed in the field for chlorides using field-adapted Method 4500-Cl-B and screened in the field using a PID. Two samples from each boring were submitted to Cardinal Laboratories and analyzed for chlorides, GRO and DRO. SB-1 laboratory analysis resulted in a decrease in chloride concentration from 1,090 mg/kg at 33 feet to 304 mg/kg at 42 feet. SB-2 decreased from 816 mg/kg at 24 feet to 160 mg/kg at 36 feet. SB-3 decreased from 1,010 mg/kg at 24 feet to 128 mg/kg at 36 feet. SB-4 decreased from 608 mg/kg at 18 feet to 128 mg/kg at 42 feet. SB-5 decreased from 688 mg/kg at 30 feet to 272 mg/kg at 42 feet. GRO and DRO were non-detect throughout all bores (see attached figures and soil bore logs).

One upgradient monitoring well (MW-2) and one downgradient monitoring well (MW-1) were installed at the site on December 7, 2010, to assess groundwater quality. MW-1 laboratory analysis resulted in a chloride concentration of 80 mg/kg at 5 feet and 96 mg/kg at 30 feet. GRO and DRO were non-detect. MW-2 had a chloride concentration of 16 mg/kg at 20 feet, 96 mg/kg at 25 feet, and 208 mg/kg at 40 feet. Laboratory analysis showed elevated concentrations of GRO and DRO ranging from a GRO concentration of non-detect at both 20 feet and 40 feet to 86.8 mg/kg at 25 feet. DRO ranged from a concentration of 2,410 mg/kg at 20 feet to 2,860 mg/kg at 25 feet. Benzene was non-detect throughout all samples, toluene ranged from 0.602 mg/kg at 20 feet to 0.993 at 25 feet, ethylbenzene ranged from 0.299 mg/kg at 20 feet to 0.447 mg/kg at 40 feet, and xylenes ranged from 1.31 mg/kg at 40 feet to 2.69 mg/kg at 25 feet (see attached table and monitor well logs).

Sampling results from MW-2 confirm that free product is present in groundwater upgradient of the site. Based on the fact that soil chloride concentrations, as confirmed by laboratory analysis, decrease with depth to below or near 250 mg/kg in all of the soils borings except SB-1 (304 mg/kg at 42 feet) and that free product occurs in the upgradient monitor well, we believe there is an upgradient source at this site.

PROPOSED CORRECTIVE ACTION WORKPLAN

We propose plugging and abandonment of both monitoring wells (MW-1 and MW-2) based on the upgradient source.

The potential source of chloride impacts to groundwater has been removed and a 30 by 30 foot 20-mil poly liner has been installed at a depth of 18 feet bgs in the potential source area. To further mitigate potential chloride infiltration to groundwater, ROC will install a 50 foot by 50 foot 20-mil reinforced poly liner at a depth of 4-5 feet bgs. The excavation will be backfilled with soil with a chloride concentration below 500 mg/kg and a field PID reading below 100. 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 and soil amendments will be added as necessary. The location of the proposed liner is shown on the attached figure.

Thank you for your consideration concerning this ICP Report and CAP. If you have any questions, do not hesitate to contact Hack Conder or me.

Sincerely,

ARCADIS U.S., Inc.

Sharon E. Hall

Sharon E. Hall
Associate Vice President

Copies:
Hack Conder, ROC

Attachments:

Monitor Well and Soil Boring Soil Data and Proposed Liner Figure
Soil Boring Logs and Laboratory Analysis
Monitoring Well Logs and Laboratory Analysis
Groundwater Data Summary Table

SB and MW Installation and Proposed Liner

MW-1					
Depth	CI-	PID	LAB CI-	GRO	DRO
5	230	0	80	<10	<10
10	150	0			
15	149	0.2			
20	223	0.3			
25	210	0.4			
30	146	0.8	96	<10	<10

MW-2									
Depth	CI-	PID	LAB CI-	GRO	DRO	B	T	E	X
5	140	104							
10	118	126							
15	122	291							
20	150	336	16	<50	2410	<0.2	0.602	0.299	1.89
25	149	469	96	86.8	2860	<0.1	0.993	0.332	2.69
30	151	395							
35	151	271							
40	234	329	208	<50	2460	<0.1	0.646	0.447	1.31

