

1R - 427-03

REPORTS

DATE:

10-21-13



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ARCADIS U.S. Inc.
1004 North Big Spring Street
Suite 300
Midland
Texas 79701
Tel 432 687 5400
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www.arcadis-us.com

Sent Certified Mail
Return Receipt No. 7002 2410 0001 5813 4347

Mr. Ed Hansen
New Mexico Energy, Minerals, & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Environmental

Subject:

**CAP Report for Groundwater and Termination Request
EME G-11
Unit G, SEC. 11, T20S, R36E, Monument, Lea County, New Mexico
NMOCD CASE # 1R427-03**

Date:
October 21, 2013

Contact:
Jeffrey W. Kindley

Mr. Hansen:

Phone:
432 687-5400

On behalf of Rice Operating Company (ROC), ARCADIS U.S., Inc. (ARCADIS) respectfully submits this Corrective Action Plan (CAP) Report for Groundwater and Termination Request for the above-referenced site.

Email:
Jeff.Kindley@arcadis-us.com

BACKGROUND

The site is located approximately four miles southwest of Monument, New Mexico. Groundwater at the site occurs at an approximate depth of 46 feet below ground surface (bgs).

Our ref:
MT001085.0001

The junction box, located directly south of an abandoned production facility, was eliminated. Initial delineation began on January 30, 2003 and was completed on February 25, 2003. Soil samples were collected at regular intervals and analyzed in the field for chlorides using field-adapted Standard Method 4500-ClB and screened in the field using a photoionization detector (PID).

A backhoe was used to excavate soils from an excavation around the former junction box measuring 30 feet by 30 feet by 18 feet deep. A four-point wall composite sample was collected and a five-point composite sample was collected from the bottom of the excavation and submitted to Environmental Lab of Texas for analysis of gasoline range organics (GRO), diesel range organics (DRO), benzene, toluene, ethylbenzene and xylenes (BTEX) and chloride analysis. DRO was detected at a concentration of 36.6 milligrams per kilo gram (mg/kg) in the five-point bottom composite sample. Chlorides were detected at a concentration of 656 mg/kg in the four-point composite sidewall sample and at a

concentration of 1,440 mg/kg in the five-point composite bottom sample. GRO and BTEX were not detected in either of the samples.

Based on the results of the soil sampling analytical results, elevated chloride concentrations are present at the subject site.

A 20-mil poly liner was installed at the base of the excavation and up the sidewalls of the excavation. Excavated soils were backfilled into the excavation. The area was contoured to the surrounding landscape and seeded with native vegetation.

ROC disclosed potential groundwater impact at the site to New Mexico Oil Conservation Division (NMOCD) via e-mail on February 24, 2003. A disclosure report was submitted to NMOCD with all the ROC 2003 junction box closures and disclosures.

ROC submitted an Investigation Characterization Plan (ICP) to NMOCD on August 9, 2010 and was approved by NMOCD on August 24, 2010. Five soil borings (SB-1 through SB-5) were drilled at the site on October 4 and 5, 2010 and samples were collected every three feet.

A near-source monitoring well (MW-1) and an up-gradient monitoring well (MW-2) were installed at the site on December 7, 2010, to assess groundwater quality. Sampling results from MW-2 confirm that free product is present in groundwater up-gradient of the site. Based on the fact that soil chloride concentrations, as confirmed by laboratory analysis, decrease with depth to below or near 250 mg/kg in all of the soils borings except SB-1 (304 mg/kg at 42 feet) and that free product occurs in the upgradient monitor well, we believe there is an upgradient source at this site.

On May 11, 2012, an ICP Report and CAP was submitted to the NMOCD. The plan proposed plugging and abandonment of both monitoring wells (MW-1 and MW-2) and installing a 50 foot by 50 foot 20-mil reinforced poly liner to a depth of 4-5 feet bgs. NMOCD approved the report on June 4, 2012, with the condition that ROC continue monitoring MW-1 and check for NAPLs in MW-2.

