Basin Environmental Service Technologies, LLC
419 West Cain
Hobbs, New Mexico 88240
Office: (575) 393-2967 Fax: (575) 393-0293

Effective Solutions

RECEIVED
By OCD; Dr. Oberding at 2:15 pm, Apr 28, 2016

April 25, 2016

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

Closure denied- suspend MW2,3. ~Cl and TDS only MW-1. 4 more quarters. TJO

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

Dr. Oberding:

RICE Operating Company (ROC) has retained Basin Environmental Service Technologies (Basin) 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. Monitor well sampling at the site indicates that groundwater has been encountered at approximately 54 ft below ground suface (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

plugged and replaced with a 4 inch well. In addition, a 44 ft x 49 ft, 20-mil reinforced liner would be installed at 4-5 ft bgs. NMOCD approved the plan on July 18th, 2011.

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 at approximately 4.5 ft bgs. The top of the liner was padded with six inches of imported sand and the excavation was 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.

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.

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 CAP 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. 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. This path forward was approved by NMOCD on July 2, 2013.

Groundwater recovery began on September 16th, 2013 from MW-1R. Since that time, approximately 7,263 barrels of groundwater have been removed which equates to approximately 277 kg of chlorides, based on a chloride concentration of 240 mg/L. Removed groundwater was utilized for pipeline maintenance. Since groundwater recovery began, chloride and TDS concentrations in MW-1R have decreased with

April 25, 2016

concentrations around 250 mg/L and 1,000 mg/L, respectively, for eight quarter. Chloride and TDS concentrations have remained below 250 mg/L and 1,000 mg/L, respectively, for the past four consecutive quarters. A table showing the quarterly data and the most recent lab result is included in the attachments.

Based on the low TDS, BTEX and chloride concentrations observed in all three monitoring wells, soil closure received from NMOCD, and recovered vegetation, ROC respectfully requests remediation termination or similar closure status for this site. Once NMOCD grants termination, the three monitoring wells (MW-1, MW-2, and MW-3) will be plugged and abandoned using Portland slurry and a three foot cap of concrete at the surface. Also, a plugging report will be sent to the OCD within 60 days of the well plugging.

ROC appreciates the opportunity to work with you on this project. Please call me, Edward Hansen at (505) 920-4965, or Katie Jones Davis at (575) 393-9174 if you have any questions or wish to discuss the site.

