1R - 427-320

REPORTS

DATE:

12-2011

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

CERTIFIED MAIL
RETURN RECIEPT NO. 7008 1140 0001 3070 6051

December 20th, 2011

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) Report and Termination Request**
Rice Operating Company – EME SWD System
EME C-1 EOL (1R427-320): UL/C sec. 1 T20S R36E

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 is located approximately 3 miles south-west of Monument, New Mexico at UL/C sec. 1 T20S R36E as shown on the Site Location Map (Figure 1). Depth to groundwater has been determined to be 38 ft.

Background and Previous Work

Junction Box Investigation

In 2005, ROC initiated work on the former EME C-1 EOL junction box. The site was delineated using a backhoe to form a 10 x 10 x 12 ft deep excavation and soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation, the 4 wall composite, the bottom composite, and the remediated backfill samples were taken for laboratory verification. Laboratory tests of the site showed substantial gasoline range organics (GRO) and diesel range organics (DRO) in the 4-wall composite, bottom composite, and the remediated backfill. Chloride concentrations from the excavation did not relent with depth or breadth. The 4-wall composite had a reading of 1,690 mg/kg and the bottom composite had a reading of 1,960 mg/kg. The soil from the excavation was blended on site and backfilled into the excavation. 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 consideration.

NMOCD was notified of potential groundwater impact on December 7th, 2005 and a junction box disclosure report was submitted to NMOCD with all the 2005 junction box closures and disclosures.

ICP Results

As part of the Investigation and Characterization Plan approved by NMOCD on December 22nd, 2010, eight soil bores were advanced through the former junction box site to a depth of 40 ft bgs on December 7th and 8th, 2010. ROC 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.

ICP Report Activities

Based on the delineation conducted during the ICP phase, RECS submitted an ICP Report on February 18th, 2011 which was approved by NMOCD on March 23rd, 2011. As part of the ICP Report, two additional soil bores (SB-9 and SB-10) and two monitor wells (MW-1 and MW-2) were installed at the site on March 25th, 2011. ROC 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 and wells were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers. A surface samples was collected to the north at SB-9 and east at SB-10 to verify chloride concentrations. SB-9 yielded a surface chloride concentration of 296 mg/kg and SB-10 yielded a surface chloride concentration of 287 mg/kg.

On July 21st, 2011, ROC submitted a Corrective Action Plan (CAP) to NMOCD which was approved on August 23rd, 2011. In the CAP, ROC proposed to excavate the site to 51 ft x 44 ft and properly seat a 20-mil reinforced poly liner at 5-4 ft bgs. Soils placed above the liner would have a laboratory chloride reading no greater than 500 mg/kg and a field PID measurement below 100 ppm. Excavated soils would be evaluated for use as backfill, and any soils requiring disposal would be properly disposed of at a NMOCD approved facility. Upon completion of the excavation, the site would then be seeded with a native vegetative mix. ROC also proposed to remove chloride impacted groundwater from the first available recovery system in EME. Removed groundwater would be utilized for pipeline and well maintenance. A chloride mass for the site was generated and based on the calculations a total of 143 kg of chlorides would have to be removed from the groundwater.

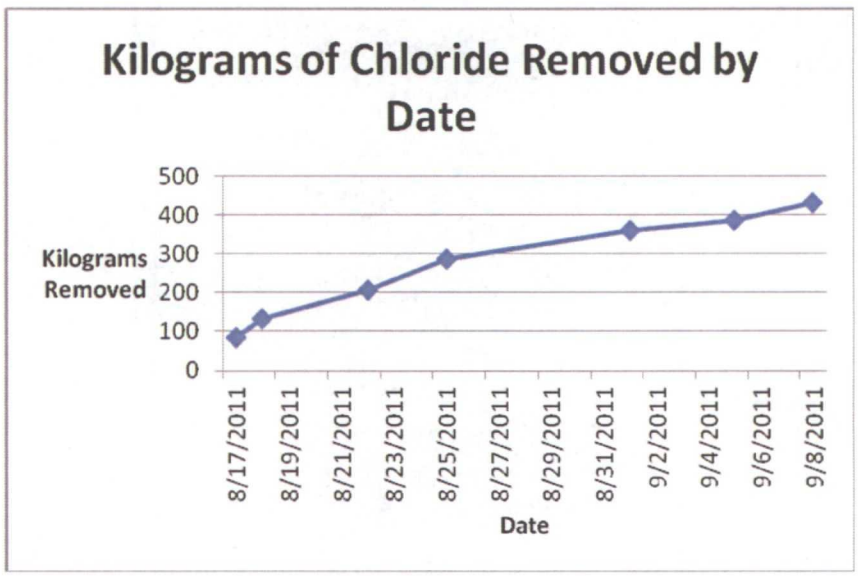
CAP Report of the Vadose Zone Remediation