In June 2012, a 50x50 ft 20-mil reinforced liner was installed and properly seated at a depth of 4.5 ft bgs. The excavation was then backfilled and the site was seeded with a blend of native vegetation. On October 15, 2012, ROC requested soil closure at this site. NMOCD approved the request on October 15, 2012.

A Corrective Action Plan (CAP) dated August 6, 2013 was submitted to the NMOCD and approved on August 22, 2013. The CAP proposed the removal of 573 kg, or approximately 383 barrels of chloride impacted groundwater from the EME K-6 and EME L-6.

IMPLEMENTATION OF CORRECTIVE ACTION PLAN FOR GROUNDWATER

Beginning August 15, 2013, groundwater was removed from both recovery systems located at EME K-6 and EME L-6. In that time, 465 barrels of chloride impacted groundwater were removed from the EME K-6 recovery system. With a chloride concentration of 10,600 mg/L in RW-1, this equates to 784 kg of chloride. Approximately 745 barrels of chloride impacted groundwater were removed from the EME L-6 recovery system. With a chloride concentration of 10,200 mg/L in MW-2R, this equates to 1,208 kg of chloride. The combined kilograms of chloride removed for both systems was 1,992 kg. Removed groundwater was utilized for pipeline and well maintenance.

Since ROC has completed the corrective actions by removing the approved chloride mass and receiving 'soil closure' for the site on October 15, 2012, we respectfully request that the NMOCD grant termination for this site. Upon NMOCD approval of this termination request, MW-1 and MW-2 will be plugged and abandoned using a cement grout containing 1-3% bentonite and a 3 ft cap of cement at the surface.

ROC is the service provider (agent) for the EME Salt Water Disposal (SWD) 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.

Thank you for your consideration concerning this termination request for this site. If you have any questions, do not hesitate to contact me or Hack Conder.

Sincerely,
ARCADIS U.S., Inc.

Jeffrey W. Kindley by JEH

Jeffrey W. Kindley, P.G.
Senior Geologist

Copies:
Hack Conder, ROC

Attachments:

- Appendix A – Monitoring/Recovery Well Sampling Analytical
- Appendix B – Record of Groundwater Withdrawal from EME L-6 and K-6

Record of Groundwater Withdrawal
Site Name: EME G-11 (1R427-03)

Remove 573 kg

EME K-6					
Date	Fluid Hauled (bbls)		Lab	Comments	
8/15/2013	60			Started Pumping	
8/19/2013					
8/23/2013	130				
8/26/2013					
8/27/2013			10,100	K-6 RW-1	
8/30/2013	65				
Total for August	255	bbls			
	10,710	gallons			
9/9/2013	130				
9/12/2013	40				
9/17/2013			10,600	K-6 RW-1	
9/20/2013	40				
Total for September	210	bbls	Total kg of Cl	784	kg
	8,820	gallons	removed		
Total for Project	465	bbls			
	19,530	gallons			

EME L-6					
Date	Fluid Hauled (bbls)		Lab	Comments	
8/15/2013	130			Started Pumping	
8/19/2013	110				
8/23/2013					
8/26/2013	130				
8/27/2013			9,200	L-6 MW-2R	
8/30/2013	65				
Total for August	435	bbls			
	18,270	gallons			
9/5/2013	130				
9/12/2013	70				
9/17/2013			10,200	L-6 MW-2R	
9/20/2013	110				
Total for September	310	bbls	Total kg of Cl	1,208	kg
	13,020	gallons	removed		
Total for Project	745	bbls			
	31,290	gallons			
Combined Totals	1,992	kg			



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

September 20, 2013

KYLE NORMAN

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME JUNCTION K-6

Enclosed are the results of analyses for samples received by the laboratory on 09/17/13 16:40.