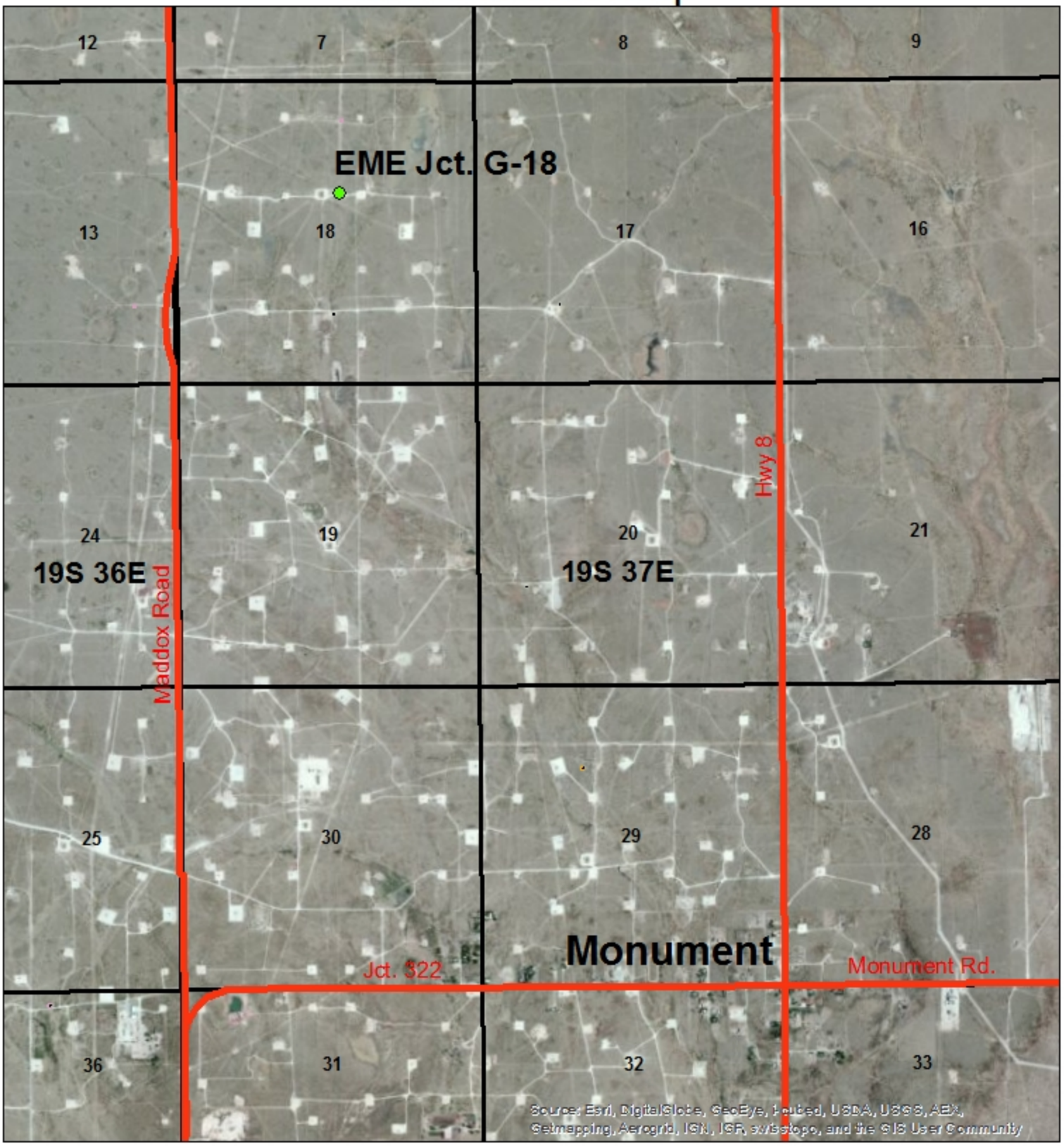
Sincerely,

Kyle Norman
Project Manager
Basin
(575) 942-8542

Attachments:

- Site Location Map
- Site Map
- Quarterly MW Sampling Table
- Most Recent Lab Result
- Groundwater Recovery Log
- Current Photograph

