

1R-427-162

Progress Report

DATE

March 10, 2014

From: [Laura Flores](#)
To: [Lowe, Leonard, EMNRD](#); [VonGonten, Glenn, EMNRD](#)
Cc: ["Hack Conder"](#); ["Katie Jones"](#)
Subject: ROC - EME Jct. G-18 (1R427-162) Progress Report
Date: Monday, March 10, 2014 1:40:40 PM
Attachments: [ROC - EME Jct. G-18 \(1R427-162\) Progress Report.pdf](#)

Mr. Lowe,

Attached is the Progress Report for EME Jct. G-18 (1R427-162), as requested by NMOCD in the Update Report approval on July 2, 2013. The Progress Report is intended to update the NMOCD about groundwater quality and groundwater recovery. This report does not require NMOCD approval; therefore, a flow chart is not included.

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

Thank you,

Laura Flores
Project Manager
Rice Environmental Consulting & Safety (RECS)

Rice Environmental Consulting & Safety

P.O. Box 2948, Hobbs, NM 88241

Phone 575.393.2967

March 10th, 2014

Mr. Leonard Lowe

New Mexico Energy, Minerals, & Natural Resources

Oil Conservation Division, Environmental Bureau

1220 S. St. Francis Drive

Santa Fe, New Mexico 87505

RE: **Progress Report**
Rice Operating Company – EME SWD System
EME Jct. G-18 (1R427-162): UL/G sec. 18 T19S R37E

Mr. Lowe:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site in the abandoned EME Salt Water Disposal (SWD) system. ROC is the service provider (agent) for the EME SWD System and has no ownership of any portion of the pipeline, well, or facility. The system is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

The site is located approximately 3 miles northwest of Monument, New Mexico at UL/G sec. 18 T19S R37E as shown on the Site Location Map. Monitor well sampling at the site indicates that groundwater is located at 54 ft bgs.

In 2004, ROC initiated work on the former EME G-18 junction box. After initial backhoe characterization, the site was disclosed to NMOCD as a potential groundwater impact site on September 14th, 2004. Since groundwater impact was suspected, MW-1, the near-source well, MW-2, the up gradient well, and MW-3, the down gradient well, were installed on December 6th, 2010. As part of the NMOCD approved ICP Report and Corrective Action Plan (CAP), the excavation for liner installation began November 23rd, 2011. The site was excavated to 44 ft x 49 ft x 5 ft deep and a 20-mil plastic liner of equal size was installed at the base of the excavation between a 6" sand pad above and below the liner. The site was backfilled with clean soil, contoured to the surrounding location, and seeded with a native vegetative mix. In addition, ROC proposed to conduct a 6-month source removal and test pumping program. The purpose of this pumping program was to determine if groundwater may be restored within a reasonable time and to assist in the evaluation of groundwater alternatives. As such, the near-source monitor well (MW-1) was plugged and abandoned with a 1-3% bentonite/concrete slurry and capped with three feet of concrete on October 26th, 2011. MW-1 was then replaced with a 4 inch well, MW-1R, on the same day. On April 17th, 2012, a Vadose Zone Remediation and Termination Request was submitted to NMOCD. NMOCD requested ROC must continue to monitor for chlorides and TDS in the groundwater at MW-1R for at least two additional quarters. This site received soil closure on October 15th, 2012.

Groundwater recovery began on September 16th, 2013 from MW-1R. Since that time, approximately 1,055 barrels of groundwater have been removed which equates to approximately 40 kg of chlorides removed from the site, based on a chloride concentration of 236 mg/L. Since groundwater recovery began, chloride and TDS concentrations in MW-1R have decreased, suggesting the pumping program has been effective. ROC will continue the pumping program throughout the 2014 year and then ROC will evaluate the data for continued pumping efficacy. In addition, quarterly groundwater sampling will continue through 2014.

Attached is the Appendix, which contains:

1. A site location map.
2. A map showing well locations
3. A table presenting all laboratory results and depth to groundwater for each well at the site.
4. Graphs showing the concentrations of chloride and TDS in groundwater over time.
5. The laboratory analytical results for the most recent sampling event.

