1R - 427-231

REPORTS

DATE:

12-20-11

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 5931

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: **CAP Report and Termination Request**
Rice Operating Company – EME SWD System
EME P-8-3 boot (1R427-231): UL/P sec. 8 T20S 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.

This site is located approximately 3 miles south of Monument, New Mexico at UL/P sec. 8 T20S R37E as shown on the Site Location Map (Figure 1). Groundwater at this site is located at an approximate depth of 23 +/- feet.

Background and Previous Work

Junction Box Investigation

In 2007, ROC initiated work on the former EME P-8-3 boot junction. The site was delineated using a backhoe to form a trench and soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation trench, the 15 ft bgs sample was collected for laboratory verification. Laboratory tests showed negligible gasoline range organics (GRO) and diesel range organics (DRO). However, chloride concentrations from the trench did not relent with depth with the 15 foot sample testing at 624 ppm. The soil from the trench was taken to a disposal facility and clean imported soil was used to backfill the site and to contour it to the surrounding landscape. The site was 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 March 13th, 2008, and a junction box disclosure report was submitted to NMOCD with all the 2007 junction box closures and disclosures.

ICP Results
As part of the Investigation and Characterization Plan (ICP) approved by NMOCD on December 22nd, 2010, five soil bores were advanced through the former junction box site to a depth of 21 ft bgs on December 8th and 10th, 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 bore 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 29th, 2011. The P-8-3 boot site was believed to be located within a regionally impacted groundwater area. As such, RECS recommended that ROC install a 4 inch, near source well approximately 25 ft southeast of the former junction box site and a 2 inch, up-gradient monitor well approximately 100 ft northwest of the former junction box site. ROC also proposed additional lateral delineation of soils surrounding the former box to determine the dimensions of an infiltration barrier.

On March 24th, 2011, four soil bores and two monitor wells were installed at the site in accordance with the ICP Report. The four soil bores and the two monitor wells were field tested for chlorides and screened in the field with a PID meter for hydrocarbons. Samples from each bore and well were taken to a commercial laboratory for analysis of chlorides and hydrocarbons.

Based on the monitor well sampling conducted at the site, it was confirmed that the site is located within the regionally impacted groundwater area. The chlorides and TDS concentrations in the up-gradient monitoring well were higher than the values in the source well with the up-gradient well having a laboratory chloride reading of 1,300 mg/L and a TDS reading of 3,160 mg/L and the source well having a chloride reading of 1,050 mg/L and a TDS reading of 2,870 mg/L. Both monitor wells had BTEX levels of non-detect.

CAP Activities

According to the additional information collected as part of the ICP Report, a Corrective Action Plan (CAP) was submitted to NMOCD in July 2011 and an Updated CAP was submitted August 16th, 2011. The Updated CAP proposed installing a 44x35-ft 20-mil, reinforce liner at 4-5 ft bgs. The soils placed above the liner would have a chloride reading no greater than 500 mg/kg and a field PID measurement below 100 ppm. Excavated soil would be evaluated for use as backfill, and any soil requiring disposal will be properly disposed of at a NMOCD approved facility. The site would then be seeded with native vegetation. The CAP also proposed plugging and abandoning MW-1 using a 1 – 3% bentonite/concrete slurry and the top three feet of the wells being capped with concrete. Since the site is located with the regionally impacted area, and the up-gradient monitor well has higher chloride and TDS readings than the source well, RECS determines that the P-8-3 site did not contribute to the degradation of the aquifer below

the site. The Updated CAP was approved on August 25th, 2011. A request to leave up-gradient MW-2 in place was approved by NMOCD on August 31st, 2011. According to the NMOCD approved CAP, MW-1 was plugged and abandoned on August 25th, 2011, using a 1 – 3% bentonite/concrete slurry and a three foot concrete cap (Appendix A). On September 6th, 2011, RECS began excavating the site in preparation for liner installation (Appendix B). The site was excavated to 47 ft x 42 ft x 5 ft deep and 36 yards of excavated material were taken to an NMOCD approved facility for disposal. The remainder of the excavated soil was blended on site to use as backfill. A composite sample of the blended soil (8 pt blended backfill) was field tested with a PID meter for hydrocarbons which gave a reading of 4.2 ppm. The sample was then taken to a commercial laboratory for chloride analysis. The chloride laboratory reading for the blended backfill returned a result of 64 mg/kg.

