1R - 427-316

WORKPLANS

Date:
6-13-12

Rice Environmental Consulting & Safety
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

CERTIFIED MAIL
RETURN RECEIPT NO. 7007 2560 0000 4569 9606

June 13th, 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 (CAP) for Groundwater**
Rice Operating Company – EME SWD System
EME Jct. K-8-1 (1R427-316): UL/K sec. 8 T20S R37E
(formerly EME Jct. N-8-1)

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.

The site was previously referred to as the EME Jct. N-8-1. However, GIS mapping shows the site to be located within unit letter K. To reflect the geographical location of the site, the name has been changed to the EME Jct. K-8-1. All correspondences will reference EME Jct. K-8-1.

Background and Previous Work

The site is located approximately 3 miles south of Monument, New Mexico at UL/K sec. 8 T20S R37E as shown on the Site Location Map (Figure 1). Groundwater at this site is located at approximately 27 +/- feet bgs.

In 2009, ROC initiated work on the former EME K-8-1 junction. The site was delineated using a backhoe to form a 30 ft x 20 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 256 mg/kg, negligible gasoline range organics (GRO) readings and a diesel range organics (DRO) reading of 489 mg/kg. The bottom composite showed a chloride laboratory reading of 208 mg/kg, negligible GRO and a DRO reading of 349 mg/kg. Clean soil was imported to the site, blended with soil from the excavation and

backfilled into the excavation. Laboratory analysis of the blended backfill showed a chloride reading of 144 mg/kg, negligible GRO and a DRO reading of 232 mg/kg. To further investigate the site, a soil bore was advanced on November 12th, 2009, 25 feet south of the source. The boring was advanced to 24 ft bgs and samples were taken every two feet. The samples were field tested for both chlorides and hydrocarbons. The 18 ft and 24 ft samples were taken to a commercial laboratory to be analyzed. Both samples showed negligible chloride readings. However, GRO and DRO were slightly elevated in both samples and while benzene was non-detect in both samples, toluene, ethyl-benzene, and total xylenes were detected. The bore hole was plugged with bentonite to the ground surface.

The area was contoured to the surrounding landscape, 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 December 18th, 2009, and a junction box disclosure report was submitted to NMOCD with all the 2009 junction box closures and disclosures.

As part of the Investigation and Characterization Plan approved by NMOCD on May 19th, 2011, five soil bores (SB-2 through SB-6) were advanced through the former junction box site on May 24th, 2011. RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID) for hydrocarbons. Representative samples from the bores were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers. Laboratory readings showed chloride numbers ranging from a high of 1,420 mg/kg at 6 ft bgs in SB-3 to a low of 240 mg/kg at 24 ft bgs in SB-2. Laboratory readings for GRO showed non-detect in all soil bores except in SB-2 at 21 ft bgs, where the GRO reading was 78.5 mg/kg. DRO readings ranged from a high of 1,110 mg/kg at 3 ft bgs in SB-2 to a low of non-detect at 6 ft bgs in SB-3, at the surface and 6 ft bgs in SB-4, and throughout SB-5. SB-2 at 21 and 24 ft bgs and SB-6 at 21 and 24 ft bgs had PID readings over 100 ppm and were taken to a commercial laboratory for BTEX analysis. Laboratory analysis showed benzene readings from both soil bores to be non-detect. However, toluene readings ranged from a high of 0.45 mg/kg at 21 ft in SB-2 to a low of 0.274 mg/kg at 24 ft in SB-6. Ethyl-benzene ranged from a high of 0.796 mg/kg at 21 ft bgs in SB-6 to a low of 0.29 mg/kg at 24 ft in SB-2. Finally, total xylenes ranged from a high of 5.54 mg/kg at 21 ft bgs in SB-6 to a low of 1.83 mg/kg at 24 ft bgs in SB-2.

On July 6th, 2011, surface samples were collected from a point 5 ft beyond SB-2, SB-3, and SB-4. Field screening of the 35 ft south surface sample yielded a chloride concentration of 59 mg/kg and a PID reading of 0.0 ppm. The 17 ft west surface sample yielded a chloride concentration of 454 mg/kg and a PID reading of 0.0 ppm, and the 19 ft north surface sample yielded a chloride concentration of 89 mg/kg and a PID reading of 0.0 ppm.