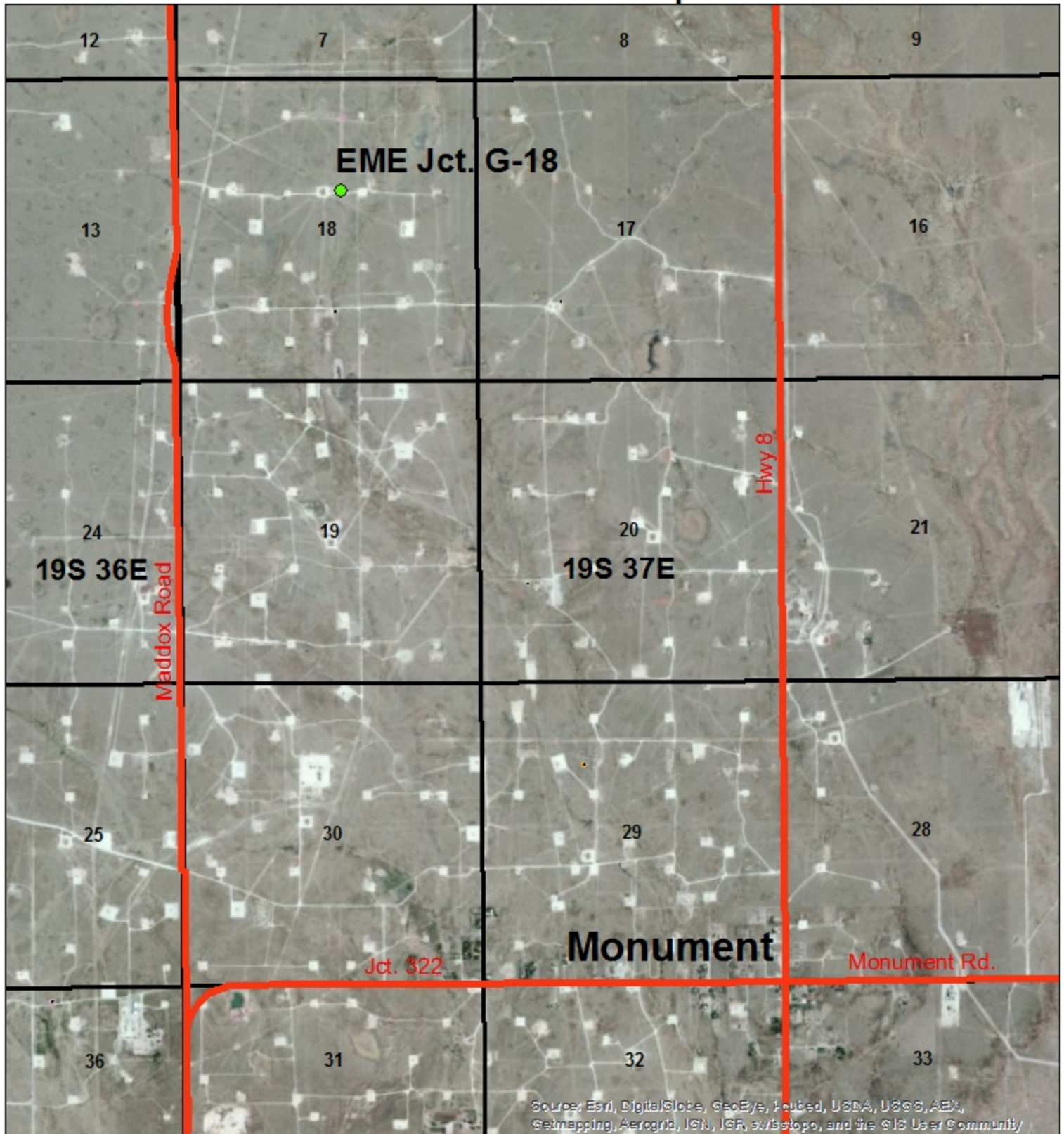
RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,

A handwritten signature in cursive script, appearing to read "L Flores".