Imported soil was used to pad the liner. A six inch pad was placed below and above the liner to protect it from punctures. The imported sand was field tested with a PID meter for hydrocarbons and returned a result of 0.6 ppm. The sample was then taken to a commercial laboratory for analysis of chlorides. The chloride laboratory reading of the imported soil returned a result of non-detect. A 20-mil reinforced poly liner was installed and properly seated throughout the excavation on September 22nd, 2011. The excavation was then backfilled with the blended soil to a depth of six inches. Imported soil was used to complete the backfill of the excavation and to contour the site to the surrounding area. A total of 132 yards of sand was imported to pad the liner and to complete the backfill of the excavation.

On September 26th, 2011, the site was disked and soil amendments added. The site was seeded with a blend of native vegetation and is expected to return to normal vegetative capacity.

Because ROC has completed the CAP requirements and the site has been seeded, RECS requests 'remediation termination' status 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,

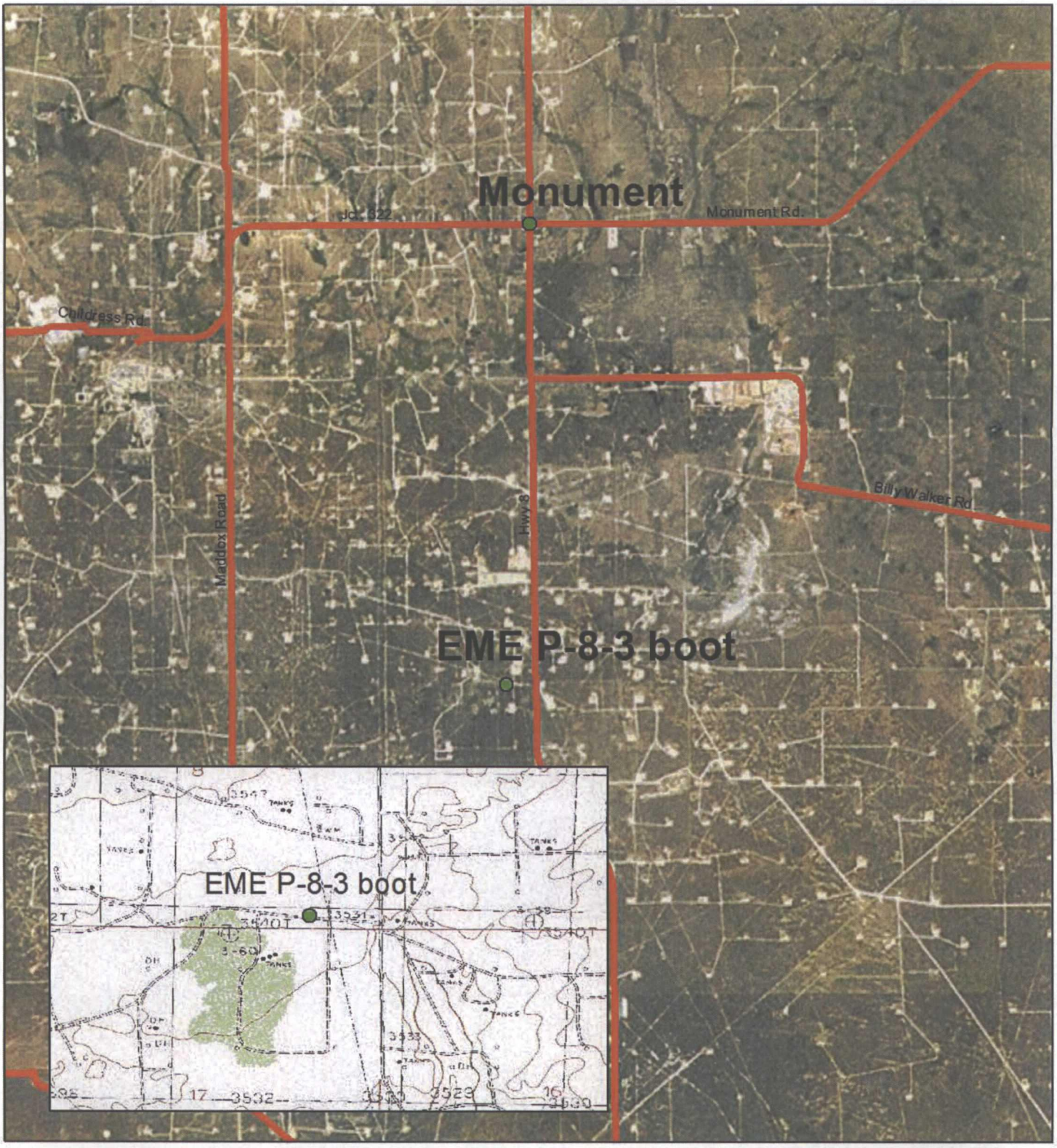
Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