Site Location Map



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

EME Jct. G-18

Unit Letter G, Section 18, T19S, R37E

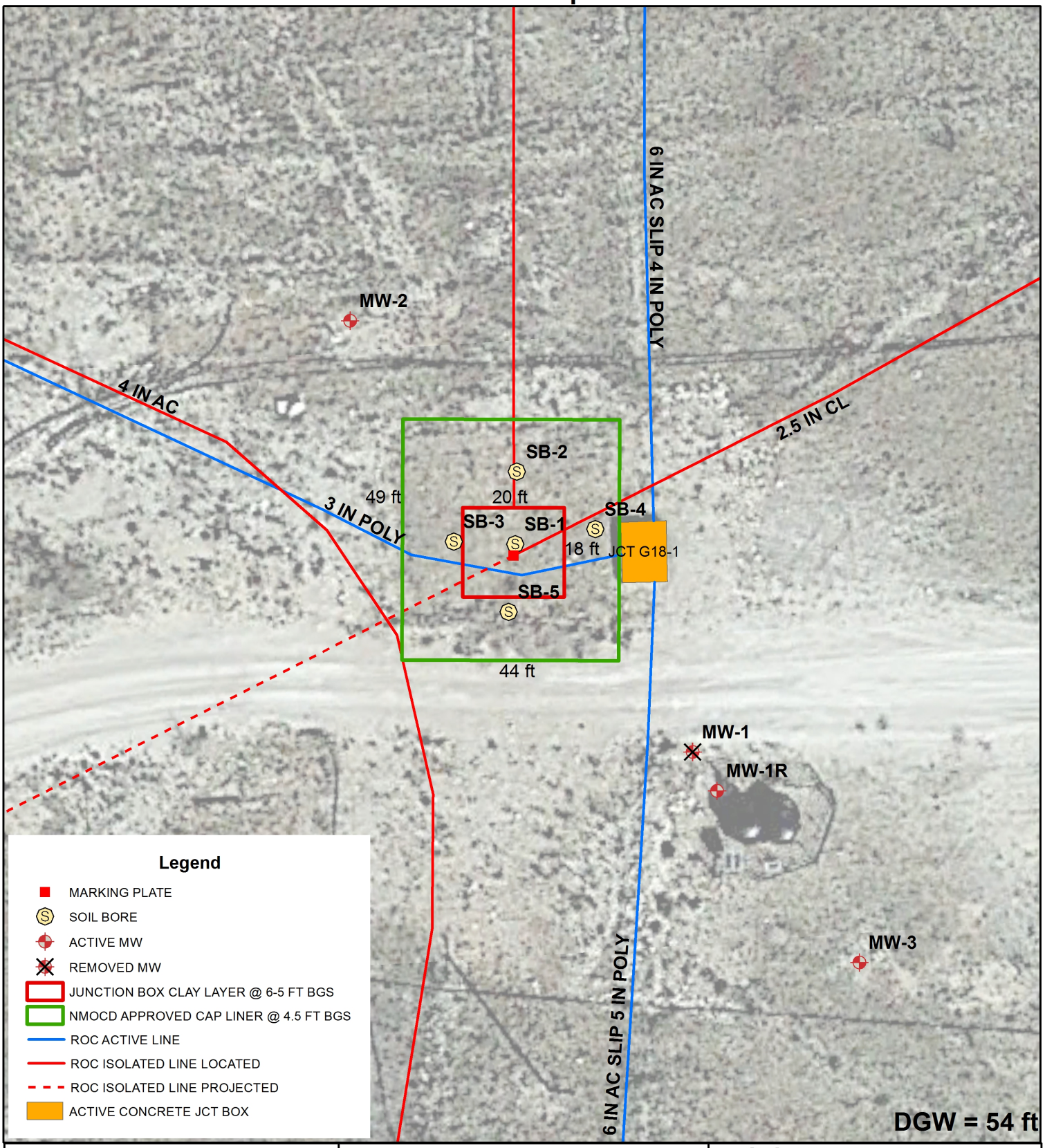
NMOCD Case #: 1R427-162

N
W E
S

0 0.2 0.4 0.8 Miles

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

Site Map



Basin Environmental Service Technologies
Effective Solutions

EME
JCT G-18
1R427-162

UL G SECTION 18
T-19-S R-37-E

GPS: 32.662229 -103.289861

N W E S

0 25 50 Feet

Drawing date:4/14/16
Drafted by: T. Grieco

ROC - EME Jct. G-18 (1R427-162)
Unit Letter G, Section 18, T19S, R37E

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	53.51	68.28	2.4	8	12/28/2010	630	1810	<0.001	<0.001	<0.001	<0.003	308	Clear No odor
1	53.71	68.28	2.3	8	3/4/2011	470	1670	<0.001	<0.001	<0.001	<0.003	282	Clear No odor
1	54.11	68.28	2.3	8	5/31/2011	550	1560	<0.001	<0.001	<0.001	<0.003	217	Clear No odor
1	54.33	68.28	2.2	8	8/29/2011	550	1420	<0.001	<0.001	<0.001	<0.003	174	Clear No odor
1R	54.4	100.15	29.7	100	11/14/2011	200	768	<0.001	<0.001	<0.001	<0.003	98.2	Clear No odor - replaced with 4 inch
1R	54.64	100.15	29.6	100	2/14/2012	192	713	<0.001	<0.001	<0.001	<0.003	78.1	Clear No odor
1R	54.83	100.15	29.5	100	5/23/2012	360	1060	<0.001	<0.001	<0.001	<0.003	99.4	Clear No odor
1R	54.92	100.15	29.4	100	7/13/2012	308	1060	<0.001	<0.001	<0.001	<0.003	117	Clear No odor
1R	55.17	100.15	29.2	100	11/1/2012	570	1750	<0.001	<0.001	<0.001	<0.003	209	Clear No odor