Laura Flores
Rice Environmental Consulting & Safety (RECS)
Project Manager

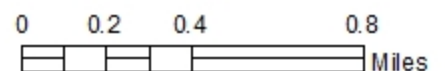
Site Location Map



EME Jct. G-18

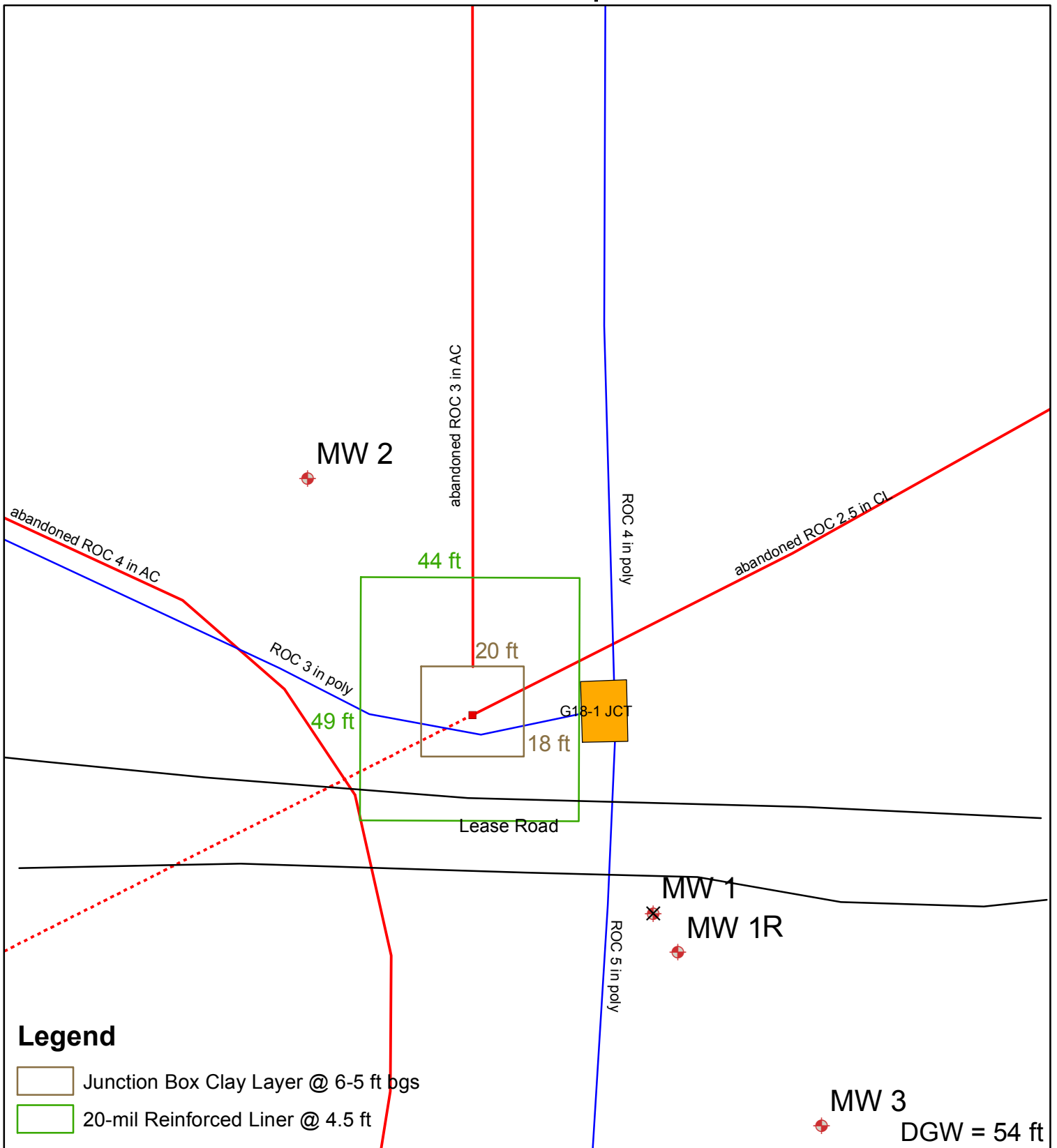
Unit Letter G, Section 18,
T19S, R37E

NMOCD Case #: 1R427-162



Drawing date: 2/24/14
Drafted by: C. Ursanic

Site Map



Legend

- Junction Box Clay Layer @ 6-5 ft bgs
- 20-mil Reinforced Liner @ 4.5 ft

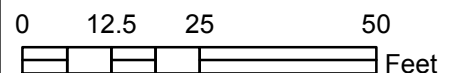


EME jct. G-18

Legals: UL/G sec. 18
T19S R37E

Case #: 1R427-162

Figure 2



Drawing date: 3/13/13
Drafted by: L. Weinheimer

EME Jct. G-18 (1R427-162)

