1R - 427-180

REPORTS

DATE:

5-18-12

Texerra

20055 Laredo Lane Monument, Colorado 80132
Tel: 719-339-6791 E-mail: lpg@texerra.com

May 18th, 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: Corrective Action Plan Report & Remediation Termination Request
Rice Operating Company – EME SWD System
EME Jct. N-18 UL N, Sect 18, Township 20S, Range 37E
NMOCD Case Number 1R427-180

Sent via Email and U.S. Certified Mail Return Receipt No. 7007 2560 0001 9712 8368

Mr. Hansen,

This report presents the results of corrective actions undertaken per the OCD approved Corrective Action Plan (CAP) for the above referenced site located in the EME SWD system (Figure 1).

Monitor well locations and quarterly groundwater sampling results are given in Figure 2. The former junction box at this location is within an area known to have regionally high baseline groundwater chloride concentrations. There appears to have been no impact of past operations of the former junction box on groundwater quality, as the upgradient monitor well (MW-2) exhibits chloride concentrations consistently above 1,300 mg/l whereas the at-source monitor well (MW-1) exhibits chloride concentrations below 1,000 mg/l. The CAP therefore did not include proposed corrective measures for groundwater impacts.

Residual contributed soil chlorides averaged 414 mg/kg in the ten foot zone above the water table across the affected area (Figure 3). While this level is only marginally higher than the NMOCD threshold of 250 mg/l for soil chlorides, ROC proposed in the CAP to compensate for potential future migration of these chlorides into groundwater. The Corrective Action Plan (CAP), approved by NMOCD on November 21, 2011, proposed removing 597 lbs or 270 kgs of chloride from the nearby groundwater recovery system located at EME A-20.

A total of 753 bbls of chloride impacted groundwater was withdrawn from EME A-20. With a chloride concentration in RW-1 of 3,550 mg/l, this results in a net removal of approximately 425 kg of chlorides (Table 1). This meets the CAP goal of removing at least 270 kg of groundwater chlorides.

The former junction box is encompassed by a working lease road and is constantly impacted by oil field traffic. The vegetation adjacent to the site is apparently healthy (Figure 4). As such, no surface restoration was warranted for this site.

It should be noted that further protection of groundwater from residual soil chlorides has been accomplished through the installation of a compacted one-foot thick, 35 x 25 ft clay layer at 6 ft bgs during the replacement of the former junction box at this location (Figure 5). As these measures compensate for potential groundwater impacts from residual contributed soil chlorides and fulfils the objectives of the CAP, we respectfully request remediation termination or similar regulatory closure status for this project.

Upon approval of this request, ROC plans to plug and abandon the at-source monitor well (MW-1) but to continue to sample the up-gradient monitor well (MW-2) to monitor the regional groundwater plume in the EME system area.

ROC is the service provider (agent) for the EME Salt Water Disposal System and has no ownership of any portion of pipeline, well or facility. The EME SWD System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

Please do not hesitate to contact either myself or Rice Operating Company if you have any questions or need additional information.

Sincerely,

L. Peter Galusky, Jr. Ph.D.,P.G.

Attachments: Figures, graphs and laboratory report, as noted above.