Figure 1 – Site Location Map
Appendix A – Plug and abandon MW-1
Appendix B – Liner Installation

Figures

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



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME P-8-3 boot

Legals: UL/P sec. 8
T20S R37E

Case #: 1R427-231

Figure 1

N
W E
S

0 2,300 4,600 9,200
Feet

Drawing date:11-17-10
Drafted by: L. Weinheimer

Appendix A

Plug and abandon MW-1

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

HARRISON & COOPER, INC.

Drilling & Pump Professionals

7414 85th Street, Lubbock, Texas 79424-4951

P.O. Box 96, Wolfforth, Texas 79382-0096

Ph: (806) 866-4026 Fax: (806) 866-4044 hcidrill.com

Plugging Report

Client	Rice Operating
Contractor	Harrison & Cooper
Date Completed	9/1/2011
Site	EME P-8-3
Well ID	MW-1
Casing Diameter	4"
Well Depth	68'
Casing Material	PVC
Plugging Material	Portland/Bentonite Slurry
Slurry Interval	3'-68'
Cement Interval	0'-3'

Copies: File
Email (Lara Weinheimer; Katie Jones)

EME P-8-3 boot
Unit P, Section 8, T-20-S, R-37-E

Pulling MW-1, facing northeast 9/1/11

3 foot concrete cap installed, facing north 9/1/11

Pulling the casing, facing north 9/1/11

MW-1 plugged, facing south 9/1/11

Plugging the bore with a 1- 3% bentonite/concrete slurry, facing north 9/1/11

Appendix B

Liner Installation

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

September 23, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME P-8-3

Enclosed are the results of analyses for samples received by the laboratory on 09/20/11 15:57.

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:	09/20/2011	Sampling Date:	09/20/2011
Reported:	09/23/2011	Sampling Type:	Soil
Project Name:	EME P-8-3	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: 8 PT BLENDED BACKFILL (H102004-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	09/21/2011	ND	416	104	400	7.41	

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
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
Project Manager:	Hack Conder
Address:	
City: Hobbs	State: NM Zip:
Phone #:	Fax #:
Project #:	Project Owner:
Project Name:	
Project Location:	EME R-B-3
Sampler Name:	Jacob Kamplain

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State: Zip:	
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX	PRESERV	SAMPLING DATE	SAMPLING TIME	Chlorides	TPH 8015 M (Canal)	BTEX (Canal)
H102004-1	8pt blended backfill	C	1	Soil	Ice Cold	9-20-11	10:30	✓	✓	✓