Vadose Zone Remediation

As part of the ICP Report and CAP approved by NMOCD on August 18th, 2011, the site was excavated to approximately 42 ft x 58 ft x 5 ft deep beginning October 3rd, 2011. The bottom of the excavation was padded with 6 inches of imported blow sand to protect the liner from punctures. A 42 ft x 58 ft, 20-mil reinforced plastic liner was installed and properly seated at the base of the excavation. An additional 6 inches of blow sand was used to pad the top of the liner. The imported blow sand used to pad the liner was screened in the field for hydrocarbons with a photo-ionization detector (PID) and resulted in a PID reading of 0.5 ppm. The composite sample was then taken to a commercial laboratory for analysis of chlorides and resulted in a chloride reading of non-detect.

A total of 156 yards of the excavated soil was taken for disposal at a NMOCD approved facility. The remaining soil was blended on site to use as backfill. The blended soil was tested for hydrocarbons using a PID meter with a result of 2.5 ppm. The composite sample was then taken to a commercial laboratory for analysis of chlorides and returned a chloride reading of 192 mg/kg. The excavation was backfilled up to 6 inches bgs with the blended soil. Since the site is located next to a lease road and lease pad, the remaining excavation was backfilled imported caliche to ground surface and seeding was not required.

Monitor Well Installation

On August 29th, 2011, RECS personnel were on site to install the near-source and up gradient monitor wells. MW-1, the near-source monitor well, was not sampled as it was advanced. The up gradient monitor well, MW-2, was sampled to determine background levels of chlorides and hydrocarbons. Representative samples from MW-2 were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers. Laboratory readings for the 15 ft sample returned a chloride result of 464 mg/kg and GRO and DRO readings of non-detect. Laboratory readings for the 25 ft sample returned a chloride reading of 192 mg/kg and GRO and DRO readings of non-detect.

A Corrective Action Plan report on the Vadose Zone Remediation was submitted to NMOCD on December 16th, 2011 and approved on December 21st, 2011. As part of the plan, RECS recommended that the monitor wells be sampled two more quarters prior to submitting a remedy for groundwater to provide ROC time to accurately delineate groundwater quality.

Corrective Action Plan for Groundwater

Since their installation, the monitor wells have been sampled quarterly, with the most recent sampling occurring on May 15th, 2012 (Appendix A). MW-2, the up gradient monitor well, has chlorides coming onto the site averaging 673 mg/L. MW-1, the near source well, has an average chloride reading of 910 mg/L (Figure 2). It is evident that although the site is in a regionally impacted chloride area (Figure 3), the chlorides in the vadose zone have contributed slightly to the degradation of groundwater beneath the site.

Therefore, ROC proposes to remove chloride impacted groundwater from the existing groundwater recovery system located at EME A-20. See Figure 3 for relationship of EME K-8-1 to EME A-20. Removed water will be used for pipeline and well maintenance. Our estimate conservatively reflects the net impact to groundwater at the site resulting from the former junction box site. It does not take into account other sources or regional conditions that may exist up gradient of the site.

- **Estimated chloride mass in the groundwater**
  The estimated impact area for the site is 2,436 square feet. The aquifer thickness is 15 ft and the porosity is estimated at 0.25. The volume of the impacted groundwater beneath the site is determined by multiplying the impact area by the aquifer thickness by the porosity. Therefore, the volume of impacted groundwater beneath the site is 9,135 cubic feet. The result is then converted to liters giving a value of 258,674 liters. The chloride concentration contributed from the source is the difference between the highest concentration in MW-1 and the lowest concentration in MW-2, which is determined to be 420 mg/L. The total chloride mass in the groundwater is then determined by multiplying the volume of impacted groundwater beneath the site by the chloride concentration contributed from the site. This then is converted to kilograms. Thus, the total chloride mass beneath the site is 109 kg.