SB-1					
Depth	CI-	PID	LAB CI-	GRO	DRO
3	261	0			
6	213	0			
9	215	0.3			
12	215	0			
15	498	0			
18	977	0			
21	694	0			
24	566	0			
27	410	0.1			
30	563	0			
33	997	0	1090	<10	<10
36	628	1.3			
39	564	8.6			
42	335	87.7	304	<10	<10

SB-2					
Depth	CI-	PID	LAB CI-	GRO	DRO
3	211	0.9			
6	143	0.8			
9	235	0.8			
12	471	0.3			
15	314	0.7			
18	286	1.0			
21	503	1.0			
24	932	1.0	816	<10	<10
27	750	1.3			
30	615	1.2			
33	267	0.3			
36	175	0.3	160	<10	<10

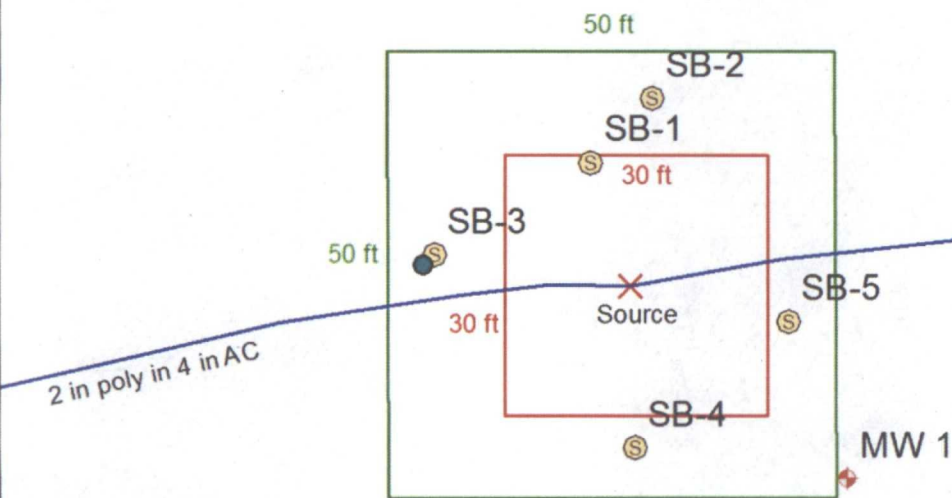
SB-3					
Depth	CI-	PID	LAB CI-	GRO	DRO
SS		0.7	128	<10	<10
3	604	0.8			
6	308	0.4			
9	420	1.1			
12	466	1.0			
15	1076	1.2			
18	1036	0.9			
21	975	1.0			
24	1191	0.8	1010	<10	<10
27	538	1.0			
30	428	0.5			
33	226	0.7			
36	209	0.5	128	<10	<10

SB-5					
Depth	CI-	LAB CI-	GRO	DRO	
3	252				
6	149				
9	143				
12	355				
15	568				
18	505				
21	600				
24	291				
27	558				
30	746	688	<10	<10	
33	583				
36	430				
39	294				
42	310	272	<10	<10	

SB-4					
Depth	CI-	PID	LAB CI-	GRO	DRO
3	204	0.4			
6	200	0			
9	242	0.4			
12	195	0.5			
15	332	0.7			
18	526	0.7	608	<10	<10
21	508	0.5			
24	413	0.4			
27	525	0.4			
30	414	0.5			
33	454	0.5			
36	364	0.5			
39	290	0.5			
42	174	0.6	128	<10	<10

MW 2

MW 1



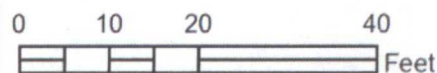
- 20-mil poly liner at 18 ft bgs
- Proposed 20-mil reinforced poly liner at 5-4 ft bgs
- SB-3 surface sample
- DGW - 46 ft



EME G-11

Legals: UL/G sec. 11
T20S R36E

Case #: 1R427-03





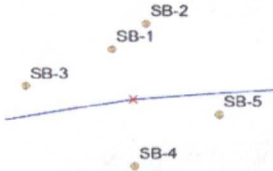

Drawing date: 2-28-12
Drafted by: L. Weinheimer

Logger:	J. Woodfin				
Driller:	Harrison & Cooper Inc. Drilling				
Drilling Method:	Air rotary			EME G-11	SB-1
Start Date: End Date:	10/5/2010 10/5/2010			Project Consultant: RECS	
Comments: Located 14 ft north of the former junction box site.		Location: UL/G sec. 11 T20S R36E		Lat: 32°35'26.905"N	
DRAFTED BY: LARA WEINHEIMER		Long: 103°19'20.755"W		County: LEA	
TD = 42 ft		GW = 46 ft		State: NM	





Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
3 ft	261		0.0	Brownish green silty sand (backfill)		
6 ft	213		0.0			
9 ft	215		0.3	Tan fine sand with caliche fragments		
12 ft	215		0.0			
15 ft	498		0.0	Red fine sand with caliche fragments		
18 ft	977		0.0			
21 ft	694		0.0	Tan fine sandy loam		
24 ft	566		0.0			
27 ft	410		0.1			

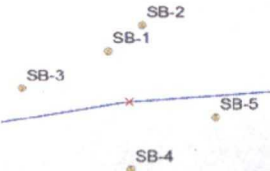











bentonite
seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Light red to tan fine sandy loam		
30 ft	563		0.0			
33 ft	997	CI- 1090	0.0			
		GRO <10				
		DRO <10				
36 ft	628		1.3			
39 ft	564		8.6			
42 ft	335	CI- 304	87.7			
		GRO <10				
		DRO <10				





Logger:	J. Woodfin					
Driller:	Harrison & Cooper Inc. Drilling					
Drilling Method	Air rotary					
Start Date:	10/4/2010					
End Date:	10/4/2010	Project Name: EME G-11		Well ID: SB-2		
Comments: Located 20 ft north of the former junction box site. DRAFTED BY: LARA WEINHEIMER TD = 36 ft GW = 46 ft		Location: UL/G sec. 11 T20S R36E Lat: 32°35'26.974"N County: LEA Long: 103°19'20.674"W State: NM				
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan sandy loam		
3 ft	211		0.9			
				Tan fine sand with caliche fragments		
6 ft	143		0.8			
9 ft	235		0.8			
12 ft	471		0.3			
15 ft	314		0.7			
				Tan sandy loam		
18 ft	286		1.0			
				Red fine sand with small caliche fragments		
21 ft	503		1.0			
24 ft	932	CI-816	1.0			
		GRO <10				
		DRO <10				
27 ft	750		1.3			

bentonite
seal

Depth (feet)	chloride field tests	LAB	PID	Description		Lithology		Well Construction		
				Tan to light brown fine sand and silt						
30 ft	615		1.2							
33 ft	267		0.3							
36 ft	175	CI- 160	0.3							
		GRO <10								
		DRO <10								

Logger:	J. Woodfin					
Driller:	Harrison & Cooper Inc. Drilling					
Drilling Method:	Air rotary					
Start Date:	10/4/2010					
End Date:	10/4/2010	Project Name: EME G-11 Well ID: SB-3 Project Consultant: RECS		Location: UL/G sec. 11 T20S R36E Lat: 32°35'26.806"N Long: 103°19'20.961"W County: LEA State: NM		
Comments: Located 22 ft west of the former junction box site. DRAFTED BY: LARA WEINHEIMER TD = 36 ft GW = 46 ft						
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Tan fine sand		
3 ft	604		0.8			
6 ft	308		0.4	Fine tan sand with caliche fragments		
9 ft	420		1.1			
12 ft	466		1.0	Light brown very fine sand		
15 ft	1,076		1.2			
18 ft	1,036		0.9			
				Brownish red fine sand		
21 ft	975		1.0			
24 ft	1,191	CI-1010	0.8			
		GRO <10		Brownish red fine sand		
		DRO <10				
27 ft	538		1.0			

bentonite
seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
						
30 ft	428		0.5			
33 ft	226		0.7	Very fine red sand		
36 ft	209	CI-128	0.5			
		GRO <10				
		DRO <10				





Logger:	J. Woodfin						
Driller:	Harrison & Cooper Inc. Drilling						
Drilling Method:	Air rotary		Project Name:	Well ID:			
Start Date:	10/4/2010		EME G-11	SB-4			
End Date:	10/4/2010	Project Consultant: RECS					
Comments: Located 18 ft south of the former junction box site. DRAFTED BY: LARA WEINHEIMER TD = 42 ft GW = 46 ft			Location: UL/G sec. 11 T20S R36E Lat: 32°35'26.593"N County: LEA Long: 103°19'20.702"W State: NM				
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction	
				Tan sandy loam			
3 ft	204		0.4				
6 ft	200		0.0	Tan fine sand with caliche fragments			
9 ft	242		0.4				
12 ft	195		0.5				
15 ft	332		0.7	Tan sandy loam			
18 ft	526	CI-608	0.7				
		GRO <10		Red fine sand with small caliche fragments			
		DRO <10					
21 ft	508		0.5				
24 ft	413		0.4				
27 ft	525		0.4				

bentonite seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
30 ft	414		0.5			
33 ft	454		0.5			
36 ft	364		0.5			
39 ft	290		0.5			
42 ft	174	CI- 128	0.6			
		GRO <10				
		DRO <10				

