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REPORTS

1-16-12

Rice Environmental Consulting & Safety

P.O. Box 5630 Hobbs, NM 88241 Phone 575.393.4411 Fax 575.393.0293

CERTIFIED MAIL RETURN RECEIPT NO. 7008 1140 0001 3070 6204

January 16th, 2012

Mr. Edward Hansen

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

RE: ICP Report and Termination Request Rice Operating Company – EME SWD System EME jct. P-27 (1R427-283): UL/P sec. 27 T19S 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 ownership/usage basis.

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Background and Previous Work

The site is located approximately 4 miles west of Monument, New Mexico at UL/P sec. 27 T19S R36E as shown on the Site Location Map (Figure 1). Soil bore installation conducted at the site found groundwater at a depth of +/- 17.5 ft bgs.

In 2007, ROC initiated work on the former EME P-27 junction box. The site was delineated using a backhoe to form a 30 ft x 30 ft x 12 ft deep excavation and soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation, the four-wall composite, the bottom composite and the backfill were taken to a commercial laboratory for analysis. Laboratory tests of the four-wall composite showed a chloride reading of 912 mg/kg and non-detect for gasoline range organics (GRO) and diesel range organics (DRO). The bottom composite showed a chloride of 1,020 mg/kg and GRO and DRO readings of non-detect. The excavated soil was blended on site and returned to the excavation up to 6 ft bgs. At 6 ft bgs, a shelf was excavated extending 5 ft out from the north, south and east walls. At approximately 6-5 ft bgs, a 1 ft clay layer was installed throughout the excavation. Laboratory analysis of the blended backfill showed a chloride reading of 608 mg/kg and GRO and DRO readings of non-detect. The site was backfilled with the blended soil and topped with clean, imported soil that was contoured to the surrounding area.

The area was seeded and an identification plate was placed on the surface of the site to mark its location for future environmental considerations. NMOCD was notified of potential groundwater impact on July 16th, 2008 and a junction box disclosure report was submitted to NMOCD with all the 2008 junction box closures and disclosures.

ICP Investigative Results

As part of the Investigation and Characterization Plan (ICP) approved by NMOCD on November 17th, 2011, six soil bores were installed at the site on December 13th and 15th, 2011 (Figure 2). SB-1 was installed on December 13th to check for the presence of groundwater at the site. Red bed clay, which delineates the bottom of the aquifer, was encountered at 18 ft bgs. Since no groundwater was evidenced during boring, the bore was advanced to 40 ft bgs to allow any groundwater present to accumulate within the bore. SB-1 was packed open for 48 hours and then gauged for groundwater by Harrison & Cooper, Inc. Groundwater was found in SB-1 at a depth of 17.5 ft bgs. The aquifer beneath the site was determined to be exceptionally thin, since the red bed clay that delineates the bottom of the aquifer and depth to groundwater were located within 6 inches of each other (Figure 3). Sampling was not conducted on SB-1, since no samples could be attained between the bottom of the junction box excavation of 12 ft bgs and the top of the capillary fringe.

Since groundwater was discovered at the site, SB-2 through SB-6 was subsequently advanced at the site on December 15th. RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector for hydrocarbons. Representative samples from the bores were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers (Appendix A). In SB-2 through SB-6, chloride laboratory readings decreased with depth from a high at 6-9 ft bgs to a low at the capillary fringe below or near 250 mg/kg, except for SB-5 which decreased to a chloride reading of 752 mg/kg at 15 ft bgs. GRO and DRO readings were non-detect for all samples (Figure 2).

Given the relatively low chloride concentrations across the site, it is reasonably assumed that the former junction box will in no way contribute to the degradation of groundwater. The site has an existing 40x35 ft clay layer installed at 6-5 ft bgs, which will impede migration of the residual chlorides and hydrocarbons. Vegetation has rebounded at the site (Figure 3), so no re-vegetation efforts are needed. Therefore, RECS requests "remediation termination" status of the regulatory file.