Estimate of Chloride Mass in Groundwater

Parameter	Unit	Value	Description
Impact area	ft^2	2,436	Estimated Area of Impact
Aquifer Thickness	ft	15	NMOCD Approved Estimation
Porosity	%	0.25	Professional Estimate for Water Saturated Pore Volume
Volume of Impacted Groundwater Below Site	ft^3	9,135	Impact Area x Aquifer Thickness x Porosity
Volume of Impacted Groundwater Below Site	L	258,674	Conversion from ft^3 to Liters
Chloride Concentration from Source	mg/L	420	Difference between Concentrations in Monitor Wells (MW-1 = 1,080 mg/L and MW-2 = 660 mg/L)
TOTAL CHLORIDE MASS	**kg**	**109**	Volume of Impacted Groundwater Below Site x Chloride Concentration Added to Soil from Source

The recovery system located at EME A-20 is expected to extract one gallon a minute. Given the chloride concentration in RW-1 of 3,450 mg/L, approximately 198 barrels of groundwater will be required to remove 109 kg of chloride.

Estimated Groundwater Recovery System Removal at the EME A-20

Parameter	Unit	Value	Description
Groundwater Concentration	mg/L	3,450	Groundwater Concentration from RW-1
Groundwater Concentration	kg/gal	0.0130598	Conversion from mg/L to kg/gal