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
				(mg/L)						
MW-1	53.51	68.28	12/28/2010	630	1810	<0.001	<0.001	<0.001	<0.003	308
	53.71	68.28	3/4/2011	470	1670	<0.001	<0.001	<0.001	<0.003	282
	54.11	68.28	5/31/2011	550	1560	<0.001	<0.001	<0.001	<0.003	217
	54.33	68.28	8/29/2011	550	1420	<0.001	<0.001	<0.001	<0.003	174

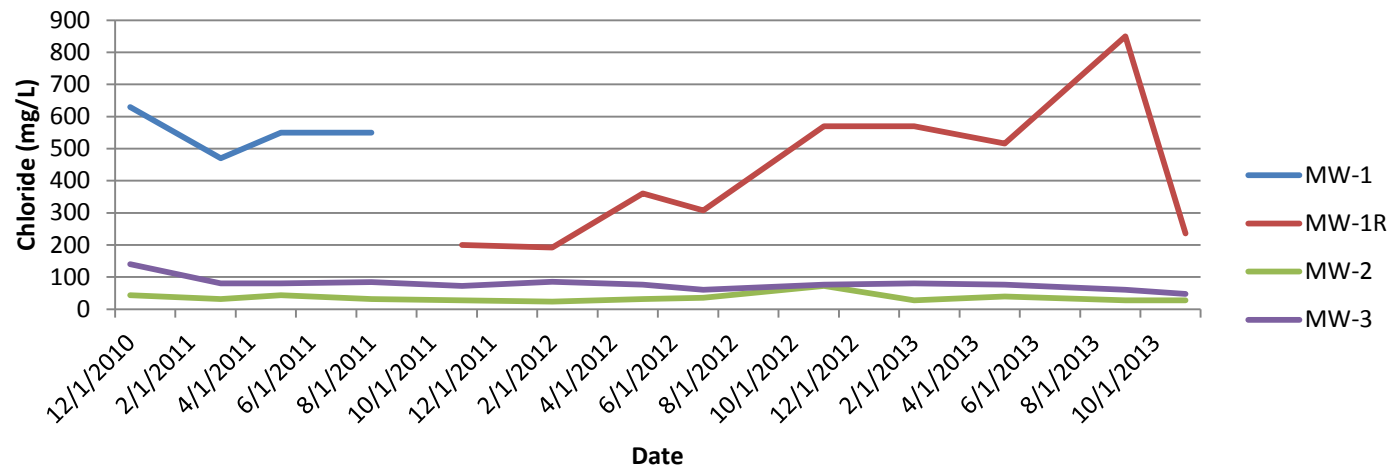
MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
				(mg/L)						
MW-1R	54.4	100.15	11/14/2011	200	768	<0.001	<0.001	<0.001	<0.003	98.2
	54.64	100.15	2/14/2012	192	713	<0.001	<0.001	<0.001	<0.003	78.1
	54.83	100.15	5/23/2012	360	1060	<0.001	<0.001	<0.001	<0.003	99.4
	54.92	100.15	7/13/2012	308	1060	<0.001	<0.001	<0.001	<0.003	117
	55.17	100.15	11/1/2012	570	1750	<0.001	<0.001	<0.001	<0.003	209
	55.28	100.15	2/8/2013	570	1660	<0.001	<0.001	<0.001	<0.003	243
	55.47	100.15	5/22/2013	516	1560	<0.001	<0.001	<0.001	<0.003	213
	55.26	100.15	9/3/2013	850	2270	<0.001	<0.001	<0.001	<0.003	531
	XXX	100.15	11/11/2013	236	770	<0.001	<0.001	<0.001	<0.003	77.8