Logger:	J. Woodfin						
Driller:	Harrison & Cooper Inc. Drilling					Project Name:	Well ID:
Drilling Method:	Air rotary			EME G-11	SB-5		
Start Date: End Date:	10/4/2010 10/4/2010			Project Consultant: RECS			
Comments: Located 18 ft east of the former junction box site.		Location: UL/G sec. 11 T20S R36E		Lat: 32°35'26.73"N		County: LEA	
DRAFTED BY: LARA WEINHEIMER		Long: 103°19'20.5"W		State: NM			
TD = 42 ft		GW = 46 ft					

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown very fine loamy sand		
3 ft	252		0.1			
				Fine tan sand		
6 ft	149		0.1			
				Very fine tan sand with caliche rubble		
9 ft	143		0.2			
12 ft	355		0.2			
				Light brown fine sand with caliche fragments		
15 ft	568		0.3			
				Reddish brown fine sand with caliche rubble		
18 ft	505		0.1			
				Very fine red sand		
21 ft	600		0.6			
24 ft	291		0.5			
27 ft	558		0.5			 bentonite seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brownish red fine sand		
30 ft	746	CI-688	0.6			
		GRO <10				
		DRO <10				
33 ft	583		0.6	Reddish brown fine sand with caliche rubble		
36 ft	430		0.8			
				Tan very fine loamy sand		
39 ft	294		1			
42 ft	310	CI-272	1.4			
		GRO <10				
		DRO <10				



October 08, 2010

Hack Conder
Rice Operating Company
112 W. Taylor
Hobbs, NM 88240

RE: EME JCT G-11

Enclosed are the results of analyses for samples received by the laboratory on 10/05/10 8:05.

Cardinal Laboratories is accredited through Texas NELAP for:

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene
Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 10/05/2010
Reported: 10/08/2010
Project Name: EME JCT G-11
Project Number: NONE GIVEN
Project Location: EME JCT G-11

Sampling Date: 10/04/2010
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SB #2 @ 24 FT (H020976-01)

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	10/05/2010	ND	416	104	400	3.77	
TPH 8015M		mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/07/2010	ND	164	82.0	200	3.84	
DRO >C10-C28	<10.0	10.0	10/07/2010	ND	185	92.7	200	3.35	
Surrogate: 1-Chlorooctane	96.9 %	70-130							
Surrogate: 1-Chlorooctadecane	97.7 %	70-130							

Sample ID: SB #2 @ 36 FT (H020976-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	10/05/2010	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	10/07/2010	ND	164	82.0	200	3.84	
DRO >C10-C28	<10.0	10.0	10/07/2010	ND	185	92.7	200	3.35	
Surrogate: 1-Chlorooctane	94.9 %	70-130							
Surrogate: 1-Chlorooctadecane	95.4 %	70-130							

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 10/05/2010
Reported: 10/08/2010
Project Name: EME JCT G-11
Project Number: NONE GIVEN
Project Location: EME JCT G-11

Sampling Date: 10/04/2010
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SB #3 @ 24 FT (H020976-03)

Chloride, SM4500CI-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1010	16.0	10/05/2010	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	10/07/2010	ND	164	82.0	200	3.84	
DRO >C10-C28	<10.0	10.0	10/07/2010	ND	185	92.7	200	3.35	
Surrogate: 1-Chlorooctane	99.0 %	70-130							
Surrogate: 1-Chlorooctadecane	101 %	70-130							

Sample ID: SB #3 @ 36 FT (H020976-04)

Chloride, SM4500CI-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	10/05/2010	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	10/07/2010	ND	164	82.0	200	3.84	
DRO >C10-C28	<10.0	10.0	10/07/2010	ND	185	92.7	200	3.35	
Surrogate: 1-Chlorooctane	94.9 %	70-130							
Surrogate: 1-Chlorooctadecane	95.7 %	70-130							

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

 Received: 10/05/2010
 Reported: 10/08/2010
 Project Name: EME JCT G-11
 Project Number: NONE GIVEN
 Project Location: EME JCT G-11