Pumping Rate	gals/min	1	Given
Extraction Rate	kg/min	0.0130598	Pumping rate x Groundwater Concentration (kg/gal)
Extraction Rate	kg/day	7.8358633	Conversion from kg/min to kg/day
Representative Total Chloride Mass	kg	109	From above
Volume Removal	gals	8,319	Pumping rate x Estimated Removal Time x 60 min/hour x 10 hr/day
Volume Removal	bbls	198	Conversion from gals to bbls
ESTIMATED REMOVAL TIME	**day**	**14**	Representative Total Chloride Mass/Extraction Rate

- **Estimated chloride mass in the vadose zone**
  With the infiltration barrier measuring 42 ft x 58 ft, we conclude that the chlorides remaining in the vadose zone will have little impact on the groundwater beneath the site. The infiltration barrier will prevent vertical movement of water in the vadose zone thereby eliminating the path chlorides take in moving to groundwater.

Upon the completed of the groundwater remedy, ROC will submit a written report that will include a request for 'remediation termination' 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,

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

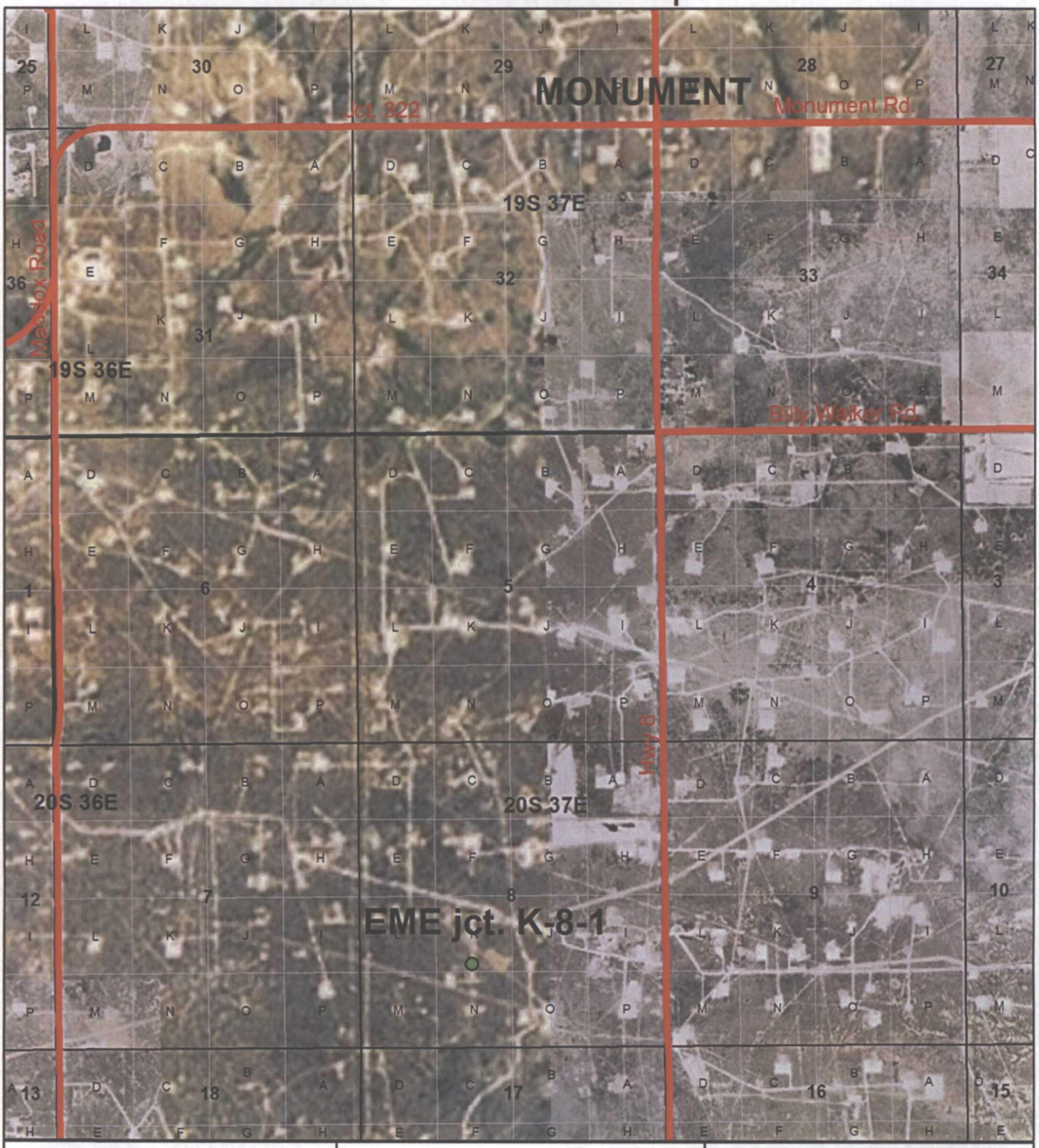
Attachments:

Figure 1 – Site Location Map
Figure 2 – Monitor Well Sampling Data
Figure 3 – EME Groundwater Contamination
Appendix A – Monitor Well Sampling Lab

Figures

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

Site Location Map



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

EME jct. K-8-1

LEGALS: UL/K sec. 8
T20S R37E

NMOCD Case#: 1R427-316

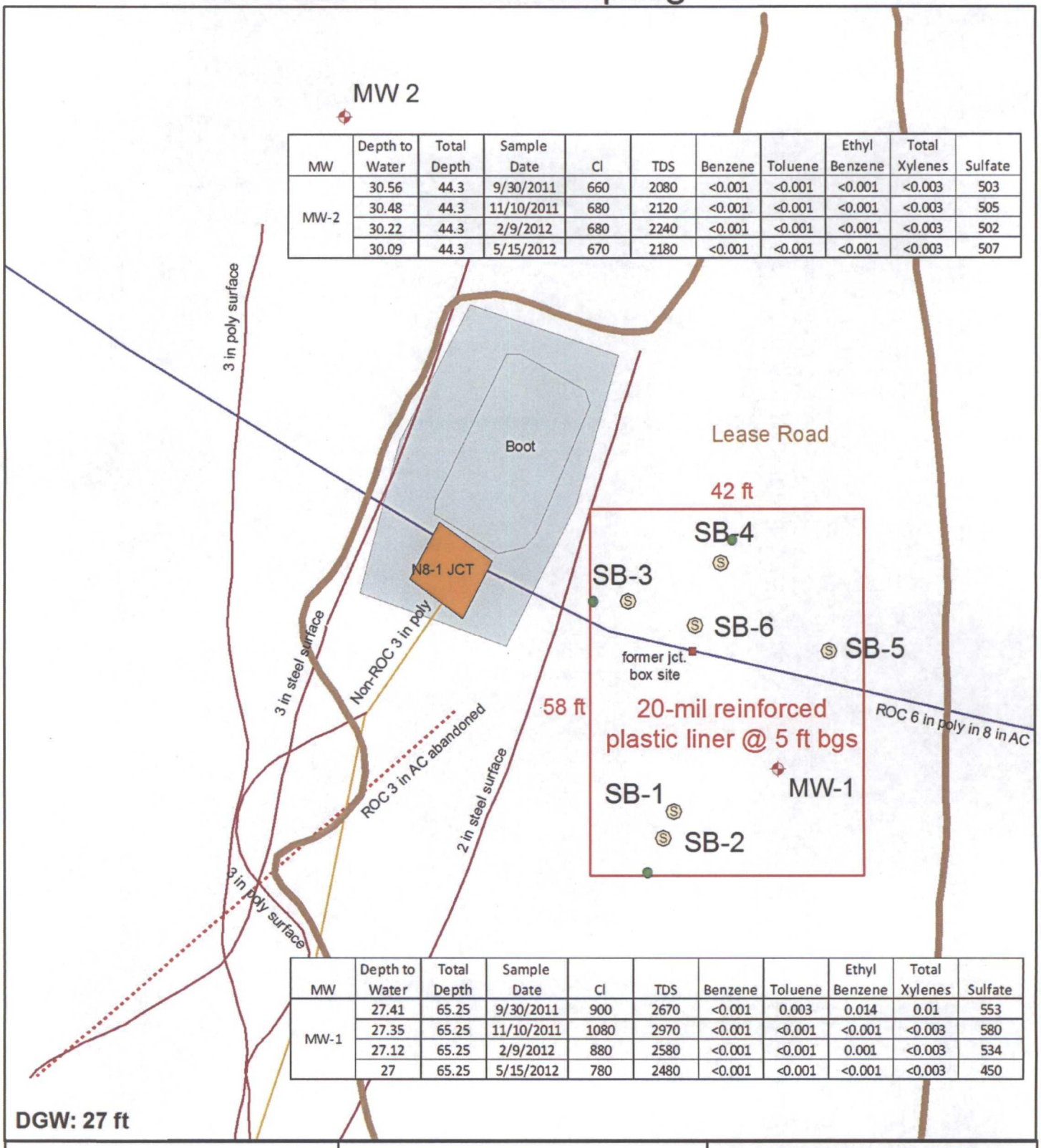
Figure 1

N
W E
S

0 0.375 0.75
Miles

Drawing date: 6-4-12
Drafted by: L. Weinheimer

Monitor Well Sampling Data



MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
MW-2	30.56	44.3	9/30/2011	660	2080	<0.001	<0.001	<0.001	<0.003	503
	30.48	44.3	11/10/2011	680	2120	<0.001	<0.001	<0.001	<0.003	505
	30.22	44.3	2/9/2012	680	2240	<0.001	<0.001	<0.001	<0.003	502
	30.09	44.3	5/15/2012	670	2180	<0.001	<0.001	<0.001	<0.003	507

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
MW-1	27.41	65.25	9/30/2011	900	2670	<0.001	0.003	0.014	0.01	553
	27.35	65.25	11/10/2011	1080	2970	<0.001	<0.001	<0.001	<0.003	580
	27.12	65.25	2/9/2012	880	2580	<0.001	<0.001	0.001	<0.003	534
	27	65.25	5/15/2012	780	2480	<0.001	<0.001	<0.001	<0.003	450