Copy: Rice Operating Company

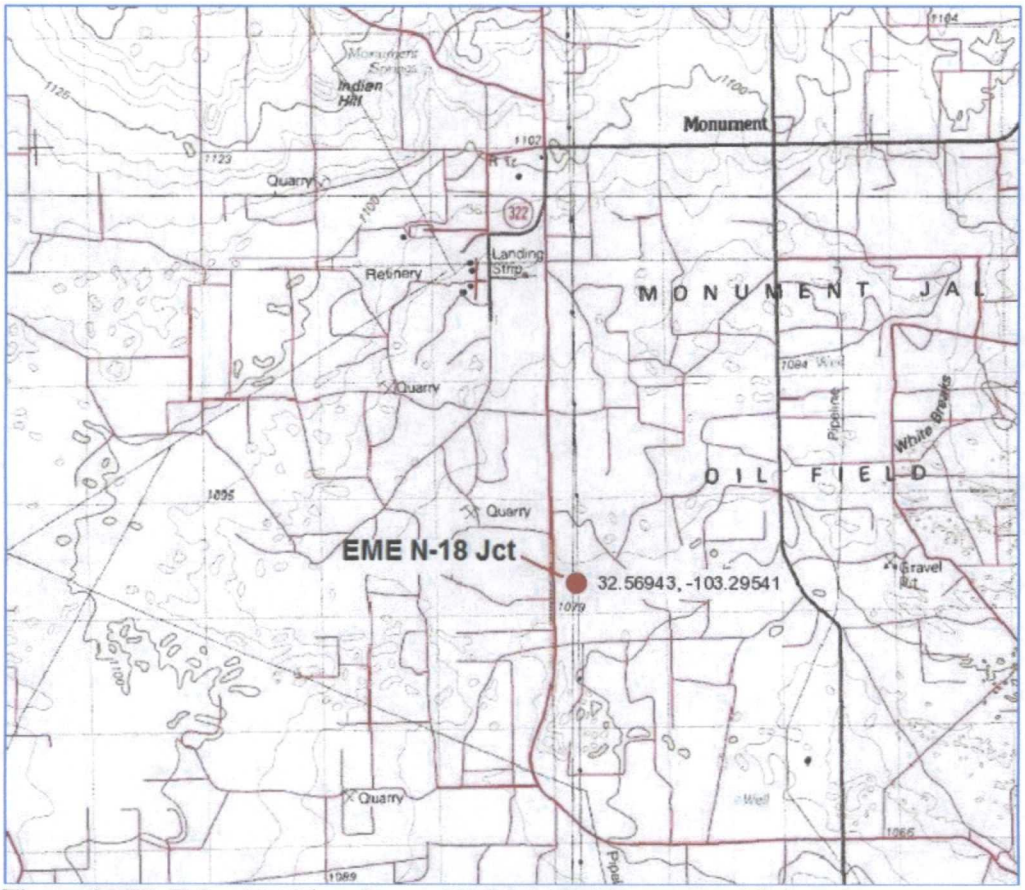
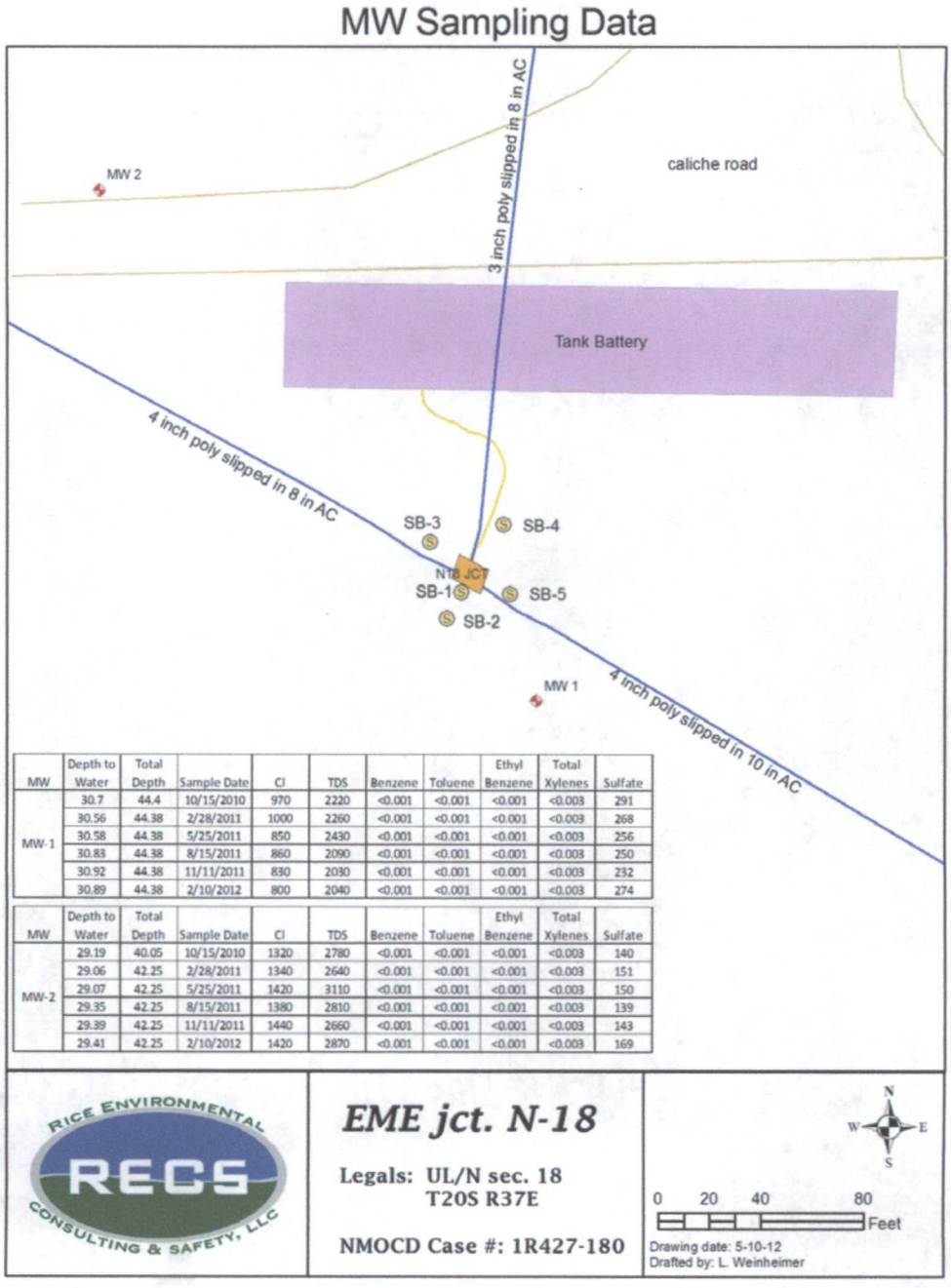