 Sampling Date: 10/04/2010
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SB #4 @ 18 FT (H020976-05)

Chloride, SM4500Cl-B			mg/kg Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	608	16.0	10/05/2010	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	10/08/2010	ND	164	82.0	200	3.84		
DRO >C10-C28	<10.0	10.0	10/08/2010	ND	185	92.7	200	3.35		
Surrogate: 1-Chlorooctane	94.0 %	70-130								
Surrogate: 1-Chlorooctadecane	93.6 %	70-130								

Sample ID: SB #4 @ 42 FT (H020976-06)

Chloride, SM4500Cl-B			mg/kg Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	10/05/2010	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	10/08/2010	ND	164	82.0	200	3.84		
DRO >C10-C28	<10.0	10.0	10/08/2010	ND	185	92.7	200	3.35		
Surrogate: 1-Chlorooctane	96.3 %	70-130								
Surrogate: 1-Chlorooctadecane	98.4 %	70-130								

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 10/05/2010
Reported: 10/08/2010
Project Name: EME JCT G-11
Project Number: NONE GIVEN
Project Location: EME JCT G-11

Sampling Date: 10/04/2010
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SB #5 @ 30 FT (H020976-07)

Chloride, SM4500CI-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	10/05/2010	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	10/08/2010	ND	164	82.0	200	3.84	
DRO >C10-C28	<10.0	10.0	10/08/2010	ND	185	92.7	200	3.35	
Surrogate: 1-Chlorooctane	93.9 %	70-130							
Surrogate: 1-Chlorooctadecane	95.5 %	70-130							


Sample ID: SB #5 @ 42 FT (H020976-08)

Chloride, SM4500CI-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	10/05/2010	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	10/08/2010	ND	164	82.0	200	3.84	
DRO >C10-C28	<10.0	10.0	10/08/2010	ND	185	92.7	200	3.35	
Surrogate: 1-Chlorooctane	100 %	70-130							
Surrogate: 1-Chlorooctadecane	101 %	70-130							

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Celest D. Keene, Lab Director/Quality Manager

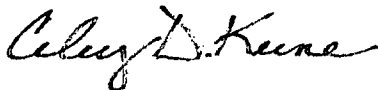
Notes and Definitions

- 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

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Rice Operating Company				BILL TO				ANALYSIS REQUEST											
Project Manager: Hack Conder				P.O. #:				<div style="display: flex; flex-direction: column; align-items: center;"> <div>Chlorides</div> <div>TPH 8015 M</div> <div>BTEX</div> <div>Texas TPH</div> <div>Complete Cations/Anions</div> </div>											
Address: 122 West Taylor				Company:															
City: Hobbs State: NM Zip: 88240				Attn:															
Phone #: 575-393-9174 Fax #: 575-397-1471				Address:															
Project #:				City:															
Project Name: EME Jct G-11				State: Zip:															
Project Location: EME Jct G-11				Phone #:															
Sampler Name: Jordan Woodfin				Fax #:															
FOR LAB USE ONLY																			
Lab I.D.	Sample I.D.	ISIRAB OR (C)IMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACIDBASE	ICE / COOL	OTHER	DATE	TIME					
H20476-1	SB # 2 @ 24ft		1										10/4/10	10:50a	✓	✓			
2	SB # 2 @ 36ft		1										10/4/10	11:20a	✓	✓			
3	SB # 3 @ 24ft		1										10/4/10	2:20 p	✓	✓			
4	SB # 3 @ 36ft		1										10/4/10	3:55 p	✓	✓			
5	SB # 4 @ 18ft		1										10/4/10	3:20 p	✓	✓			
6	SB # 4 @ 42ft		1										10/4/10	3:50 p	✓	✓			
7	SB # 5 @ 30ft		1										10/4/10	4:15 p	✓	✓			
8	SB # 5 @ 42ft		1										10/4/10	4:30 p	✓	✓			

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Relinquished By: Jordan Woodfin	Date: 10/5/10 Time: 2:30	Received By: [Signature]	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By: [Signature]	Date: 10/5/10 Time: 2:05	Received By: [Signature]	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool - Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: [Signature] (Initials)	REMARKS: email results	
Hconder@riceswd.com; jwoodfin@riceswd.com; Lweinheimer@riceswd.com kjones@riceswd.com				

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

NEED SAMPLES BACK, PLEASE



October 08, 2010

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME JCT G-11

Enclosed are the results of analyses for samples received by the laboratory on 10/05/10 8:05.