Beginning November 16th, 2011, RECS personnel excavated the site to 51 ft x 44 ft to a depth of 5 ft bgs. A 20-mil reinforced poly liner was installed and properly seated at the base of the excavation. Excavated soil at this site was sandy; therefore, padding of the liner was not required. The excavated soils were blended on site to use as backfill. A composite sample of the blended soil was screened in the field for hydrocarbons and returned a result of 0.8 ppm. The sample was then taken to a commercial laboratory for analysis which returned a chloride value of 160 mg/kg. The excavation was backfilled

with the blended soil and contoured to the surrounding landscape. Soil amendments were added to the soil and the site was seeded with a native vegetative mix. Silt net fencing was placed around the site to maintain seed integrity. Laboratory results, PID analysis, and photo documentation of these activities can be found in Appendix A.

CAP Report of the Groundwater Remediation

EME C-1 EOL groundwater recovery commenced at the EME A-20 recovery system beginning on August 17th, 2011 and ending on September 8th, 2011. A total of 678 barrels of water was removed by the system which equates to a total recovered chloride mass of 431 kg.



The chloride mass removal estimate is based on chloride concentrations of 4,000 mg/L in the recovered groundwater (Appendix B).

ROC has met all the CAP requirements and requests 'remediation termination' status of the regulatory file. Upon NMOCD's approval of the Termination Request, MW-1 will be plugged and abandoned with a 1 – 3% bentonite/concrete slurry with a three foot concrete cap. MW-2 will remain in place and be periodically sampled to monitor regional groundwater impacts.

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

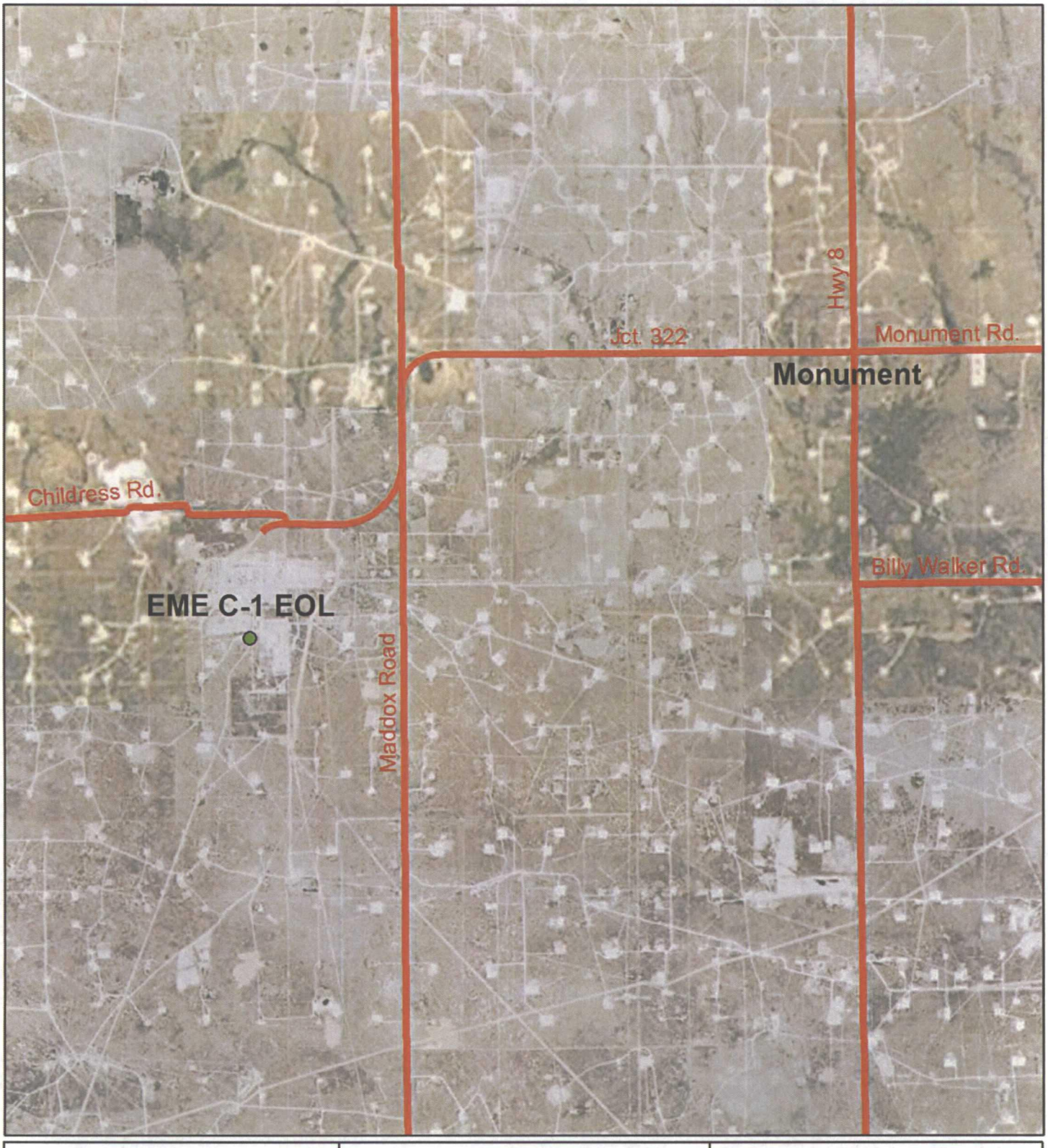
Attachments:

Figure 1 – Site Location Map
Appendix A – Liner Installation Documentation
Appendix B – EME A-20 RW-1 Lab Confirmation

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 C-1 EOL

Legals: UL/C sec. 1
T20S R36E

Case #: 1R427-320

Figure 1

N
W E
S

Miles
0 0.25 0.5 1

Drawing date:11-1-10
Drafted by: L. Weinheimer

Appendix A

Liner Installation Documentation

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

RICE ENVIRONMENTAL CONSULTING & SAFETY

122 West Taylor Hobbs, NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471
PID METER CALIBRATION & FIELD REPORT FORM

CK. MODEL NO.			
		MODEL: PGM 7300	SERIAL NO: 590-000508
	x	MODEL: PGM 7300	SERIAL NO: 590-000504
		MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM 7300	SERIAL NO: 590-000183

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 930360	EXPIRATION DATE: 5/24/2013
METER READING ACCURACY: 99.9 PPM	

ACCURACY : +/- 2%

COMPANY
Rice

SITE	UNIT	SECTION	TOWN SHIP	RANGE
EME C-1 EOL	C	1	20S	36E

SAMPLE ID	PID	SAMPLE ID	PID
8 point Blended Backfill	0.8		

I verify that I have calibrated the above instrument in accordance to the manufacture operation manual.

SIGNATURE: Kyle Norman

DATE: 11-18-2011

CARDINAL Laboratories

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

November 21, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME C-1 EOL

Enclosed are the results of analyses for samples received by the laboratory on 11/18/11 15:30.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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 (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,

Hope S. Moreno

Hope Moreno

Inorganic Technical Director

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:	11/18/2011	Sampling Date:	11/18/2011
Reported:	11/21/2011	Sampling Type:	Soil
Project Name:	EME C-1 EOL	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	20S-36E		

Sample ID: 8 POINT COMP BLENDED BACKFILL (H102521-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**160**	16.0	11/20/2011	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

Hope S. Moreno

Hope Moreno, Inorganic Technical Director

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

Hope S. Moreno

Hope Moreno, Inorganic Technical Director

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: Rice	BILL TO
Project Manager: Hank Conder	P.O. #:
Address:	Company:
City: State: NM Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: EME C-1 EOL 20S-36E	Phone #:
Sampler Name: Kyle Norman	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST: Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS
H102521																				
1	Spiral Composite Blended Cuttings	C	1			✓							11-18-11	2:00	✓					