1R	55.28	100.15	29.2	100	2/8/2013	570	1660	<0.001	<0.001	<0.001	<0.003	243	Clear No odor
1R	55.47	100.15	29	100	5/22/2013	516	1560	<0.001	<0.001	<0.001	<0.003	213	Clear No odor
1R	55.26	100.15	29.2	100	9/3/2013	850	2270	<0.001	<0.001	<0.001	<0.003	531	Clear No odor
1R	XXX	100.15	XXX	running	11/11/2013	236	770	<0.001	<0.001	<0.001	<0.003	77.8	Clear No odor
1R	XXX	100.15	XXX	100	3/3/2014	490	1900	<0.001	<0.001	<0.001	<0.003	381	Clear No odor
1R	XXX	100.15	XXX	running	5/28/2014	256	830	<0.001	<0.001	<0.001	<0.003	74	Clear No odor
1R	XXX	100.15	XXX	running	8/15/2014	268	830	<0.001	<0.001	<0.001	<0.003	76.1	Clear No odor
1R	XXX	100.15	XXX	running	11/19/2014	96	704	<0.001	<0.001	<0.001	<0.003	60.6	Clear No odor
1R	XXX	100.15	XXX	100	2/20/2015	328	1090	<0.001	<0.001	<0.001	<0.003	136	Clear No odor
1R	XXX	100.15	XXX	100	5/28/2015	208	826	<0.001	<0.001	<0.001	<0.003	87.4	Clear No odor
1R	XXX	100.15	XXX	100	8/14/2015	196	736	<0.001	<0.001	<0.001	<0.003	51.6	Clear No odor
1R	XXX	100.15	XXX	running	11/9/2015	240	774	<0.001	<0.001	<0.001	<0.003	78	Clear No odor
1R	XXX	100.15	XXX	running	2/22/2016	140	880	<0.001	<0.001	<0.001	<0.003	112	Clear No odor

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	53.38	70.22	2.7	10	12/28/2010	44	557	<0.001	<0.001	<0.001	<0.003	149	Clear No odor
2	53.58	70.22	2.7	10	3/4/2011	32	715	<0.001	<0.001	<0.001	<0.003	191	Clear No odor