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

Sincerely,

JC.W.

Lara Weinheimer Project Scientist RECS (575) 441-0431

Attachments:

Figure 1 – Site Location Map Figure 2 – Soil Bore Installation Map Figure 3 – Site Photo Appendix A – Soil Bore Logs and Laboratory Confirmation Appendix B – Groundwater Confirmation Letter



Figures

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

Site Location

D	С	В	A	D	C	В	Α	D	C	В	A	D	С	В	AD	D	С	В	A	DC
E	F	G	н	E	FS	G	н	E	F	G	н	E	T.F.A	G	н	E	F	G	н	EF
L	к 1	5 J	1	L	к 1	4 J	• ¹	L	к 13	۲. ۲	I.	L	ĸ 1	8 J	-1	L	к 1	17 J	·	L 16 K
ь М	N	0	Р	м	N	0	P	М	N	0	P	М	N	0	P	М	N	•	- P	M N
A D	c	B	A	D	0	в	A	D	с	в	A	D,	c	В	A	D	c	в	A	DC
HE	()	G	H	E	F	G	н	E	F	G	н	E	F	G	н	E	F	G	H 80	E F
21	2 K	2 J	1	L	2 К	3 J	e des	L	K.	4 J	-	L	ĸ	1 1	1-	L	K	1	- Hwy	LK
PM	N	0	P	M	N	0	P	M	N	0	Р	М	Ń	0	Р	M	N	0	P	M N
D	195 3 c	B	A	D	С	в	A	D	C	B	A	D	c	в	A	D	c	в	Â	DC
H E	F	G	н	E	F-	G	H	A.	E	G	н	E	F	G	н	E	F	G	н	E F
28 L	ĸ	27 J	L	L	2 K	.6 J	-	E.	2 K	5 J	à	1	к	30 J	5-1C	L	к	29 J	12	LK
P M	NE	ME	jc	t.₽	-27	0	P	м	N	0	P	М	N	0	A	M	N 2	Mo	nui	nent
D	с	в	Å	D	c	в	A	D	c	в	A	6	c	в	A	D	¢	B	A	DC
HE	F	G	Ан	S.E	Fr	G	EH	E	F-	G	Н	E	F	G	н	Ę	F	G	LH	E F
33 L	ĸ	34		1	з к	35 J		1	3 к	6 J	SP.	L	к	31 J		L	к	32 J	T	33 L K
F M	N	07	P	M	S.N.	0	-P	M	N	0	P.	м	N	0	Р	М	N	0	P	MN
	Child	dress	Rd.		7.	B	A	P D	c	в	v	1000	c	в	A	- D-	c	LB	A	DC
ALC: NO.	-	G	н	E	į	G	H	E	E	G	H Iox R	D	E	G	Н	E	F	G	Н	E F
4	ĸ	3			ĸ	2		大	1 K	5	Made	E	ĸ	-1	en ju	L	ĸ	5 J	- 1	4 L K
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	C	B	20	9 38	E	8	A	0	C	В	A	20	S 37	E B	A	D	c	B	A	DO
E	F	G	H	E	E P	G	H	E	XE	I G	-н	E	F	G	н	E	-l _F	G	H	EF
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16 D	0	15 B	A	0	6	14 8	*	D	0	13-8	A	-0	C	18	A	0	C	17 B	A	-16 c
	RICE	ENV	IRO	NME	NTAL			EN	1E _	jc	t. I	- 2	27		Figure 1					
	RECS				LEGALS: UL/P sec. 27 T-19-S R-36-F						s 0 0.2 0.4 0.8									
-0	NSUL	TING	8 5	AFE	ry, LL	C	NMOCD Case #: 1R427-283 Drawing da				date: 1	0/31/1	∃ Mile 1	es						