Cardinal Laboratories is accredited through Texas NELAP for:

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene
Lab Director/Quality Manager



December 13, 2010

Hack Conder
Rice Operating Company
112 W. Taylor
Hobbs, NM 88240

RE: EME JCT G-11

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 Hydrocarbons

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene
Lab Director/Quality Manager

Analytical Results For:

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

Received: 12/08/2010
Reported: 12/13/2010
Project Name: EME JCT G-11
Project Number: NONE GIVEN
Project Location: EME JCT G-11

Sampling Date: 12/07/2010
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: MW-1 @ 5' (H021474-01)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	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	<10.0	10.0	12/09/2010	ND	204	102	200	8.69	
Surrogate: 1-Chlorooctane	79.4 %	70-130							
Surrogate: 1-Chlorooctadecane	60.2 %	70-130							

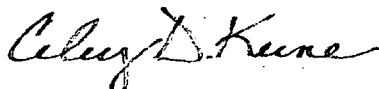
Sample ID: MW-1 @ 30' (H021474-02)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	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	<10.0	10.0	12/09/2010	ND	204	102	200	8.69	
Surrogate: 1-Chlorooctane	103 %	70-130							
Surrogate: 1-Chlorooctadecane	102 %	70-130							

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

 Received: 12/08/2010
 Reported: 12/13/2010
 Project Name: EME JCT G-11
 Project Number: NONE GIVEN
 Project Location: EME JCT G-11

 Sampling Date: 12/07/2010
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: MW-2 @ 20' (H021474-03)

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	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	0.602	0.200	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	0.299	0.200	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	1.89	0.600	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	16.0	16.0	12/08/2010	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	<50.0	50.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	2410	50.0	12/09/2010	ND	204	102	200	8.69	

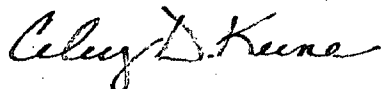
Surrogate: 1-Chlorooctane 105 % 70-130

Surrogate: 1-Chlorooctadecane 97.0 % 70-130

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 12/08/2010
Reported: 12/13/2010
Project Name: EME JCT G-11
Project Number: NONE GIVEN
Project Location: EME JCT G-11

Sampling Date: 12/07/2010
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: MW-2 @ 25' (H021474-04)

BTEX 8021B			mg/kg		Analyzed By: CK				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	12/11/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	0.993	0.100	12/11/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	0.332	0.100	12/11/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	2.69	0.300	12/11/2010	ND	6.33	106	6.00	3.65	

Surrogate: 4-Bromofluorobenzene (PIL) 71.8 % 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	96.0	16.0	12/08/2010	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	86.8	50.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	2860	50.0	12/09/2010	ND	204	102	200	8.69	

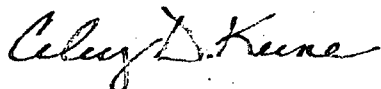
Surrogate: 1-Chlorooctane 109 % 70-130

Surrogate: 1-Chlorooctadecane 88.7 % 70-130

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 12/08/2010
Reported: 12/13/2010
Project Name: EME JCT G-11
Project Number: NONE GIVEN
Project Location: EME JCT G-11

Sampling Date: 12/07/2010
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: MW-2 @ 40' (H021474-05)

BTEX 8021B			mg/kg		Analyzed By: CK				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	12/10/2010	ND	2.00	99.9	2.00	5.09	
Toluene*	0.646	0.100	12/10/2010	ND	2.12	106	2.00	4.20	
Ethylbenzene*	0.447	0.100	12/10/2010	ND	2.13	107	2.00	3.85	
Total Xylenes*	1.31	0.300	12/10/2010	ND	6.33	106	6.00	3.65	

Surrogate: 4-Bromofluorobenzene (PII) 93.4 % 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	208	16.0	12/08/2010	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	<50.0	50.0	12/09/2010	ND	192	96.1	200	15.1	
DRO >C10-C28	2460	50.0	12/09/2010	ND	204	102	200	8.69	