ROC - EME Jct. G-18 (1R427-162)
Unit Letter G, Section 18, T19S, R37E

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	53.98	70.22	2.6	10	5/31/2011	44	821	<0.001	<0.001	<0.001	<0.003	243	Clear No odor
2	54.21	70.22	2.6	10	8/29/2011	32	643	<0.001	<0.001	<0.001	<0.003	213	Clear No odor
2	54.39	70.22	2.5	10	11/14/2011	28	744	<0.001	<0.001	<0.001	<0.003	184	Clear No odor
2	54.39	70.22	2.5	10	2/14/2012	24	818	<0.001	<0.001	<0.001	<0.003	209	Clear No odor
2	54.82	70.22	2.5	10	5/23/2012	32	815	<0.001	<0.001	<0.001	<0.003	203	Clear No odor
2	54.91	70.22	2.4	10	7/13/2012	36	821	<0.001	<0.001	<0.001	<0.003	214	Clear No odor
2	55.15	70.22	2.4	10	11/1/2012	72	867	<0.001	<0.001	<0.001	<0.003	198	Clear No odor
2	55.32	70.22	2.4	10	2/8/2013	28	748	<0.001	<0.001	<0.001	<0.003	177	Clear No odor
2	55.43	70.22	2.4	10	5/22/2013	40	783	<0.001	<0.001	<0.001	<0.003	206	Clear No odor
2	55.28	70.22	2.4	10	9/3/2013	28	686	<0.001	<0.001	<0.001	<0.003	131	Clear No odor
2	55.54	70.22	2.3	10	11/11/2013	28	721	<0.001	<0.001	<0.001	<0.003	155	Clear No odor
2	55.57	70.22	2.3	10	3/3/2014	40	704	<0.001	<0.001	<0.001	<0.003	166	Clear No odor
2	55.74	70.22	2.3	10	5/28/2014	32	766	<0.001	<0.001	<0.001	<0.003	153	Clear No odor
2	55.83	70.22	2.3	10	8/15/2014	20	748	<0.001	<0.001	<0.001	<0.003	183	Clear No odor
2	54.44	70.22	2.5	10	11/19/2014	80	682	<0.001	<0.001	<0.001	<0.003	55.3	Clear No odor
2	54.14	70.22	2.6	10	2/20/2015	32	866	<0.001	<0.001	<0.001	<0.003	183	Clear No odor
2	54.52	70.22	2.5	10	5/28/2015	28	942	<0.001	<0.001	<0.001	<0.003	244	Clear No odor
2	54.53	70.22	2.5	10	8/14/2015	44	848	<0.001	<0.001	<0.001	<0.003	190	Clear No odor
2	54.8	70.22	2.47	10	11/9/2015	20	742	<0.001	<0.001	<0.001	<0.003	186	Clear No odor
2	54.63	70.22	2.5	10	2/22/2016	20	788	<0.001	<0.001	<0.001	<0.003	176	Clear No odor

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
3	52.33	70.2	2.9	10	12/28/2010	140	804	<0.001	<0.001	<0.001	<0.003	134	Clear No odor
3	52.55	70.23	2.8	10	3/4/2011	80	687	<0.001	<0.001	<0.001	<0.003	97	Clear No odor
3	52.96	70.23	2.8	10	5/31/2011	80	632	<0.001	<0.001	<0.001	<0.003	94.3	Clear No odor
3	53.17	70.23	2.7	10	8/29/2011	84	685	<0.001	<0.001	<0.001	<0.003	93.8	Clear No odor
3	53.34	70.23	2.7	10	11/14/2011	72	708	<0.001	<0.001	<0.001	<0.003	93.2	Clear No odor

ROC - EME Jct. G-18 (1R427-162)
Unit Letter G, Section 18, T19S, R37E

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
3	53.58	70.23	2.7	10	2/14/2012	85	753	<0.001	<0.001	<0.001	<0.003	99.5	Clear No odor
3	53.75	70.23	2.6	10	5/23/2012	76	705	<0.001	<0.001	<0.001	<0.003	92.6	Clear No odor
3	53.84	70.23	2.6	10	7/13/2012	60	766	<0.001	<0.001	<0.001	<0.003	91.8	Clear No odor
3	54.14	70.23	2.6	10	11/1/2012	76	783	<0.001	<0.001	<0.001	<0.003	88.3	Clear No odor
3	55.27	70.23	2.4	10	2/8/2013	80	734	<0.001	<0.001	<0.001	<0.003	84	Clear No odor
3	55.38	70.23	2.4	10	5/22/2013	76	750	<0.001	<0.001	<0.001	<0.003	71.6	Clear No odor
3	54.17	70.23	2.6	10	9/3/2013	60	683	<0.001	<0.001	<0.001	<0.003	71.9	Clear No odor
3	54.51	70.23	2.5	10	11/11/2013	48	712	<0.001	<0.001	<0.001	<0.003	76.4	Clear No odor
3	54.54	70.23	2.5	10	3/3/2014	80	734	<0.001	<0.001	<0.001	<0.003	84.6	Clear No odor
3	54.73	70.23	2.5	10	5/28/2014	96	758	<0.001	<0.001	<0.001	<0.003	92.4	Clear No odor
3	54.94	70.23	2.4	10	8/15/2014	84	708	<0.001	<0.001	<0.001	<0.003	76.5	Clear No odor
3	53.38	70.23	2.7	10	11/19/2014	24	806	<0.001	<0.001	<0.001	<0.003	249	Clear No odor
3	53.12	70.23	2.7	10	2/20/2015	80	738	<0.001	<0.001	<0.001	<0.003	65	Clear No odor
3	53.56	70.23	2.7	10	5/28/2015	84	754	<0.001	<0.001	<0.001	<0.003	84.8	Clear No odor
3	53.64	70.23	2.7	10	8/14/2015	76	730	<0.001	<0.001	<0.001	<0.003	54	Clear No odor
3	53.88	70.23	2.62	10	11/9/2015	32	712	<0.001	<0.001	<0.001	<0.003	192	Clear No odor
3	53.64	70.23	2.7	10	2/22/2016	80	710	<0.001	<0.001	<0.001	<0.003	77	Clear No odor