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/ga/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 long, sweeping underline.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

Received:	09/17/2013	Sampling Date:	09/17/2013
Reported:	09/20/2013	Sampling Type:	Water
Project Name:	EME JUNCTION K-6	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T20S-R37E-SEC6 K - LEA CTY., NM		

Sample ID: RECOVERY WELL #1 (H302248-01)

Chloride, SM4500Cl-B

mg/L

Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	10600	4.00	09/18/2013	ND	104	104	100	0.00	

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

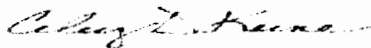
Notes and Definitions

- 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



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101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2328 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <u>RICE</u>		P.O. #: <u>511-70</u>		ANALYSIS REQUEST																						
Project Manager: <u>Kyle Norman</u>		Company:		Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS																	
Address:		City: Hobbs State: NM Zip: 88240																								
Phone #:		Fax #:																								
Project #:		Project Owner:																								
Project Name: <u>2MS Vct. 4-16</u>		State: Zip:																								
Project Location: <u>T205 R37E</u>		Phone #:																								
Sampler Name: <u>Amour Groves</u>		Fax #:																								
FOR LAB USE ONLY																										
Lab I.D.	Sample I.D.	GRAB OR (COMP. #) CONTAINERS	MATRIX							GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.	SAMPLING	DATE	TIME							
<u>H302248</u>	<u>RW-1</u>	<u>5</u>	<u>1</u>							<input checked="" type="checkbox"/>								<u>9-17-13</u>	<u>11:00</u>	<input checked="" type="checkbox"/>						

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Relinquished By: <u>Amour Groves</u>	Date: <u>9-17-13</u> Time: <u>4:40</u>	Received By: <u>Jodi Benson</u>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Date:	Received By:	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One)	Sample Condition	CHECKED BY: <u>JJA</u>	REMARKS:	
Sampler - UPS - Bus - Other:	Cool <input type="checkbox"/> Intact <input checked="" type="checkbox"/>		email results	
	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		knorman@rice-ecs.com hconder@rice-ecs.com;	
			Lweinheimer@rice-ecs.com; kjones@riceswd.com;	
			Lpena@riceswd.com; sedwards@rice-ecs.com	
			agroves@rice-ecs.com	

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September 20, 2013

KYLE NORMAN

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME L-6 BOOT

Enclosed are the results of analyses for samples received by the laboratory on 09/17/13 16:40.

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Sincerely,

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Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

Received:	09/17/2013	Sampling Date:	09/17/2013
Reported:	09/20/2013	Sampling Type:	Water
Project Name:	EME L-6 BOOT	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T20S-R37E-SEC6 L-LEA CTY., NM		

Sample ID: MW-2R (H302253-01)

Chloride, SM4500Cl-B

mg/L

Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	10200	4.00	09/18/2013	ND	100	100	100	7.69	

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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

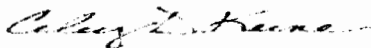
Notes and Definitions

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- RPD Relative Percent Difference
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- *** Insufficient time to reach temperature.
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Samples reported on an as received basis (wet) unless otherwise noted on report

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <u>RICE</u>		P.O. #:		ANALYSIS REQUEST										
Project Manager: <u>Kyle Norman</u>		Company:		Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS					
Address:		Attn:												
City: <u>Hobbs</u>	State: <u>NM</u>	Zip: <u>88240</u>	Address:											
Phone #:	Fax #:	City:	State:											
Project #:	Project Owner:	Zip:	Phone #:											
Project Name: <u>EMF L1e Best</u>	Project Location: <u>T205 R37E</u>	Sampler Name: <u>Amber Groves</u>	Fax #:											
FOR ABUSE ONLY	Lab I.D.:	Sample I.D.:	MATRIX							PRESERV.	SAMPLING		DATE	TIME
	<u>H302253</u>	<u>1 MW-2E</u>	GROUNDWATER										<u>9-17-13</u>	<u>11:20</u>

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Relinquished By: <u>Amber Groves</u>	Date: <u>9-17-13</u>	Received By: <u>Jodi Benson</u>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Date:	Received By:	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	CHECKED BY: <u>JAG</u>	REMARKS: email results knorman@rice-ecs.com hcondor@rice-ecs.com; Lweinheimer@rice-ecs.com; kjones@riceswd.com; Lpena@riceswd.com; sedwards@rice-ecs.com agroves@rice-ecs.com	

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