Drawing date: 10/31/11 Drafted by: L. Weinheimer

Soil Bore Installation



EME jct. P-27 Unit P, Section 27, T19S, R36E



Site photo, facing south

12/2/11

Appendix A Soil Bore 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: Driller:	Harr	Kyle Norm	nan per, Inc.	SB-2 SB-2 SB-2 SB-2 SB-2 SB-2 SB-2 SB-2	Ç	RECS
Drilling M Start Dat End Date Comme T	Method: e: ents: SB-1 i his bore was	Air rotar 12/13/20 12/13/20 s located s advance DRAI	y 11 5 ft we ed to de FTED BY	st of the former junction box site. the termine depth to groundawater. SW = 17.5 ft GW = 17.5 ft	Project Name: EME jct. P Project Consult Location: UL/P Lat: 32°37'28.59	Well ID: -27 SB-1 ant: RECS Sec. 27 T19S R36E 7"N County: Lea 1.231"W State: NM
Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
SS 3 ft				Regolith		
10 ft				Tan Sand		
15 ft				Tan Sand With Some Caliche		bentonite
20 ft						seal
25 ft				RED BED CLAY ENCOUNTERED		
30 ft				AT 18 FT BGS		
35 ft						
40 ft		-				

Logger: Driller:		K Harriso	Cyle Norm	ian per, Inc.	SB-3 SB-2 SB-2 SB-2 Source 40 ft		Å	REC	S
Drilling I Start Dat	Method: te:		Air rotar	y 11	SB-1 (9)SB-4 clay layer @ 6-5 ft bgs SB-5 (9) 35 ft	Project Name: Well I EME jct. P-27			Well ID: SB-2
Comme	ents: SP	3-2 is	located	21 ft w	SB-6/ ;	Pr	oject Consulta	ec 27 Ti	5 195 B36F
	TD	site = 15	e. All sa DRA	amples FTED BY	were from cuttings. : L. Weinheimer GW = 17.5 ft	Lat: 32 37'28.618"N Cour Long: 103 20'11.419"W State			
Depth (feet)	Chlor field te	ide ests	LAB	PID	Description		Lithology	Well	Construction
					Redish Brown Sand				
SS	201	1		0.2		-			
					Brown Sand With Caliche				
3 ft	346	5	-	0.1		-			
					Tan Sand				
6 ft	430)		0.6		-			bentonite
					Brown Sand With Some Caliche				seal
9 ft	444	1	CI- 640	0.5					
			GRO <10						
12.17			<10						
12 ft	332	2		0.7		1			
	-				Tan Sand With Caliche				
15 ft	181		CI- 160	0.6					
			GRO <10 DRO						
	· · · · · ·		<10						

Logger: Driller: Drilling I Start Date End Date Comme	Method: te: e: ents: SE	K Harriso 3-3 is site = 15	yle Norm on & Coo Air rotar 12/15/20 12/15/15/20 12/15/10 12/15/10 12/15/10 12/15/10 12/15/10 12/15/10 12/10/10 12/10/10 12/10/10	an per, Inc. y 11 22 ft no amples v FTED BY:	sB-2 sB-2 sB-2 sB-1 sB-5 those sB-6 sB-6 sB-6 sB-6 sB-6 sB-6 sB-6 sB-6 sB-7 s	Project Name: Well ID: EME jct. P-27 SB-3 Project Consultant: RECS Location: UL/P sec. 27 T19S R36E Lat: 32°37'28.819"N County Long: 103°20'11.197"W State: N			
Depth Chloride LAB PID Descrip				Description		Lithology	Well	Construction	
SS	185	5		0.0	Reddish Brown Sand				
3 ft	145	5		0.2	Tan Sand With Some Caliche				
6 ft	247	7		0.0					bentonite
9 ft	337	7	CI- 320 GRO <10 DRO	0.1	Tan Sand With Caliche				seal
12 ft	285	5	<10	0.0					
15 ft	209)	CI- 256 GRO <10	0.0	Red Sand With Caliche				