CARDINAL Laboratories

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

March 04, 2016

KATIE JONES

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 02/26/16 14:26.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-15-7. 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	02/26/2016	Sampling Date:	02/22/2016
Reported:	03/04/2016	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 (H600431-01)

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	02/29/2016	ND	0.018	90.4	0.0200	2.06	
Toluene*	<0.001	0.001	02/29/2016	ND	0.019	97.3	0.0200	1.10	
Ethylbenzene*	<0.001	0.001	02/29/2016	ND	0.019	94.5	0.0200	1.02	
Total Xylenes*	<0.003	0.003	02/29/2016	ND	0.061	101	0.0600	1.05	
Total BTEX	<0.006	0.006	02/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.6 %* *73.7-146*

Chloride, SM4500Cl-B mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**140**	4.00	02/29/2016	ND	100	100	100	0.00	

Sulfate 375.4 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**112**	25.0	03/01/2016	ND	21.7	109	20.0	10.5	

TDS 160.1 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**880**	5.00	03/01/2016	ND	556	106	527	0.923	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	02/26/2016	Sampling Date:	02/22/2016
Reported:	03/04/2016	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 (H600431-02)

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	02/29/2016	ND	0.018	90.4	0.0200	2.06	
Toluene*	<0.001	0.001	02/29/2016	ND	0.019	97.3	0.0200	1.10	
Ethylbenzene*	<0.001	0.001	02/29/2016	ND	0.019	94.5	0.0200	1.02	
Total Xylenes*	<0.003	0.003	02/29/2016	ND	0.061	101	0.0600	1.05	
Total BTEX	<0.006	0.006	02/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *97.9 %* *73.7-146*

Chloride, SM4500Cl-B mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**20.0**	4.00	02/29/2016	ND	100	100	100	0.00	

Sulfate 375.4 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**176**	25.0	03/01/2016	ND	21.7	109	20.0	10.5	

TDS 160.1 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**788**	5.00	03/01/2016	ND	556	106	527	0.923	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	02/26/2016	Sampling Date:	02/22/2016
Reported:	03/04/2016	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 (H600431-03)

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	02/29/2016	ND	0.018	90.4	0.0200	2.06	
Toluene*	<0.001	0.001	02/29/2016	ND	0.019	97.3	0.0200	1.10	
Ethylbenzene*	<0.001	0.001	02/29/2016	ND	0.019	94.5	0.0200	1.02	
Total Xylenes*	<0.003	0.003	02/29/2016	ND	0.061	101	0.0600	1.05	
Total BTEX	<0.006	0.006	02/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.6 %* *73.7-146*

Chloride, SM4500Cl-B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**80.0**	4.00	02/29/2016	ND	100	100	100	0.00	

Sulfate 375.4 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**77.0**	25.0	03/01/2016	ND	21.7	109	20.0	10.5	

TDS 160.1 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**710**	5.00	03/01/2016	ND	556	106	527	0.923	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside if QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Cardinal Laboratories, Inc.