Surrogate: 1-Chlorooctane 118 % 70-130

Surrogate: 1-Chlorooctadecane 115 % 70-130

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager


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

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Rice Operating Company				BILL TO				ANALYSIS REQUEST				
Project Manager: Hack Conder				P.O. #:				<div style="display: flex; flex-direction: column; align-items: center;"> <div>Chlorides</div> <div>TPH 8015 M</div> <div>BTEX</div> <div>Texas TPH</div> <div>Complete Cations/Anions</div> <div>TPH 8015 M Extended Thru C40</div> </div>				
Address: 122 West Taylor				Company:								
City: Hobbs		State: NM Zip: 88240		Attn:								
Phone #: 575-393-9174		Fax #: 575-397-1471		Address:								
Project #:		Project Owner:		City:								
Project Name: EME Jct G-11				State: Zip:								
Project Location: EME Jct G-11				Phone #:								
Sampler Name: Jordan Woodfin				Fax #:								
FOR LAB USE ONLY	Lab I.D.	Sample I.D.	JOIRAS OR (C)OMP.	# CONTAINERS	MATRIX	PRESERV.	SAMPLING					
					GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:	ACID/BASE ICE / COOL OTHER:	DATE	TIME				
	H214711-1	MW-1 @ 5'		1			12/7/10	08:00				
	2	MW-1 @ 30'		1			12/7/10	08:30				
	3	MW-2 @ 20'		1			12/7/10	10:00				
	4	MW-2 @ 25'		1			12/7/10	10:10				
	5	MW-2 @ 40'		1			12/7/10	11:00				

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Relinquished By: <u>Jordan Woodfin</u>	Date: <u>12/10/10</u> Time: <u>2:15</u>	Received By: <u>[Signature]</u>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By: <u>[Signature]</u>	Date: <u>12/10/10</u> Time: <u>3:15</u>	Received By: <u>[Signature]</u>	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials) <u>[Initials]</u>	REMARKS: email results	
Hconder@riceswd.com; jwoodfin@riceswd.com; Lweinheimer@riceswd.com kjones@riceswd.com				

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

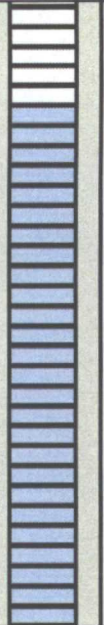
NEED SAMPLES BACK, PLEASE

Logger:	Jordan Woodfin					
Driller:	Harrison & Cooper, Inc.					
Drilling Method:	Air rotary					
Start Date:	12/7/2010					
End Date:	12/7/2010		Project Name: EME G-11 Well ID: MW-1 Project Consultant: RECS Location: UL/G sec. 11 T20S R36E Lat: 32°35'26.56"N County: LEA Long: 103°19'20.429"W State: NM			
Comments: Located 32 ft south east of the former junction box site. DRAFTED BY: L. Weinheimer TD = 89 ft GW = 46 ft						
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown fine silty sand		
5 ft	230	CI-80	0			
		GRO <10		Tan silty sand with medium caliche fragments		
		DRO <10				
10 ft	150		0			
				Tan large caliche fragments with some very fine sand		
15 ft	149		0.2			
				Tan silty sand		
20 ft	223		0.3			
				Tan silty sand with small caliche fragments		
25 ft	210		0.4			
				Red very fine silty sand		
30 ft	146	CI-96	0.8			
		GRO <10				
		DRO <10				
35 ft						
				NO SAMPLES TAKEN		
40 ft						

Depth (feet)	chloride field tests	LAB	PID	Description		Lithology		Well Construction
45 ft								
50 ft								
55 ft								
60 ft								
65 ft								
70 ft								
75 ft								
80 ft								
85 ft								
90 ft								

sand
pack

Logger:	Jordan Woodfin					
Driller:	Harrison & Cooper, Inc.					
Drilling Method:	Air rotary					
Start Date:	12/7/2010					
End Date:	12/7/2010					
Comments: Located 63 ft north west of the former junction box site.		Project Name: EME G-11 Well ID: MW-2 Project Consultant: RECS				
DRAFTED BY: L. Weinheimer TD = 59 ft GW = 46 ft		Location: UL/G sec. 11 T20S R36E Lat: 32°35'27.173"N County: LEA Long: 103°19'21.276"W State: NM				
Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Black silty sand (hydrocarbon odor)		
5 ft	140		104			
				Tanish yellow silty sand (hydrocarbon odor)		
10 ft	118		126			
15 ft	122		291			
				Light brown to yellow silty sand with small caliche fragments (hydrocarbon odor)		
20 ft	150	CI- 16	336			
	B <0.2 T = 0.602	GRO <50				
	E = 0.299 X = 1.89	GRO 2410				
25 ft	149	CI- 96	469			
	B <0.1 T = 0.993	GRO 86.8				
	E = 0.332 X = 2.69	GRO 2860				
30 ft	151		395			
				Light brown silty sand (hydrocarbon odor)		
35 ft	151		271			
40 ft	234	CI- 208	329			