Logger: Driller: Drilling I	Method:	K Harriso	Kyle Norm	an per, Inc.	SB-2 SB-2 SB-1 SB-1 SB-4		and a state	RECE	a le			
brining	incuriou.		All Total	, 		Pr	oject Name:		Well ID:			
Start Dat	te:		12/15/201		Clay fay≰r @ 6-5 ft bgs EMI SB-5 ◎ 35 ft			. P-27 SB-4				
Comm	e: onte: SI	B-4 is	located	25 ft ea	st of the former junction box	Pr	oject Consulta	ec 27 T1	95 B36F			
Comm	TI	site	e. All sa DRAI	amples v TED BY:	were from cuttings. L. Weinheimer GW = 17.5 ft	Lat: 32°37'28.556"N Court						
Depth Chlo		oride tests LAB PID		PID	Description		Lithology	Well	Construction			
SS	20	7		0.0	Reddish Brown Sand	1.3						
2.4	24	6		0.0	Tan Sand With Some Caliche							
6 ft	34	6	CI- 752	0.1								
			<10 DRO <10						bentonite seal			
9 ft	14	4		0.0	Tan Sand With Caliche							
12 ft	14	9		0.0					La A			
15 ft	11	3	CI- 48 GRO	0.2								
			<10 DRO <10									

Logger: Driller: Drilling I Start Date End Date	Method: te: e: ents: Si	Harris B-5 is sit	(yle Norm on & Coo Air rotar 12/15/20 12/15/20 Iocated e. All sa DRA	per, Inc. y 11 124 ft St amples FTED BY	SB-2 SB-2 SB-2 SB-1 SB-1 SB-1 SB-4	B-4 Project Name: W EME jct. P-27 Project Consultant: RECS Location: UL/P sec. 27 T19 Lat: 32°37'28.39"N			Well ID: SB-5 SS 19S R36E County: Lea
TD = 15 ft			ft		GW = 17.5 ft	Lo	ng: 103 20'11	.293"W	State: NM
(feet)	field t	ests	LAB	PID	Description	_	Lithology	Well	Construction
SS	11	6		0.0	Reddish Brown Sand				
3 ft	12	0		0.2	Brown Sand With Caliche	1			
6 ft	30	3		0.0		-			bentonite
9 ft	72	5	CI- 1040 GRO <10	0.0					seal
12 ft	39	2	DRO <10	0.1	Brown Sand With Some Caliche				
15.#	50	3	CI-	0.1					
1311	53	3	GRO <10 DRO <10	0.1					

Logger:		к	yle Norm	ian	©SB-3	RECS			
Driller:		Harriso	on & Coo	per, Inc.	SB-2 source 40 ft				
Drilling I	Method:		Air rotar	y	SB-1 (SSB-4	Pr	oiect Name:	1.1	Well ID:
Start Dat	te:		12/15/20	11	clay ayer @ 6-5 ft bgs		EME jct. P-	27	SB-6
End Date	e:		12/15/20	11	SB-5 (S) 35 ft (S) SB-6	Project Consultant: RECS			S
Comme	ents: SE	3-6 is	located	30 ft SS	W of the former junction box	Lo	cation: UL/P s	ec. 27 T	9S R36E
		SIL	DRA	TED BY: L	Weinheimer	La	t: 32°37'28.334	4"N	County: Lea
Sec.	TD	= 15	ft		GW = 17.5 ft	Lo	ng: 103°20'11	.316"W	State: NM
Depth Chl (feet) field		ride ests	LAB	PID	Description		Lithology	Well	Construction
	1.1.2.1.2.1								
	1.1				Reddish Brown Sand				
SS	151	1		0.0					
	1								
					Brown Sand With Caliche	- 5			
0.0	000								
3 ft	202	2	-	0.0		-			1. Sec. 1. Sec
6 ft	307	7	2	0.1					
									bentonite
									seal
9 ft	492	2	CI- 960	0.0					
			GRO						
			<10 DRO		Tan Sand With Caliche				
			<10						
12 ft	450)		0.3					
45.0	000		CI-						
15 ft	238	5	GRO	0.2					
			<10						a ten
- 31			<10						



December 19, 2011

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

RE: EME P-27 JCT 19S-36E

Enclosed are the results of analyses for samples received by the laboratory on 12/15/11 13:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab accredited certif.html.