Figure 1 – EME Jct. N-18 location on USGS 1:100,000 topographic base map.



MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
MW-1	30.7	44.4	10/15/2010	970	2220	<0.001	<0.001	<0.001	<0.003	291
	30.56	44.38	2/28/2011	1000	2260	<0.001	<0.001	<0.001	<0.003	268
	30.58	44.38	5/25/2011	850	2430	<0.001	<0.001	<0.001	<0.003	256
	30.83	44.38	8/15/2011	860	2090	<0.001	<0.001	<0.001	<0.003	250
	30.92	44.38	11/11/2011	830	2030	<0.001	<0.001	<0.001	<0.003	232
	30.89	44.38	2/10/2012	800	2040	<0.001	<0.001	<0.001	<0.003	274

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
MW-2	29.19	40.05	10/15/2010	1320	2780	<0.001	<0.001	<0.001	<0.003	140
	29.06	42.25	2/28/2011	1340	2640	<0.001	<0.001	<0.001	<0.003	151
	29.07	42.25	5/25/2011	1420	3110	<0.001	<0.001	<0.001	<0.003	150
	29.35	42.25	8/15/2011	1380	2810	<0.001	<0.001	<0.001	<0.003	139
	29.39	42.25	11/11/2011	1440	2660	<0.001	<0.001	<0.001	<0.003	143
	29.41	42.25	2/10/2012	1420	2870	<0.001	<0.001	<0.001	<0.003	169

Figure 2 – Monitoring well locations and sampling results.