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME jct. K-8-1

LEGALS: UL/K sec. 8
T20S R37E

NMOCD Case#: 1R427-316

Figure 2

N W E S

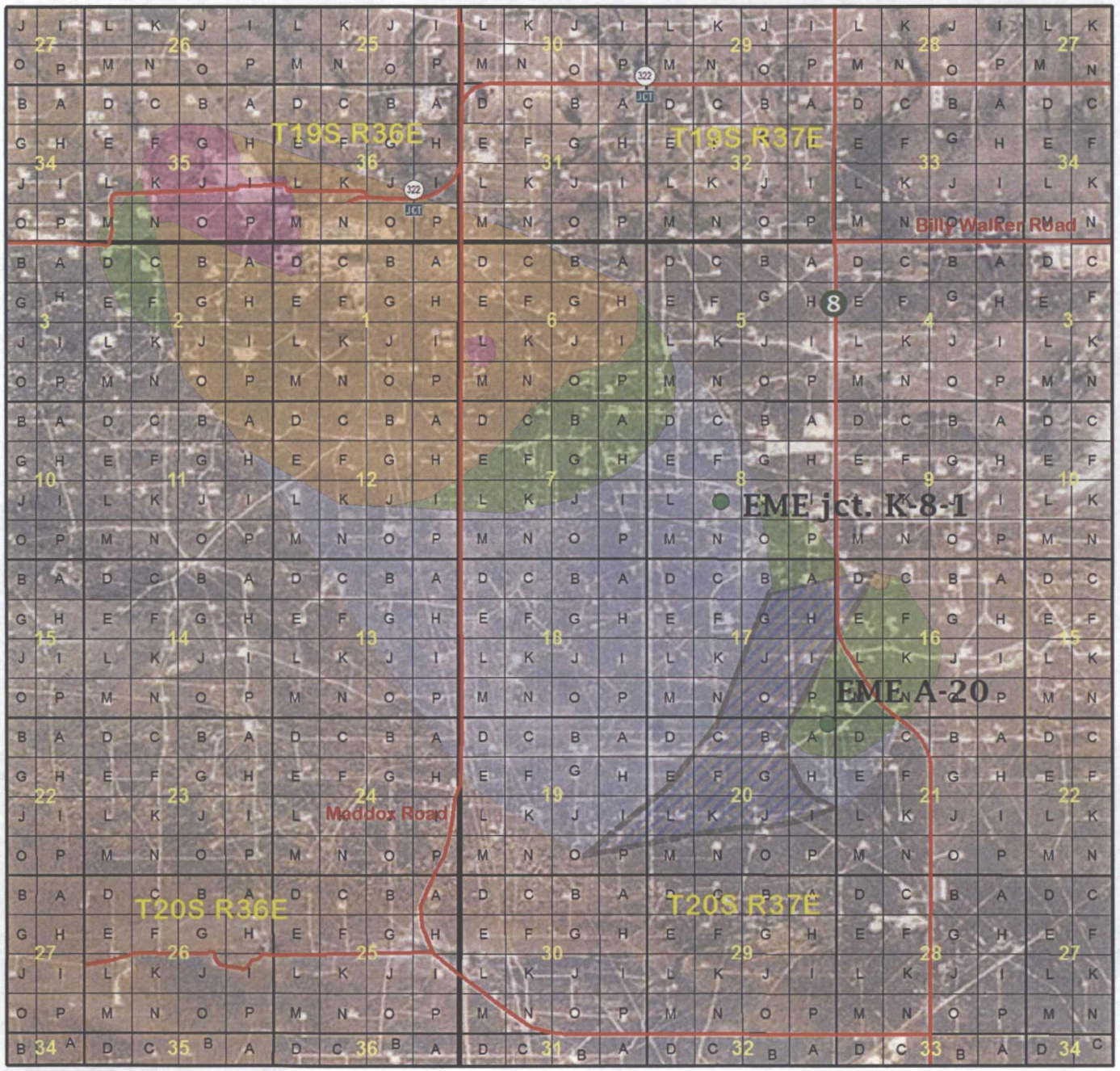
Surface Samples

0 10 20 40

Feet

Drawing date: 6-4-12
Drafted by: L. Weinheimer

EME Groundwater Contamination



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC
RECS

122 W. Taylor
Hobbs, NM 88240
Phone (575) 393-9174
Fax (575) 397-1471

- Cl- concentration > 10,000
- 10,000 > Cl- concentration > 5,000
- 5,000 > Cl- concentration > 2,000
- 2,000 > Cl- concentration > 700
- Hypothetical Cl- contamination area

N W E S

0 0.5 1 Miles

This map was prepared for Rice Operating Company. This map represents the known chloride impact concentrations in the groundwater as of 2011. As conditions change and/or new monitor wells are added, the contamination plume will undergo permutations that will be reflected in future maps. Rice Operating Company does not assume any responsibility for the use of this information by others.

Drawing date: 12-15-09
Revision date: 5-1-12
Drafted by: Lara Weinheimer

Figure 3

Appendix A

Monitor Well Sampling Lab

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

CARDINAL Laboratories

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

May 22, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME JCT K-8-1

Enclosed are the results of analyses for samples received by the laboratory on 05/18/12 14:31.