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 (V1, 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,

Celeg D.Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	12/15/2011	Sampling Date:	12/15/2011
Reported:	12/19/2011	Sampling Type:	Soil
Project Name:	EME P-27 JCT 19S-36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 2 @ 9' (H102704-01)

Chloride, SM4500Cl-B	mg,	/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	12/17/2011	ND	432	108	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/17/2011	ND	193	96.4	200	4.86	
DRO >C10-C28	<10.0	10.0	12/17/2011	ND	189	94.7	200	1.39	
Surrogate: 1-Chlorooctane	68.8	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	81.5	% 57.6-15	8						

Sample ID: SB 2 @ 15' (H102704-02)

Chloride, SM4500CI-B	mg/kg		Analyze	Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	12/17/2011	ND	432	108	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/17/2011	· ND	193	96.4	200	4.86	
DRO >C10-C28	<10.0	10.0	12/17/2011	ND	189	94.7	200	1.39	
Surrogate: 1-Chlorooctane	75.6	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	96.3	% 57.6-15	8						

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed valved unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incidentied by client, its subsidiaries, affiliates or successions arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the shows tasked reasons or otherwise. Results relate only to the sample-similar based. The performance of Cardinal Laboratories.

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/15/2011	Sampling Date:	12/15/2011
Reported:	12/19/2011	Sampling Type:	Soil
Project Name:	EME P-27 JCT 19S-36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 3 @ 9' (H102704-03)

Chloride, SM4500CI-B	mg/kg		Analyze	Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	12/17/2011	ND	432	108	400	0.00	
TPH 8015M	mg/kg		Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	
Surrogate: 1-Chlorooctane	91.9	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	99.9	% 57.6-15	8						

Sample ID: SB 3 @ 15' (H102704-04)

Chloride, SM4500Cl-B	mg/kg		Analyze	Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	12/17/2011	ND	432	108	400	0.00	
TPH 8015M	mg/kg		Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	
Surrogate: 1-Chlorooctane	89.4	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	97. 5	% 57.6-15	8						

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whitsoever shall be deemed waived unless made in writing and received by Cardinal within (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, whithut finitation, business interruptions, loss of use, or loss of profits incrumed by client, its subclidaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such climits based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall note performance of family all business.

Celeg D. Kune

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/15/2011	Sampling Date:	12/15/2011
Reported:	12/19/2011	Sampling Type:	Soil
Project Name:	EME P-27 JCT 19S-36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 4 @ 6' (H102704-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	752	16.0	12/17/2011	ND	432	108	400	0.00	
TPH 8015M	mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	
Surrogate: 1-Chlorooctane	175 %	6 55.5-15	4						
Surrogate: 1-Chlorooctadecane	189 %	57.6-15	8						

Sample ID: SB 4 @ 15' (H102704-06)

Chloride, SM4500Cl-B	mg/kg		Analyze	Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	ry True Value QC	RPD	Qualifier
Chloride	48.0	16.0	12/17/2011	ND	464	116	400	7.14	
TPH 8015M	mg/kg		Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	
Surrogate: I-Chlorooctane	94.3	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	104	% 57.6-15	8	•					

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Celey D. Kune

Celey D. Keene, Lab Director/Quality Manager



Rice Operat	ing Company
Hack Conde	r
112 W. Tayl	or
Hobbs NM,	88240
Fax To:	(575) 397-1471

Received:	12/15/2011	Sampling Date:	12/15/2011
Reported:	12/19/2011	Sampling Type:	Soil
Project Name:	EME P-27 JCT 19S-36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 5 @ 9' (H102704-07)

