1R - 427-162

REPORTS

DATE

6-21-13

Rice Environmental Consulting & Safety

P.O. Box 2948 Hobbs, NM 88241 Phone 575.393.2967

CERTIFIED MAIL RETURN RECEIPT NO. 7011 2000 0002 0285 5117.

June 21st, 2013

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: Update Report

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

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.

Background and Previous Work

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 (Figure 1). Monitor well sampling at the site indicates that groundwater is located at approximately 54 ft bgs.

In 2004, ROC initiated work on the former EME G-18 junction box. The site was delineated using a backhoe to collect soil samples at regular intervals. The excavation reached dimensions of 20 ft x 18 ft x 12 ft (bgs). Composite samples were sent to a commercial laboratory for chloride and TPH analyses, resulting in elevated concentration of chlorides in the bottom composite, elevated concentrations of TPH and BTEX. A 1-ft thick clay layer was installed from 6-5 ft bgs, to inhibit further chloride migration and a compaction test was performed on April 16th, 2004. The site was backfilled, the area was contoured to the surrounding landscape and an identification plate was placed on the surface of the site to mark its location for future environmental considerations. A new junction box was not required at the site.

Between June 2nd, 2004 and December 6th, 2010, fives soil bores and three monitor wells were drilled at and surrounding the former junction box. An ICP Report and CAP was then submitted to the NMOCD, which detailed the findings of the soil borings. The report requested a 6-month source removal and test pumping program and that MW-1 be

RECEIVED

JUN 26 2013

Oil Conservation Division 1220 S. St. Francis Drive Santa Fe, NM 87505 plugged and replaced with a 4 inch well. In addition, a 44 ft x 49 ft, 20-mil liner would be installed at 4-5 ft bgs. NMOCD approved the plan on July 18th, 2011.

Soil Remedy

Beginning on November 23rd, 2011, the site was excavated to 44 ft x 49 ft x 5 ft deep. The excavation was padded with six inches of the imported sand and then the liner was properly seated into the excavation at approximately 4.5 ft bgs. The liner was padded on top with six inches of imported sand and then backfilled and contoured to the surrounding location. The 20-mil reinforced liner will inhibit the further migration of chlorides through the vadose zone into groundwater. The site was seeded with a blend of native vegetation and a silt net fence was placed around the area to maintain seed integrity. On October 15th, 2012, ROC submitted a Soil Closure Request to NMOCD that detailed these activities and asked for 'Soil Closure' or similar closure status. NMOCD approved the soil closure on the same day.

Groundwater Remedy

On October 26th, 2011, MW-1 was plugged and abandoned with a 1-3% bentonite/concrete slurry and capped with three feet of concrete. MW-1 was then replaced with a 4 inch well (MW-1R) which was installed 9 ft southeast of the former MW-1. Initial sampling of MW-1R resulted in chloride concentrations below WQCC standards.

Update Report

On April 17th, 2012, ROC submitted the Vadose Zone Remediation and Termination Request to NMOCD. ROC had completed the vadose zone remediation approved by NMOCD in the CAP and plugged and replaced MW-1 with MW-1R. A 6-month source removal and test pumping program from MW-1R that was described in the Corrective Action Plan was deemed no longer necessary because two quarters of monitor well sampling data showed chlorides below WQCC standards. Therefore, ROC requested 'remediation termination' status of regulatory file. On June 5th, 2012, NMOCD responded with a request for two more quarters of monitor well sampling data from MW-1R prior to terminating the remediation plan.

The two additional sampling events of MW-1R occurred on November 1st, 2012 resulting in a chloride value of 570 mg/kg and on February 8th, 2013 also resulting in a chloride value of 570 mg/kg (Figure 2, Appendix A). Given that these two sampling events show chlorides outside WQCC standards, RECS recommends that ROC continue with a 6-month source removal and test pumping program from MW-1R that was described in the CAP. Removed groundwater will be used in pipeline maintenance operations. Once the test pumping program is completed, ROC will assess the program to determine the best option for site groundwater remediation.

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,

Lara Weinheimer

Project Scientist

RECS

(575) 441-0431

Attachments:

Figure 1 – Site Location Map

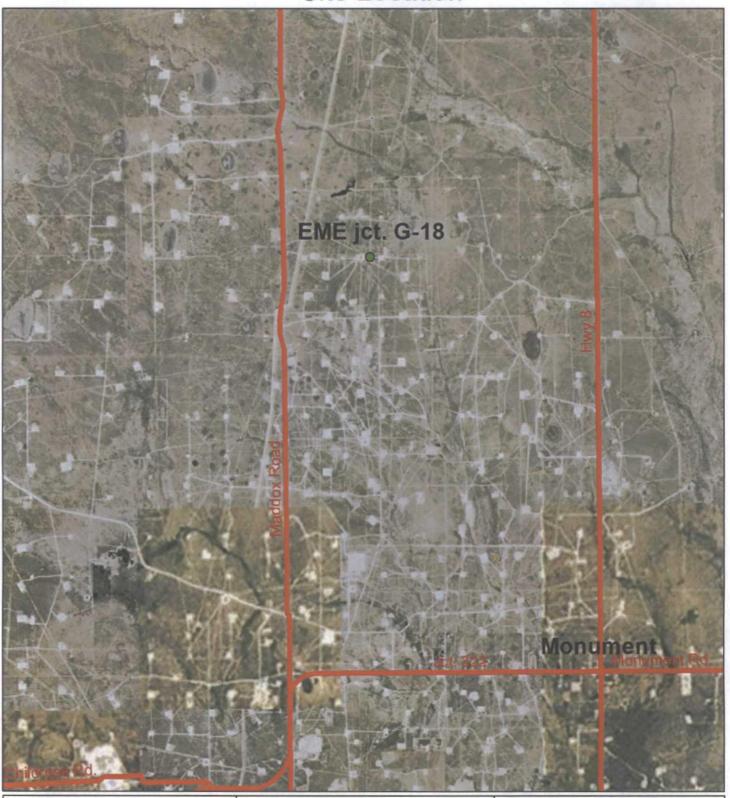
Figure 2 – MW Sampling Map

Appendix A – MW Sampling Labs



RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

Site Location

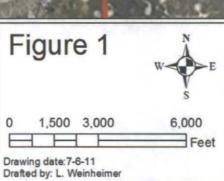




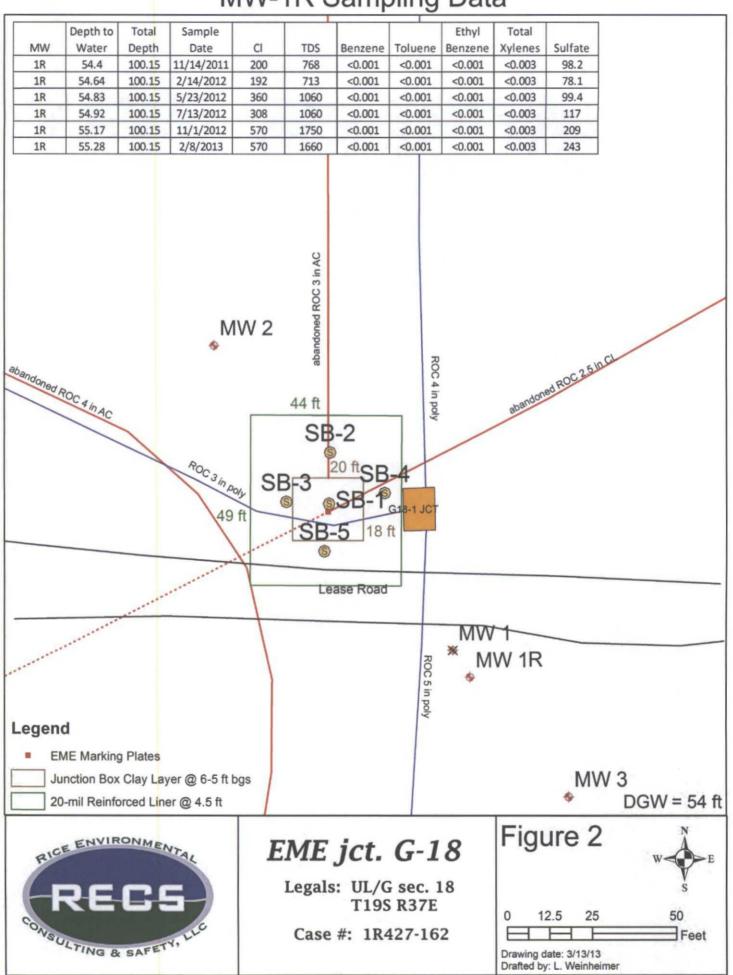
EME jct. G-18

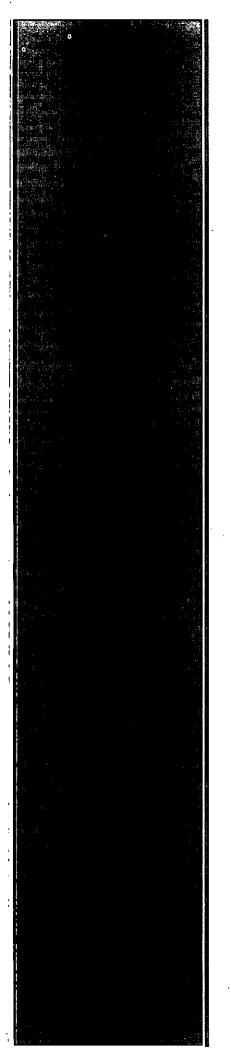
Legals: UL/G sec. 18 T19S R37E

Case #: 1R427-162



MW-1R Sampling Data





Appendix A MW Sampling Labs

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967



November 09, 2012

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 11/06/12 13:51.