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
				(mg/L)						
MW-2	53.38	70.22	12/28/2010	44	557	<0.001	<0.001	<0.001	<0.003	149
	53.58	70.22	3/4/2011	32	715	<0.001	<0.001	<0.001	<0.003	191
	53.98	70.22	5/31/2011	44	821	<0.001	<0.001	<0.001	<0.003	243
	54.21	70.22	8/29/2011	32	643	<0.001	<0.001	<0.001	<0.003	213
	54.39	70.22	11/14/2011	28	744	<0.001	<0.001	<0.001	<0.003	184
	54.39	70.22	2/14/2012	24	818	<0.001	<0.001	<0.001	<0.003	209
	54.82	70.22	5/23/2012	32	815	<0.001	<0.001	<0.001	<0.003	203
	54.91	70.22	7/13/2012	36	821	<0.001	<0.001	<0.001	<0.003	214
	55.15	70.22	11/1/2012	72	867	<0.001	<0.001	<0.001	<0.003	198

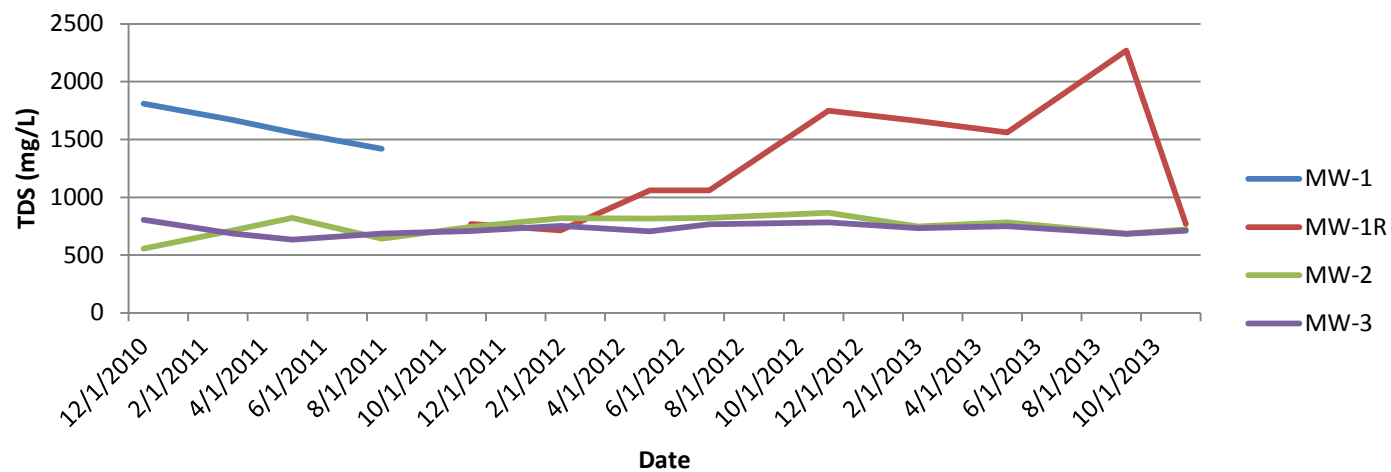
MW-2	55.32	70.22	2/8/2013	28	748	<0.001	<0.001	<0.001	<0.003	177
	55.43	70.22	5/22/2013	40	783	<0.001	<0.001	<0.001	<0.003	206
	55.28	70.22	9/3/2013	28	686	<0.001	<0.001	<0.001	<0.003	131
	55.54	70.22	11/11/2013	28	721	<0.001	<0.001	<0.001	<0.003	155

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
				(mg/L)						
MW-3	52.33	70.2	12/28/2010	140	804	<0.001	<0.001	<0.001	<0.003	134
	52.55	70.23	3/4/2011	80	687	<0.001	<0.001	<0.001	<0.003	97
	52.96	70.23	5/31/2011	80	632	<0.001	<0.001	<0.001	<0.003	94.3
	53.17	70.23	8/29/2011	84	685	<0.001	<0.001	<0.001	<0.003	93.8
	53.34	70.23	11/14/2011	72	708	<0.001	<0.001	<0.001	<0.003	93.2
	53.58	70.23	2/14/2012	85	753	<0.001	<0.001	<0.001	<0.003	99.5
	53.75	70.23	5/23/2012	76	705	<0.001	<0.001	<0.001	<0.003	92.6
	53.84	70.23	7/13/2012	60	766	<0.001	<0.001	<0.001	<0.003	91.8
	54.14	70.23	11/1/2012	76	783	<0.001	<0.001	<0.001	<0.003	88.3
	55.27	70.23	2/8/2013	80	734	<0.001	<0.001	<0.001	<0.003	84
	55.38	70.23	5/22/2013	76	750	<0.001	<0.001	<0.001	<0.003	71.6
	54.17	70.23	9/3/2013	60	683	<0.001	<0.001	<0.001	<0.003	71.9
	54.51	70.23	11/11/2013	48	712	<0.001	<0.001	<0.001	<0.003	76.4