Chloride, SM4500CI-B	mg/kg		Analyze	Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS % Recovery	True Value QC	RPD	Qualifier	
Chloride	1040	16.0	12/17/2011	ND	464	116	400	7.14	
TPH 8015M	mg/kg		Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/18/2011	ND	219	109	[.] 200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	
Surrogate: 1-Chlorooctane	89.2	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	95.9	% 57.6-15	8						

Sample ID: SB 5 @ 15' (H102704-08)

Chloride, SM4500CI-B	mg/kg		Analyze	Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	752	16.0	12/17/2011	ND	464	116	400	7.14	
TPH 8015M	mg/kg		Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	
Surrogate: 1-Chlorooctane	88.4	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	95.2	% 57.6-15	8						

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Celeg D. Kune

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/15/2011	Sampling Date:	12/15/2011
Reported:	12/19/2011	Sampling Type:	Soil
Project Name:	EME P-27 JCT 19S-36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 6 @ 9' (H102704-09)

Chloride, SM4500CI-B	mg/kg		Analyze	Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	960	16.0	12/17/2011	ND	464	116	400	7.14	
TPH 8015M	mg/kg		Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	
Surrogate: 1-Chlorooctane	82.9	% 55.5-15	4			<u> </u>	<u> </u>		•
Surrogate: 1-Chlorooctadecane	85.3	% 57.6-15	8						

Sample ID: SB 6 @ 15' (H102704-10)

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	12/17/2011	ND	464	116	400	7.14	
TPH 8015M	mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/18/2011	ND	219	109	200	2.25	
DRO >C10-C28	<10.0	10.0	12/18/2011	ND	214	107	200	2.71	
Surrogate: 1-Chlorooctane	87.6	% 55.5-15	4						
Surrogate: 1-Chlorooctadecane	95.6	% 57.6-15	8						

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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.
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 SM4500CI-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

Page 7 of 8

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

ARDINAL LABORATORIES

(505) 393-2326 FAX (505) 393-24/6 (325) 673-7001 F								AA (323)0/3-/020															
Company Name	" Bice							BILL TO				ANALYSIS REQUEST											
Project Manager: Hack, Conster							Ρ.0	P.O. #:															
Address:							Co	Company:							S								
City: State: NM Zip:							At	Attn:							5						1		
Phone #: Fax #:						Ad	Address:							Į.									
Project #:	Project Owner	<u>.</u>				·•	Cit	y:		<u>. </u>				3015 M	EX		Cations/A	TDS					
Project Name:	· · · · · · · · · · · · · · · · · · ·						Sta	ate:			Zip:	~	ĕ			린							
Project Location	n: EME P-27 Jet 195	-36	E.			<u>.</u>	Ph	óne	e #:				i.			kas 1				,			
Sampler Name:	Kyle Norman						Fa	x #:	:						Ы								
FOR LAB USE ONLY	MATRIX					PRESERV. SAMPLING			\overline{O}	L L		@	e			,	1						
Lab I.D. H102704	Sample I.D.	(G)RAB OR (C)OM	# CONTAINERS	GROUNDWATER WASTEWATER	SOIL	OIL	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME				•	Comple						
J	562 2 9'	G_{7}	•		i -	4			11		12.15-11.	8'P	1	レ							 		
2	SB2 @ 151	$\iota ?$	3		11	!			/ ;		12-19-11	8:45		1							 		
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ID	560 (20 151	5	1		1	:					12-15-11	12:40		\checkmark									

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603 (FOR) 200 0000 FAX (FOR) 200 0470 (205) 072 7004 FAX (205)072 7000