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 the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages; including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Kyle Norman	Date: 11-18-11 Time: 5:30	Received By: Jodi Henson	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool: ☐ Yes ☑ No; Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	

Phone Result: ☐ Yes ☑ No Add'l Phone #:
Fax Result: ☐ Yes ☑ No Add'l Fax #:
REMARKS:

RUSH!!

email results
kjones@riceswd.com; knorman@rice-ecs.com;
Zconder@rice-ecs.com; Bbaker@rice-ecs.com;
hconder@rice-ecs.com; Lweinheimer@rice-ecs.com

23°C

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#26

New Mexico State Land Office

Field Operations Division

(505) 827-5723 P.O. Box 1148 Santa Fe, NM 87504
(575) 392-8736 2702-D N. Grimes Hobbs, NM 88240
(575) 885-1323 N. Canal, Suite B Carlsbad, NM 88220
(575) 623-4979 1001 S. Atkinson Roswell, NM 88210
(575) 763-0796 105 E. 6th St. Clovis, NM 88101

REVEGETATION FORM

1. General Information

Site name: EME C-1 EOL 20S-36E				Lease No.:		
U/L or Qtr/Qtr	Section	Township	Range	County	Latitude	Longitude
C	1	20S	36E	Lea	N32*36'23.4"	W103*18'38.246"
Company Name: Rice Operating Co.				Contact Name: Hack Conder		
Phone no.: 575-393-9174			Email:	hconder@riceswd.com		
Address: 122 W. Taylor, Hobbs, NM						
Spill / Release ☐		P&A Well ☐		Pit Closure ☐	Facility Closure ☐	Other ☒
OCD Spill No.		API No.			Type:	
Site size: 130'x50'		6,500	square feet		Map detail of site attached ☐	
Additional information:						

3. Soils **Do not rip caliche subsoils; caliche rocks brought to the surface by ripping shall be removed.*

Salvaged from site ☐	Bioremediated ☐	Imported ☐	Blended ☒	Depth (in):	5 ft.
Texture: Sandy	Describe soil & subsoil: Sandy				
Soil prep methods:	Rip ☐ Depth(in):	Disc ☐	Depth (in):	Rollerpack ☐	
Date completed: 11/22/2011	Photos attached ☐	Number of photos:			

4. Seeding **Attach seed bag tags to this form. Seed bag tags shall contain the site name and S-T-R.*

Custom seed mix ☒	Prescribed mix ☐	Seed mix name: 6 lbs. Blue Grama / 6 lbs. Side oats Grama	Seeding date: 11/22/2011
Is seed mix divided into submixes based on seed size?		Yes ☐ No ☐	
Drill Seeder ☐ Drill Type:		Broadcast ☒ Method: hand broadcast	Hydroseeding ☐
Soil conditions during seeding:	Dry ☒	Damp ☐	Wet ☐
Photos attached ☒ Number of photos:	Observations:		

5. Additional Methods

Mulching ☐ Crimping ☐ Mulch type: Tons/acre:		Fertilizer ☐ Type: Lbs/acre:	Other ☒ Describe: 3, 50 lbs. bags of Restor Nhance
Photos attached ☒ Number of photos:	Observations: The seed was raked into the site		

5. Certification I hereby certify that the information in this form and attachments is true and complete to the best of my knowledge and belief.

Name: Kyle Norman	Title: Environmental Tech	Date: 11/22/2011
Signature: Kyle Norman		