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 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.

Celey D. Keine

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



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

Fax To:

(575) 397-1471

Received:

11/06/2012

Sampling Date:

11/01/2012

Reported:

11/09/2012

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 (H202703-01)

BTEX 8021B	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	11/07/2012	ND	0.049	99.0	0.0500	4.63	
Toluene*	< 0.001	0.001	11/07/2012	ND	0.054	108	0.0500	4.93	
Ethylbenzene*	< 0.001	0.001	11/07/2012	ND	0.053	106	0.0500	4.63	
Total Xylenes*	<0.003	0.003	11/07/2012	ND	0.161	107	0.150	4.65	
Total BTEX	<0.006	0.006	11/07/2012	ND					
Surrogate: 4-Bromofluorobenzene (PIE	119 %	6 89.5-12	6						
Chloride, SM4500CI-B	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	570	4.00	11/08/2012	ND	104	104	100	0.00	
Sulfate 375.4	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	209	10.0	11/08/2012	ND	- 16.5	82.6	20.0	27.9	
TDS 160.1	mg/	L	Analyze	d By: AP	•				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	1750	5.00	11/07/2012	ND .	834	101	824	0.214	

*=Accredited Analyte Cardinal Laboratories

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

Celey D. Keene



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

Fax To:

(575) 397-1471

Received:

11/06/2012

Sampling Date:

11/01/2012

Reported:

11/09/2012

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 (H202703-02)

BTEX 8021B	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Válue QC	RPD	Qualifier
Benzene*	< 0.001	0.001	11/07/2012	ND	0.049	99.0	0.0500	4.63	
Toluene* .	<0.001	0.001	11/07/2012	ND	0.054	108	0.0500	4.93	
Ethylbenzene*	<0.001	0.001	11/07/2012	ND	0.053	106	0.0500	4.63	
Total Xylenes*	<0.003	0.003	11/07/2012	ND	0.161	107	0.150	4.65	
Total BTEX	<0.006	0.006	11/07/2012	ND					
Surrogate: 4-Bromofluorobenzene (PIE	1199	6 89.5-12	6						
Chloride, SM4500CI-B	mg/	L	Analyze	d By: AP					
Analyte	*Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	72.0	4.00	11/08/2012	ND	100	100	100	3.92	
Sulfate 375.4	ˈmg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed .	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	198	10.0	11/08/2012	ND	16.5	82.6	20.0	27.9	
TDS 160.1	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	867	5.00	11/07/2012	, ND	834	101	824	0.214	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keine



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

(575) 397-1471

Fax To:

Received:

11/06/2012

Sampling Date:

11/01/2012

Reported:

11/09/2012

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 (H202703-03)

BTEX 8021B	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	11/07/2012	ND	0.049	99.0	0.0500	4.63	
Toluene*	<0.001	0,001	11/07/2012	ND	0.054	108	0.0500	4.93	
Ethylbenzene*	<0.001	0.001	11/07/2012	ND	0.053	106	0.0500	4.63	
Total Xylenes*	< 0.003	0.003	11/07/2012	ND	0.161	107	0.150	4.65	
Total BTEX	<0.006	0.006	· 11/07/2 012	ND					
Surrogate: 4-Bromofluorobenzene (PIE	. 1199	6 89.5-12	16						
Chloride, SM4500CI-B	mg/	L	Analyze	d By: AP				٠.	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	76.0	4.00	11/08/2012	ND	100	100	100	3.92	
Sulfate 375.4	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	88.3	10.0	11/08/2012	ND	16.5	82.6	20.0	27.9	
TDS 160.1	mg/	L	, Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	783	5.00	11/07/2012	ND .	834	101	824	0.214	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene



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 $6^{\rm o}{\rm C}$

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

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*=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 aimited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatborever shall be deemed wered unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be faible for incidental or consequential claimages including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors ansing out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claims is based upon any of the above stated reasons or otherwise. Relation relates only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal abovestores.

Celey D. Keene

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#76



February 18, 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 02/12/13 12:05.

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 accredited certif.html.

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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.