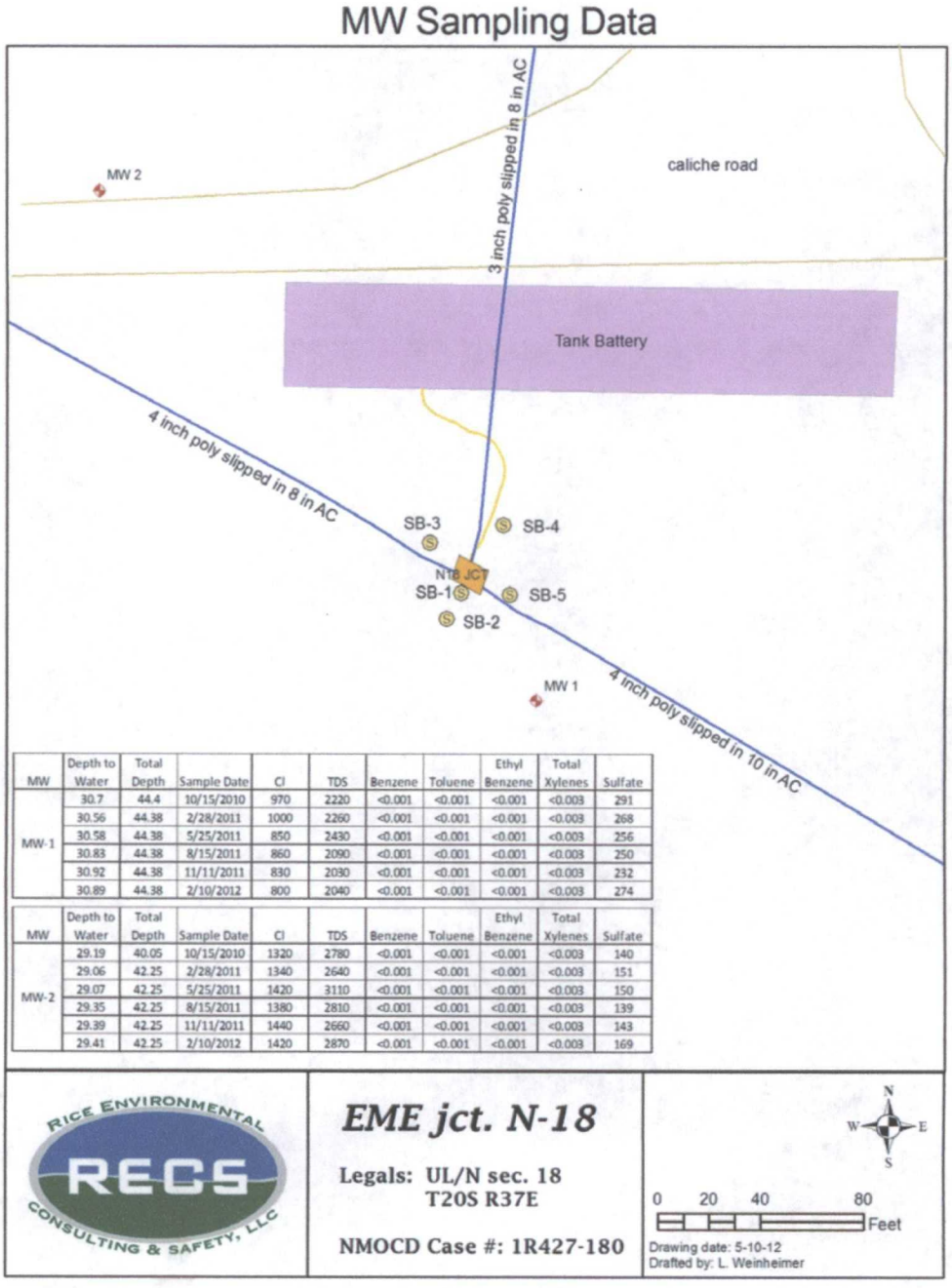


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Figure 2 – Monitoring well locations and sampling results.