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

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

Received:	05/18/2012	Sampling Date:	05/15/2012
Reported:	05/22/2012	Sampling Type:	Water
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T20S-R37E-SEC8 K-LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H201119-01)

BTEX 8021B mg/L Analyzed By: ZZZ

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	05/21/2012	ND	0.046	92.0	0.0500	0.455	
Toluene*	<0.001	0.001	05/21/2012	ND	0.055	110	0.0500	0.657	
Ethylbenzene*	<0.001	0.001	05/21/2012	ND	0.059	117	0.0500	1.38	
Total Xylenes*	<0.003	0.003	05/21/2012	ND	0.179	119	0.150	1.96	

Surrogate: 4-Bromofluorobenzene (PID *115 %* *70.7-118*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**780**	4.00	05/21/2012	ND	100	100	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*	**450**	10.0	05/22/2012	ND	23.4	117	20.0	3.70	

TDS 160.1 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**2480**	5.00	05/21/2012	ND	238	99.2	240	1.59	

Cardinal Laboratories *=Accredited Analyte

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

Received:	05/18/2012	Sampling Date:	05/15/2012
Reported:	05/22/2012	Sampling Type:	Water
Project Name:	EME JCT K-8-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T20S-R37E-SEC8 K-LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H201119-02)

BTEX 8021B mg/L **Analyzed By: ZZZ**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	05/21/2012	ND	0.046	92.0	0.0500	0.455	
Toluene*	<0.001	0.001	05/21/2012	ND	0.055	110	0.0500	0.657	
Ethylbenzene*	<0.001	0.001	05/21/2012	ND	0.059	117	0.0500	1.38	
Total Xylenes*	<0.003	0.003	05/21/2012	ND	0.179	119	0.150	1.96	

Surrogate: 4-Bromofluorobenzene (PIL *108 %* *70.7-118*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**670**	4.00	05/21/2012	ND	100	100	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*	**507**	10.0	05/22/2012	ND	23.4	117	20.0	3.70	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**2180**	5.00	05/21/2012	ND	238	99.2	240	1.59	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality 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

Celey D. Keene, Lab Director/Quality Manager

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

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company PO#
Project Manager: Hack Conder	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 K-8-1
Project Location: T20S-R37E-Sec8 K ~ Lea County New Mexico	Sampler Signature: ~ Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY) H201119	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 (2012)	TIME
~ 1	Monitor Well #1	G	3	X					2				1		5-15	12:15
~ 2	Monitor Well #2	G	3	X					2				1		5-15	9:40

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	

Relinquished by: Rozanne Johnson	Date: 5-18-2012	Time: 14:30	Received by: Jodi Henson
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)

Date: 5/18/12 Time: 14:31

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

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

CHECKED BY: (Initials) JH

Phone Results: Yes / No

Fax Results: Yes / No Additional Fax Number:

REMARKS:

Email Results: hconder@riceswd.com
jweinheimer@rice-ecs.com
klones@riceswd.com
rozanne@valornet.com

#26

Hansen, Edward J., EMNRD

From: Laura Pena <lpena@riceswd.com>
Sent: Friday, June 22, 2012 3:45 PM
To: Hansen, Edward J., EMNRD
Cc: Hack Conder; Lara Weinheimer
Subject: EME Jct. K-8-1 (1R427-316) Corrective Action Plan for Groundwater Addendum and Groundwater Recovery Efforts

Mr. Hansen,

Groundwater recovery efforts for EME Jct. K-8-1 (1R427-316) began on 6/21/2012, utilizing the recovery system located at EME A-20, per the Corrective Action Plan for Groundwater report submitted to the NMOCD on 6/13/2012.

Also, this email is an Addendum to the EME Jct. K-8-1 (1R427-316) Corrective Action Plan for Groundwater. Section: Corrective Action Plan for Groundwater, page 5, paragraph 2: text in blue lettering, below, will be added to the paragraph.

- **Estimated chloride mass in the vadose zone**
  With the infiltration barrier measuring 42 ft x 58 ft, we conclude that the chlorides remaining in the vadose zone will have little impact on the groundwater beneath the site. The infiltration barrier will prevent vertical movement of water in the vadose zone thereby eliminating the path chlorides take in moving to groundwater.

Upon NMOCD approval, MW-1, the near-source well, will be plugged and abandoned using a 1-3% bentonite/concrete slurry and a three foot cap. MW-2, the up gradient well, will continue to be sampled on a yearly basis. Upon the completed of the groundwater remedy, ROC will submit a written report that will include a request for 'remediation termination' of the regulatory file.

If you have any questions or require any additional information, please contact Hack Conder at (575) 393-9174.

Thank you,

Laura Peña
Environmental Project Scientist