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Relinguished By:	Date:	Received By:	Phone Result: 🖸 Yes 🖉 No Add'l Phone #:
	1511		Fax Result: 🛛 Yes 🖾 No Add'i Fax #:
	Time:	1 MILL, ALBUTARIA	REMARKS:
MANINEV	1.50	GALL ON BUT	
Relinquished By:	Date:	Received By:	email results
	1		ernan regulto
	Time		kiones@riceswd.com: knorman@rice-ecs.com:
			I Zconder@rice-ecs.com: Bbaker@rice-ecs.com:
Delivered By: (Circle One)		Sample Condition CHECKED BY:	
		Cool Intact ((hitials)	hconder@rice-ecs.com: Lweinheimer@rice-ecs.com
Sampler - UPS - Bus - Other:		Tyes Ves	

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

Appendix B Groundwater Confirmation Letter

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



HARRISON & COOPER, INC.

7414 85th Street, Lubbock, Texas 79424-4951

P.O. Box 96, Wolfforth, Texas 79382-0096

Drilling & Pump Professionals

Fax: (806) 866-4044

hcidrill.com

Ph: (806) 866-4026

January 3, 2012

Rice Operating 112 W. Taylor Hobbs, NM 88240

Attn: Lara Weinheimer

RE: Site: EME Jct. P-27

The aquifer at EME P-27 does not contain the capacity to install a submersible pump for treatment due to the lack of saturated thickness. The actual saturated thickness was approximately 6" with a static water level of approximately 17.5'

Sincerely,

Kenny Cooper

Copies: File Email (Lara Weinheimer; Katie Jones)

Regulated by: Texas Dept. of Licensing & Regulation, Water Well Division, P.O. Box 12157, Austin, TX 78711, (800) 803-9202

From:	Katie Jones
To:	Hansen, Edward J., EMNRD
Cc:	Hack Conder; Laura Pena; Lara Weinheimer
Subject:	ROC - EME Jct. P-27 (1R427-283) ICP Report and Termination Request Addendum
Date:	Monday, March 05, 2012 9:54:59 AM
Attachments:	EME Jct. P-27 (1R427-283) Aquifer Thickness Letter.pdf

Mr. Hansen,

This email is an Addendum to the EME Jct. P-27 (1R427-283) ICP Report and Termination Request, submitted to the NMOCD on January 16, 2012. The attached letter was written by Harrison & Cooper, Inc. and will be included in the report as Appendix B, replacing the previous. If you need any further information, please let me or Hack know.

Thank you.

Katie Jones Environmental Project Manager RICE *Operating Company*

HARRISON & COOPER, INC.

7414 85th Street, Lubbock, Texas 79424-4951

P.O. Box 96, Wolfforth, Texas 79382-0096

Drilling & Pump Professionals

Fax: (806) 866-4044

www.hcidrill.com

February 28, 2012

Ph: (806) 866-4026

RE: Rice Operating Company EME Jct. P-27 Soil Boring

To Whom It May Concern,

Harrison & Cooper, Inc. (HCI) was and is currently contracted by Rice Operating Company to provide drilling and sampling services for subsurface investigations.

During an investigation at EME Jct. P-27 near Monument, NM, HCI drilled a soil boring to 40' BGS to allow Rice Operating Company to determine if groundwater existed at that particular location. Upon reaching the desired depth, an encounter with groundwater was not apparent; however, groundwater "seeped" into the wellbore from a thin saturated interval approximately 6 inches thick from 18.0' to 18.5'. The zone did not have any indications of moisture during the drilling process.

Immediately below the thin saturated interval from 18.5' to 40' TD is dry impermeable red clay. The red clay in this region is also referred to as the "red bed". This geologic zone is an aquiclude. An aquiclude is material that allows zero permeability; therefore, at EME Jct. P-27 only 6" of saturated thickness exists because water is not permeating through the red bed. If HCI would have drilled through the saturated interval to a depth of 18.5' and stopped at the red clay, there is only 6" of saturated thickness that would not provide the specific capacity required to yield water using the smallest submersible pump.