Version 20080925

EME C-1 EOL (1R427-320)
Unit C, Section 1, T-20-S, R-36-E

site prior to excavation, facing south
10/28/2011

excavating site, facing west
11/16/2011

completed 51x44x5-ft excavation, facing north
11/18/2011

blending excavated soil, facing east
11/18/2011

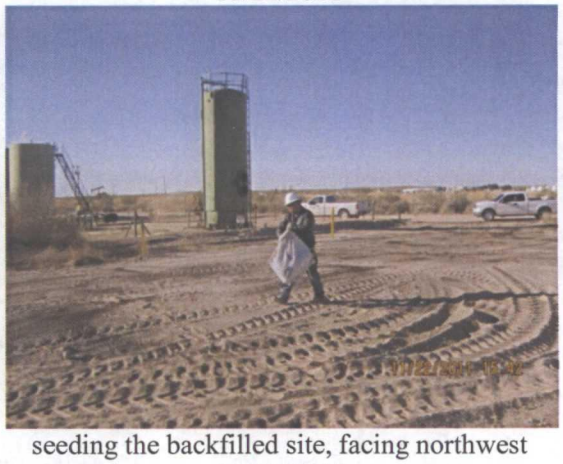
51x44-ft 20-mil, reinforced liner installed,
facing west 11/21/2011

backfilling site with blended soil, facing south
11/22/2011

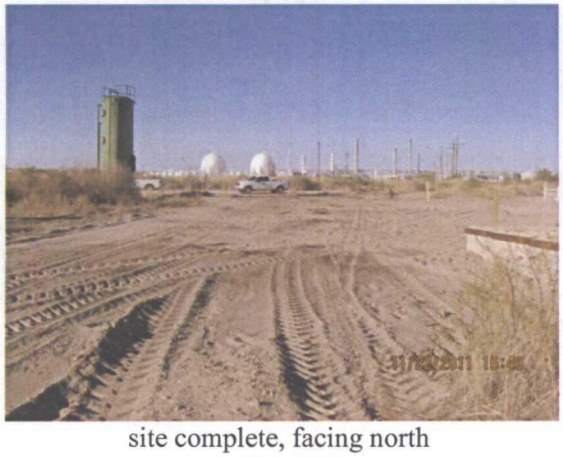
contouring the site to the surrounding area, facing south 11/22/2011

backfilled site, facing south 11/22/2011

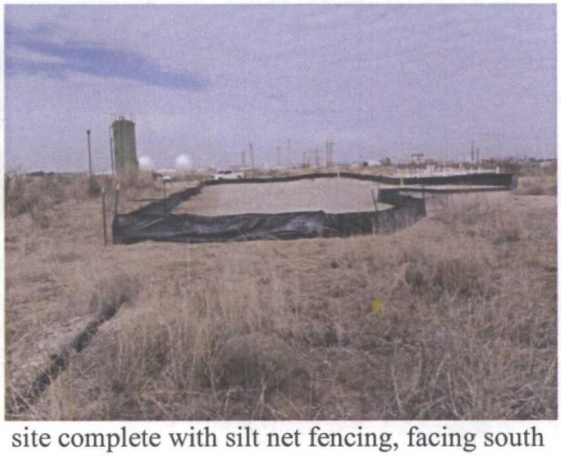
adding soil amendments, facing south 11/22/2011



seeding the backfilled site, facing northwest 11/22/2011



site complete, facing north 11/22/2011



site complete with silt net fencing, facing south 12/15/2011

Appendix B

Recovery System Lab Confirmation

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

August 22, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME A-20

Enclosed are the results of analyses for samples received by the laboratory on 08/18/11 8:25.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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 (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:	08/18/2011	Sampling Date:	08/17/2011
Reported:	08/22/2011	Sampling Type:	Water
Project Name:	EME A-20	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME A-20		

Sample ID: RW-1 (H101742-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**4000**	4.00	08/18/2011	ND	108	108	100	0.00	

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

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name:	RICE	BILL TO	
Project Manager:	HACK CONDER	P.O. #:	
Address:	122 W TAYLOR	Company:	
City:	HOBBS State: NM Zip: 88240	Attn:	
Phone #:	575 393 9174 Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location:	EME A-20	Phone #:	
Sampler Name:	Tony Green	Fax #:	

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE	ICE / COOL	OTHER :	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS					
H207142-1	RW 1		1	✓									8/17/11	3:30	✓										

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 the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 8/17/11	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 3:25		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: email results KJONES@ricesud.com Zconder@rice-ecs.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com
	Time:		

Delivered By: (Circle One)	Sample Condition	CHECKED BY:
Sampler - UPS - Bus - Other: 23°C	Cool: ☐ Yes ☑ No Intact: ☑ Yes ☐ No	(Initials)

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476