Celey D. Keene

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



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

Fax To:

(575) 397-1471

Received:

02/12/2013

Sampling Date:

02/08/2013

Reported:

02/18/2013

Sampling Type:

Water

Project Name:

EME JUNCTION G-18

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Amanda Ponce

Project Location:

T19S-R37E-SEC18 G - LEA CTY., NM

Sample ID: MONITOR WELL #1R (H300391-01)

BTEX 8021B	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	· Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	02/13/2013	ND	0.048	96.4	0.0500	3.00	
Toluene*	<0.001	0.001	02/13/2013	ND	0.049	98.2	0.0500	2.17	
Ethylbenzene*	<0.001	0.001	02/13/2013	ND ·	0.048	96.7	0.0500	1.89	
Total Xylenes*	<0.003	0.003	02/13/2013	ND	0.148	98.5	0.150	1.74	
Total BTEX	<0.006	0.006	02/13/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIC	110 9	6 89.5-12	6						
Chloride, SM4500CI-B	mg/	L	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	570	4.00	02/14/2013	ND	ND 432		400	0.00	
Sulfate 375.4	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	243	50.0	02/15/2013	ND	21.3	106	20.0	1.21	
TDS 160.1	mg/	L	Analyze	d By: AP		*			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	1660	5.00	02/12/2013	ND	236	98.3	240	14.7	

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Celey D. Keine



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

Fax To: (575) 397-1471

Received:

02/12/2013

Sampling Date:

02/08/2013

Reported:

02/18/2013

Sampling Type:

Water

Project Name:

EME JUNCTION G-18

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Amanda Ponce

Project Location:

T19S-R37E-SEC18 G - LEA CTY., NM

Sample ID: MONITOR WELL #2 (H300391-02)

BTEX 8021B	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	02/13/2013	ND	0.048	96.4	0.0500	3.00	
Toluene*	<0.001	0.001	02/13/2013	ND	0.049	98.2	0.0500	2.17	
Ethylbenzene*	<0.001	0.001	02/13/2013	ND	0.048	96.7	0.0500	1.89	
Total Xylenes*	<0.003	0.003	, 02/13/2013	ND	0.148	98.5	0.150	1.74	
Total BTEX	<0.006	0.006	02/13/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIE	108 %	6 89.5-12	?6						
Chloride, SM4500Cl-B	mg/	L	Analyze	d By: DW					
Analyte ·	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	28.0	4.00	02/14/2013	ND	432	108	400	0.00	
Sulfate 375.4	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	177	50.0	02/15/2013	ND	21.3	106	20.0	1.21	
TDS 160.1	mg/	L	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	5.00	02/12/2013	ND	236	98.3	240	14.7		

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liabony and Dahages. Carriant's substity and cherit exclusive remoty for any claim arising, whether based in contact or tort, shall be demanded to the amount paid by client for analyses. All claims, including those for incidental or consequential damage any other course whatsoever shall be demand waved 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 damage including, without lamitation, business interruptions, loss of use, or loss of profits incurred by clent, its subsidiance, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether successors arising out of or related to the performance of the services hereunder by Cardinal table.

Celey D. Keine



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

Fax To:

(575) 397-1471

Received:

02/12/2013

Sampling Date:

02/08/2013

Reported:

02/18/2013

Sampling Type:

Water

Project Name:

EME JUNCTION G-18

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Amanda Ponce

Project Location:

T19S-R37E-SEC18 G - LEA CTY., NM

Sample ID: MONITOR WELL #3 (H300391-03)

BTEX 8021B	mg,	'L	Analyze	d By: AP					·
Analyte	Result	Reporting Limit	- Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	02/13/2013	ND .	0.048	96.4	0.0500	3.00	
Toluene*	< 0.001	0.001	02/13/2013	ND	0.049	98.2	0.0500	2,17	•
Ethylbenzene*	< 0.001	0.001	02/13/2013	ND .	0.048	96.7	0.0500	1:89	
Total Xylenes*	<0.003 0.003		02/13/2013	ND	0.148	98.5	0.150	1,74	
Total BTEX	<0.006	0.006	02/13/2013	ND-	-			,	
Surrogate: 4-Bromofluorobenzene (PIE	109	% 89.5-12	6						
Chloride, SM4500CI-B	mg,	rL ,	Analyze	d By: DW					
' Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	80.0	4.00	02/14/2013	ND	432	108	400	0.00	
Sulfate 375.4	mg,	'L	Analyze	d By: AP			•		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	84,0	25.0	02/15/2013	ND	21.3	106	20.0	1.21	
TDS 160.1	mg,	/L .	Analyze	d By: AP					
Analyte	Result	Reporting Limit	· Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	734	5.00	02/12/2013	, ND	236	98.3	240	14.7	

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Celeg D. Kune



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Notes and Definitions

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

Cardinal Laboratories *=Accredited Analyte

Celey & Keine

101 East Martand - Hobbs, New Mexico (58240) (575) 393-2320 (576) 393-2320	, 4	ial Laboratories, Inc.									CHAIN-OF-CUSTODY AND ANALYSIS REQUEST																		
(575) 383-2326 Fac. Card	na		al)Or	äι	ΟĮ	16	S	ΤÏ	IC.	·	F			1	LAB	Ord	er ID	#	-			• -			<u> </u>			
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