Record of Groundwater Withdrawal Site Name: EME Jct. N-18 (1R427-180) Recoery Well used: EME A-20			
Date	Fluid Hauled (bbls)	Lab Chloride Conc (ppm)	Chloride Removed (kg)
2/3/12	0		
2/8/12	76		
2/9/12		3,550	
2/10/12	15		
2/16/12	72		
2/17/12	0		
2/20/12	86		
2/23/12	81		
2/24/12	34		
2/27/12	91		
Total For February	455	Chloride removed	257
3/1/12	72		
3/2/12	30		
3/5/12	105		
3/8/12	91		
3/9/12	0		
Total For March	298	Chloride removed	168
Total for Project	**753**	**Chloride removed**	**425**

Table 1 – Record of groundwater removed from EME A-20 recovery well. Removed groundwater was subsequently used for pipeline and well maintenance.

Figure 4 – View of EME Jct. N-18 site showing active lease road.

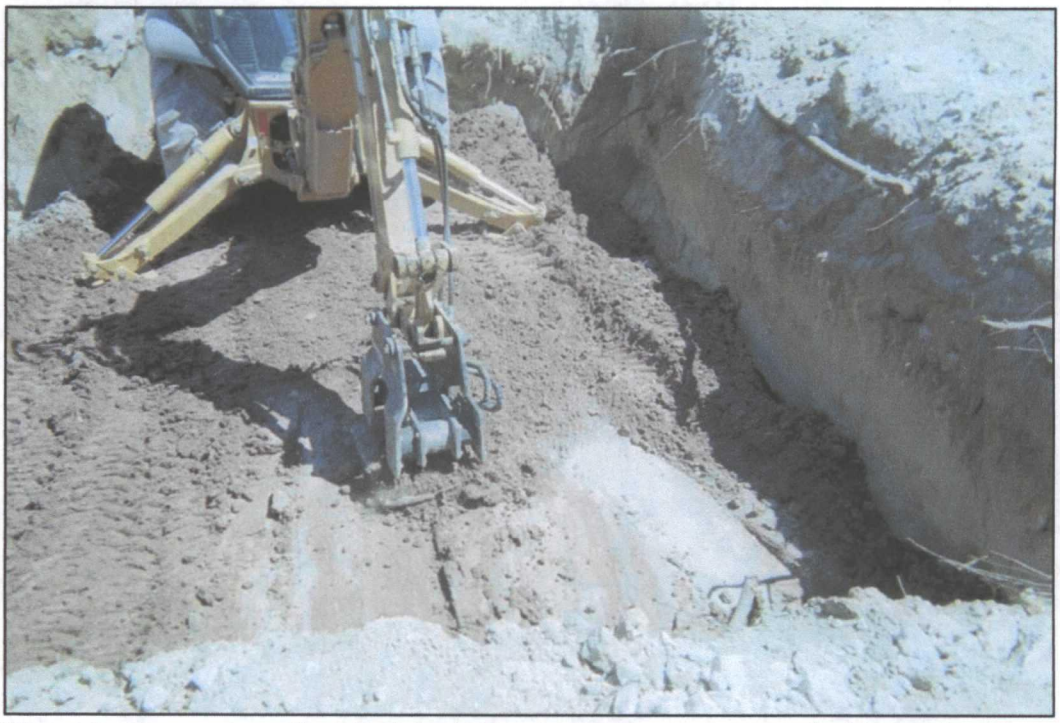

Figure 5– Compaction of installed clay infiltration barrier upon removal of former junction box.

APPENDIX A – Recovery Well Groundwater Chloride Analysis

CARDINAL Laboratories

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

February 14, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME A-20

Enclosed are the results of analyses for samples received by the laboratory on 02/09/12 16:20.

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/qa/lab_accred_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,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

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

uality 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

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

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	ANALYSIS REQUEST: Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS						
H2OD339 -1	Water Samples	G	1	✓									2-9-12	11:00	✓											

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Kyle Norman	Date: 2-9-12 Time: 4:20	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 kjones@riceswd.com; knorman@rice-ecs.com; Zconder@rice-ecs.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com

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

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