Chloride Concentration Versus Time Graph



Total Dissolved Solids Concentration Versus Time Graph





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

November 21, 2013

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME JUNCTION G-18

Enclosed are the results of analyses for samples received by the laboratory on 11/14/13 12:46.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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 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 (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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

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:	11/14/2013	Sampling Date:	11/11/2013
Reported:	11/21/2013	Sampling Type:	Water
Project Name:	EME JUNCTION G-18	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T19S-R37E-SEC18 G - LEA CTY., NM		

Sample ID: MONITOR WELL #1R (H302786-01)

BTEX 8021B		mg/L		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	11/20/2013	ND	0.051	103	0.0500	2.69	
Toluene*	<0.001	0.001	11/20/2013	ND	0.051	102	0.0500	2.24	
Ethylbenzene*	<0.001	0.001	11/20/2013	ND	0.051	101	0.0500	2.16	
Total Xylenes*	<0.003	0.003	11/20/2013	ND	0.149	99.0	0.150	1.78	
Total BTEX	<0.006	0.006	11/20/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 89.5-126

Chloride, SM4500Cl-B		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	236	4.00	11/19/2013	ND	104	104	100	3.92	

Sulfate 375.4		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	77.8	10.0	11/19/2013	ND	23.8	119	20.0	0.713	

TDS 160.1		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	770	5.00	11/21/2013	ND	256	107	240	5.56	

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:	11/14/2013	Sampling Date:	11/11/2013
Reported:	11/21/2013	Sampling Type:	Water
Project Name:	EME JUNCTION G-18	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T19S-R37E-SEC18 G - LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H302786-02)

BTX 8021B		mg/L		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	11/20/2013	ND	0.051	103	0.0500	2.69		
Toluene*	<0.001	0.001	11/20/2013	ND	0.051	102	0.0500	2.24		
Ethylbenzene*	<0.001	0.001	11/20/2013	ND	0.051	101	0.0500	2.16		
Total Xylenes*	<0.003	0.003	11/20/2013	ND	0.149	99.0	0.150	1.78		
Total BTX	<0.006	0.006	11/20/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 89.5-126

Chloride, SM4500Cl-B		mg/L		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	28.0	4.00	11/19/2013	ND	104	104	100	3.92		

Sulfate 375.4		mg/L		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	155	25.0	11/19/2013	ND	23.8	119	20.0	0.713		

TDS 160.1		mg/L		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	721	5.00	11/21/2013	ND	256	107	240	5.56		

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*=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:	11/14/2013	Sampling Date:	11/11/2013
Reported:	11/21/2013	Sampling Type:	Water
Project Name:	EME JUNCTION G-18	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T19S-R37E-SEC18 G - LEA CTY., NM		

Sample ID: MONITOR WELL #3 (H302786-03)

BTEX 8021B		mg/L		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	11/20/2013	ND	0.051	103	0.0500	2.69		
Toluene*	<0.001	0.001	11/20/2013	ND	0.051	102	0.0500	2.24		
Ethylbenzene*	<0.001	0.001	11/20/2013	ND	0.051	101	0.0500	2.16		
Total Xylenes*	<0.003	0.003	11/20/2013	ND	0.149	99.0	0.150	1.78		
Total BTEX	<0.006	0.006	11/20/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 89.5-126

Chloride, SM4500Cl-B		mg/L		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	48.0	4.00	11/19/2013	ND	104	104	100	3.92		

Sulfate 375.4		mg/L		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	76.4	10.0	11/19/2013	ND	23.8	119	20.0	0.713		

TDS 160.1		mg/L		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	712	5.00	11/21/2013	ND	256	107	240	5.56		

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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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Celey D. Keene, Lab Director/Quality Manager

LAB Order ID #

(Circle or Specify Method No.)

[illegible]

REMARKS:	
Email Results to:	<u>hconder@riceswd.com</u> <u>lweinheimer@rice-ecs.com</u> <u>kjones@riceswd.com</u> <u>rozanne11@windstream.net</u>

#54