101 East Marland - Hobbs, NM 88240
Tel (575) 393-2326
Fax (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company PO#
Project Manager: Katie Jones	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575)397-1471
Project #:	Project Name: EME Junction G-18
Project Location: T19S-R37E-Sec18 G ~ Lea County - New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2016)	TIME
H600431															
1	Monitor Well #1R	G	3	X				2				1		2/22	9:15
2	Monitor Well #2	G	3	X				2				1		2/22	12:30
3	Monitor Well #3	G	3	X				2				1		2/22	10:25

ANALYSIS REQUEST

(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X																	X	X	X	
	X																	X	X	X	
	X																	X	X	X	

Relinquished by: Rozanne Johnson Date: 2/26/2016 Time: 14:25

Received by: Date: Time:

Relinquished by: Date: Time:

Received By: (Laboratory Staff) Jodi Henson Date: 2/26/16 Time: 14:26

Delivered By: (Circle One) Sampler - UPS - Bus - Other:

Sample Condition: Cool: Yes ✓ / No; Intact: Yes ✓ / No

CHECKED BY: (Initials)

Phone Results		Yes		No
Fax Results		Yes		No Additional Fax Number:

REMARKS:

Email Results: kjones@riceswd.com
rozanne11@windstream.net
bjarguijo@basinenv.com

EME Jct. G-18 (1R427-162)
Record of Groundwater Withdrawal

Date	Fluid Hauled (bbls)		Lab	Comments	
9/16/2013	20				
9/17/2013			208	MW-1R	
9/20/2013	65				
9/26/2013	70				
9/27/2013	60				
9/30/2013	65				
Total For September	280	bbls	Total kg of Cl	9	kg
	11,760	gals	Removed		
10/7/2013	65				
10/10/2013	65				
10/14/2013	65		192	MW-1R	
10/17/2013	50				
10/24/2013	65				
10/28/2013	70				
10/31/2013	65				
Total For October	445	bbls	Total kg of Cl	14	kg
	18,690	gals	Removed		
11/4/2013	65				
11/7/2013	65				
11/11/2013	50		236	MW-1R	
11/15/2013	50				
11/18/2013	50				
11/21/2013	50				
Total For November	330	bbls	Total kg of Cl	12	kg
	13,860	gals	Removed		
Total for 2013	**1,055**	**bbls**	**Total for 2013**	**40**	**kg**
	44310	**gals**			
3/24/2014			Started pumping from MW-1R		
3/26/2014			236	MW-1R	
4/7/2014	66				
4/10/2014	56				
4/16/2014	43				
4/21/2014	54				
4/23/2014	64				
4/30/2014	65				
Total For April	348	bbls	Total kg of Cl	13	kg
	14,616	gals	Removed		

EME Jct. G-18 (1R427-162)
Record of Groundwater Withdrawal

Date	Fluid Hauled (bbls)		Lab	Comments	
5/7/2014	65				
5/9/2014	65				
5/12/2014	65				
5/14/2014	65				
5/16/2014	65				
5/19/2014	65				
5/23/2014	65				
5/28/2014	65		256	MW-1R	
5/30/2014	65				
Total For May	585	bbls	Total kg of Cl	24	kg
	24,570	gals	Removed		
6/4/2014	65				
6/9/2014	65				
6/12/2014			268	MW-1R	
6/13/2014	65				
6/20/2014	65				
6/25/2014	65				
6/30/2014	65				
Total For June	390	bbls	Total kg of Cl	17	kg
	16,380	gals	Removed		
7/2/2014	65				
7/9/2014	65				
7/16/2014	65				
7/18/2014			252	MW-1R	
7/25/2014	65				
7/30/2014	65				
Total For July	325	bbls	Total kg of Cl-	13	kg
	13,650	gals	Removed		
8/4/2014	65				
8/8/2014	65				
8/15/2014			268	MW-1R	
8/18/2014	30				
8/20/2014	65				
8/25/2014	65				
8/29/2014	65				
Total For August	355	bbls	Total kg of Cl-	15	kg
	14,910	gals	Removed		