Depth (feet)	chloride field tests	LAB	PID	Description		Lithology		Well Construction
	B <0.1 T = 0.646	GRO <50		NO SAMPLES TAKEN				
	E = 0.447 X = 1.31	GRO 2460						
45 ft								
50 ft								
55 ft								
60 ft								



October 13, 2010

Hack Conder
Rice Operating Company
112 W. Taylor
Hobbs, NM 88240

RE: EME JCT G-11

Enclosed are the results of analyses for samples received by the laboratory on 10/06/10 7:58.

Cardinal Laboratories is accredited through Texas NELAP for:

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

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene
Lab Director/Quality Manager

Analytical Results For:

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

Received: 10/06/2010
Reported: 10/13/2010
Project Name: EME JCT G-11
Project Number: NONE GIVEN
Project Location: EME JCT G-11

Sampling Date: 10/05/2010
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SB #1 @ 33 FT (H020983-01)

Chloride, SM4500CI-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1090	16.0	10/07/2010	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	10/13/2010	ND	187	93.7	200	13.2	
DRO >C10-C28	<10.0	10.0	10/13/2010	ND	192	96.1	200	3.60	
Surrogate: 1-Chlorooctane	99.9 %	70-130							
Surrogate: 1-Chlorooctadecane	112 %	70-130							

Sample ID: SB #1 @ 42 FT (H020983-02)

Chloride, SM4500CI-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	10/07/2010	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	10/13/2010	ND	187	93.7	200	13.2	
DRO >C10-C28	<10.0	10.0	10/13/2010	ND	192	96.1	200	3.60	
Surrogate: 1-Chlorooctane	104 %	70-130							
Surrogate: 1-Chlorooctadecane	117 %	70-130							

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Celey D. Keene, Lab Director/Quality Manager

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.

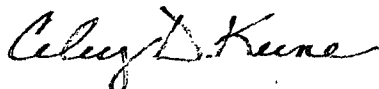
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C

Samples reported on an as received basis (wet) unless otherwise noted on report

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Relinquished By:  Jordan Woodfin		Date: 10/6/10 Time: 7:30		Received By:  Jodi Benson		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone #: Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Fax #: REMARKS:	
Relinquished By:  Jodi Benson		Date: 10/6/10 Time: 7:58		Received By:  Jodi Benson		email results Hconder@riceswd.com; jwoodfin@riceswd.com; Lweinheimer@riceswd.com kjones@riceswd.com	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No		CHECKED BY: Initials: 			

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2478.

NEED SAMPLES BACK, PLEASE

ROC EME G-11													
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	46.32	68.28	14.3	50	2/22/2011	348	1210	<0.001	<0.001	<0.001	<0.003	41.7	Clear No odor
1	46.48	68.28	14.2	50	5/31/2011	670	1620	0.003	0.005	0.002	0.032	47.6	Clear Slight odor
1	46.71	68.28	14	50	8/26/2011	760	1830	0.01	0.003	0.003	0.026	56.6	Clear Slight odor
1	46.8	68.28	14	50	12/1/2011	770	1920	0.01	0.002	<0.001	0.021	71.2	Clear Slight odor
1	46.78	68.28	14	50	2/15/2012	650	1760	0.002	0.003	<0.001	0.005	71.9	Clear Slight odor

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	48.92	55.02	1	5	2/22/2011	176	695	0.006	0.059	0.042	0.192	59.6	Clear Product present Strong hydrocarbon odor
2	49.05	55.02	1	0	5/31/2011	XXX	XXX	XXX	XXX	XXX	XXX	XXX	Product measurable/no sample heavy product made sample inconclusive
2	49.26	55.02	0.9	0	8/26/2011	XXX	XXX	XXX	XXX	XXX	XXX	XXX	Product measurable Clear Product present Strong hydrocarbon odor
2	49.35	55.02	0.9	0	12/1/2011	XXX	XXX	XXX	XXX	XXX	XXX	XXX	Product measurable Clear Product present Strong hydrocarbon odor
2	49.32	55.02	0.9	0	2/15/2012	XXX	XXX	XXX	XXX	XXX	XXX	XXX	Product measurable Clear Product present Strong hydrocarbon odor