In conclusion, the aquifer at this location does not contain the specific capacity to yield the desired amount of water due to lack of saturated thickness.

Sincerely,

Kenny Cooper Operations Manager

KRC/ch Copies: File

Hansen, Edward J., EMNRD

From:	Laura Pena <lpena@riceswd.com></lpena@riceswd.com>
Sent:	Thursday, May 24, 2012 1:19 PM
То:	Hansen, Edward J., EMNRD
Cc:	Hack Conder; Katie Jones; Lara Weinheimer
Subject:	EME Jct. P-27 (1R427-283) Requested Additional Information
Attachments:	EME Jct. O-30 SB-1 log.pdf; EME jct. P-27 SB-1 log.pdf; EME jct. P-27 Area of No
	Groundwater.jpg

Mr. Hansen,

As per NMOCD request, a plat depicting the relationship of EME jct. P-27 to EME jct. O-30 is attached. The EME jct. O-30 site has no groundwater as evidenced by the soil bore log (also attached), in which red bed clay was encountered at 18 ft bgs. The EME jct. O-30 soil bore log also serves as a comparison to the EME jct. P-27 soil bore log, which shows red bed clay was encountered at 18 ft bgs and extends through the total depth of the soil bore, 40 ft bgs. Both sites have similar lithology results preceding the encountering of red bed clay. As such, the aquifer at this location does not contain the specific capacity to yield the desired amount of water due to lack of saturated thickness.

1

If you have any questions, or require any additional information, please contact Hack Conder at (575) 631-6432.

Thank you, Laura Peña

Area of No Groundwater



Logger: Driller:	Ha	Kyle Norman Harrison & Cooper, Inc.		SB-2 SB-1	RECS						
Drilling Method: Air rotary Start Date: 12/13/2011 End Date: 12/13/2011 Comments: SB-1 is located 5 ft w			y 11 11 5 ft we	sB-5 sB-5 sB-6 sB	Project Name: Well ID: EME jct. P-27 SB-1 Project Consultant: RECS Location: UL/P sec. 27 T19S R36E						
Т	his bore watch	as advance DRAI 40 ft	ed to de	etermine depth to groundawater. : L. Weinheimer GW = 17.5 ft	Lat: 32°37'28.597"N County: Lea						
Depth Chloride (feet) field tests LAB PID			PID	Description	Lithology Well Construction						
SS 3 ft				Regolith							
10 ft				Tan Sand							
15 ft				Tan Sand With Some Caliche		bentonite					
20 ft						seal					
25 ft				RED BED CLAY ENCOUNTERED							
30 ft				AT 18 FT BGS							
35 ft											
40 ft											

Logger: Jordan Woodfin Driller: Harrison & Cooper, Inc.			rdan Woo on & Coo	odfin per, Inc.	SB-1		- Only	RECS			
Drilling Method: Air rotary Start Date: 5/27/2011 End Date: 5/27/2011			Air rotan 5/27/201 5/27/201	y 1 1	of the former innotion hav site	Proje Proje	ell ID: SB-1				
All	samples	were = 40	from cu	ttings.	SOIL BORE PLUGGED 6.17.11 L. Weinheimer GW = none	Location: UL/O sec. 30 119S R37E Lat: 32°37'37.707"N County: Lea Long: 103°17'12.446"W State: NM					
Depth (feet)	et) field tests LAB PID			PID	Description	Li	thology	Well Co	Well Construction		
					Brownish fine sand mixed with small caliche fragments						
15 ft 282			8.2	Brownish fine sand mixed with small caliche fragments and intermittent			2 in PVC				
18 ft	296		CI- 272	11.3	purple clay						
			<10 DRO 174		Purple clay						
21 ft	238		CI- 128 GRO <10	3.9							
24 ft			<10						annular space left		
27 ft									open SOIL BORE PLUGGED		
30 ft					NO SAMPLES TAKEN				6/17/2011		
33 ft											
36 ft											
39 ft 40 ft	94										