EME Jct. G-18 (1R427-162)
Record of Groundwater Withdrawal

Date	Fluid Hauled (bbls)		Lab	Comments		
9/5/2014	65					
9/10/2014	65					
9/17/2014			272	MW-1R		
9/24/2014	65					
9/29/2014	65					
Total For September	260	bbls	Total kg of Cl-	11	kg	
	10,920	gals	Removed			
10/3/2014	65					
10/6/2014	65					
10/10/2014	65					
10/13/2014	65					
10/17/2014	65					
10/20/2014	65					
10/24/2014	65		196	MW-1R		
10/27/2014	65					
10/31/2014	65					
Total For October	585	bbls	Total kg of Cl-	18	kg	
	24,570	gals	Removed			
11/7/2014	65					
11/11/2014			220	MW1R		Shut down for winter
11/12/2014	65					
Total For November	130	bbls	Total kg of Cl-	5	kg	
	5,460	gals	Removed			
Total for 2014	**2,978**	**bbls**	**Total for 2014**	**104**	**kg**	
	125076	**gals**				
Total for Project	4,033	bbls	Total kg of Cl-	141	kg	
	169386	gals	for project			
4/30/2015			208	MW-1R		
5/6/2015	65					
5/8/2015	55					
5/12/2015	65					
5/15/2015	65					
5/20/2015	65					
5/27/2015	65					
5/28/2015			208	MW-1R		
Total For May	380	bbls	Total kg of Cl-	13	kg	
	15,960	gals	Removed			

EME Jct. G-18 (1R427-162)
Record of Groundwater Withdrawal

Date	Fluid Hauled (bbls)		Lab	Comments	
6/4/2015	65				
6/10/2015	65				
6/15/2015	65				
6/19/2015	65		200	MW-1R	
6/22/2015	65				
6/24/2015	65				
6/29/2015	65				
Total For June	455	bbls	Total kg of Cl-	14	kg
	19,110	gals	Removed		
7/1/2015	65				
7/8/2015	65				
7/10/2015	65				
7/13/2015	65		216	MW-1R	
7/17/2015	65				
7/20/2015	65				
7/24/2015	65				
7/27/2015	65				
7/31/2015	65				
Total For July	585	bbls	Total kg of Cl-	20	kg
	24,570	gals	Removed		
8/3/2015	65				
8/7/2015	65				
8/10/2015	65				
8/14/2015	65		196	MW-1R	
8/21/2015	65				
8/24/2015	65				
8/28/2015	65				
8/31/2015	65				
Total For August	520	bbls	Total kg of Cl-	16	kg
	21,840	gals	Removed		
9/4/2015	65				
9/11/2015	65				
9/14/2015	65				
9/18/2015	65				
9/21/2015	65		212	MW-1R	
9/25/2015	65				
9/28/2015	65				
Total For September	455	bbls	Total kg of Cl-	15	kg
	19,110	gals	Removed		

EME Jct. G-18 (1R427-162)
Record of Groundwater Withdrawal

Date	Fluid Hauled (bbls)		Lab	Comments	
10/2/2015	65				
10/5/2015	65				
10/9/2015	65				
10/12/2015	65				
10/16/2015	65				
10/19/2015	65		204	MW-1R	
10/23/2015	65				
10/26/2015	65				
10/30/2015	65				
Total for October	585	bbls	Total kg of Cl-	19	kg
	24570	gallons	Removed		
11/2/2015	65				
11/6/2015	65				
11/9/2015	50		240	MW-1R	
11/13/2015	50				
11/16/2015	20				
Total for November	250	bbls	Total kg of Cl-	10	kg
	10,500	gals	Removed		
Total for Project	7,263	bbls	Total kg of Cl-	277	kg
	305046	gals	for project		

EME Jct. G-18 (1R427-162)
Unit G, Section 18, T19S, R37E

Recovered vegetation, facing northwest 10/26/2105