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: 9-20-11	Received By:	
Relinquished By:	Time: 3:57	Jodi Henson	
	Date:	Received By:	
	Time:		

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

email results

Cancel TPH & BTEX as per Zack Conder. 9/22/11

Zconder@rice-ecs.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com

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

Sample Condition: Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No
CHECKED BY: (Initials)

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

#26

RICE ENVIRONMENTAL CONSULTING & SAFETY

122 West Taylor Hobbs, NM 88240
PHONE: (575) 393-9174 FAX: (575) 397-1471
PID METER CALIBRATION & FIELD REPORT FORM

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

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : HAL-248-100-1	EXPIRATION DATE: 7-1-15
METER READING ACCURACY: 100	

ACCURACY : +/- 2%

COMPANY
RICE Operating Company

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	P-8-3 boot	P	8	20S	37E

SAMPLE ID	PID	SAMPLE ID	PID
8 PT BLENDED BACKFILL	4.2		

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

SIGNATURE: /Kent

DATE: 9-20-11

CARDINAL Laboratories

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

September 26, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME P-8-3 BOOT

Enclosed are the results of analyses for samples received by the laboratory on 09/22/11 16:45.

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.

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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 (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:	09/22/2011	Sampling Date:	09/22/2011
Reported:	09/26/2011	Sampling Type:	Soil
Project Name:	EME P-8-3 BOOT	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T20S-R37E-SEC8 P ~ LEA CTY NM		

Sample ID: TOPSOIL (H102030-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	09/23/2011	ND	432	108	400	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
(505) 393-2326 FAX (505) 393-2476

Company Name: Elite		**BILL TO**	
Project Manager:		P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name: Major Project EME ~~P-83~~ P-8-3 Boot		State: Zip:	
Project Location:		Phone #:	
Sampler Name: Glenn Frayre		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	
H102030 -1	TopSoil	G	6										9-22-11	10:00	X

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: 9-22-11	Received By: Jodi Henson	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 4:45		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: E-MAIL All * Project name change as per Laura. 9/26/11 CK
	Time:		
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: Yes / No Intact: Yes / No	CHECKED BY: (Initials)	BRUCE, ZAK, HAK, LAURA, KATIE,
	26°C		

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

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

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO :HAL-248-100-1	EXPIRATION DATE:7/1/15
METER READING ACCURACY:100.00	

ACCURACY : +/- 2%

COMPANY
RICE Operating Company

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	P-8-3 BOOT	P	8	20S	37E

SAMPLE ID	PID	SAMPLE ID	PID
TOP SOIL	0.6		

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

SIGNATURE

DATE: 9-22-11

RICE ENVIRONMENTAL
RECS
CONSULTING & SAFETY, LLC

PO Box 5630
Hobbs, NM 88241
Phone: (575) 393-4411
Fax: (575) 393-0293

REVEGETATION FORM

1. General Information

Site name: EME P-8-3 boot						
U/L P	Section 8	Township 20S	Range 37E	County Lea	Latitude 32°24'25.057"N	Longitude 103°8'9.313"W
Contact Name: Bruce Baker						
Email: bbaker@rice-ecs.com						
Site size: 7,600 square feet			Map detail of site attached ☐			
Additional information:						

2. 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): 60 in
Texture: Sandy	Describe soil & subsoil: Sandy blow sand			
Soil prep methods:	Rip ☐ Depth(in):	Disc ☒ Depth (in): 6 in	Rollerpack ☐	
Date completed: 9/26/2011				

3. Bioremediation

Fertilizer ☐	Hay ☐	Other ☒
Type:		Describe: 2 bags of RestoreNHance
Lbs/acre:		

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: 8 lbs. Blue Gramma and side oats mix	Seeding date: 9/26 /2011
Broadcast ☒ Method: push broadcast			
Soil conditions during seeding: Dry ☒ Damp ☐ Wet ☐			
Photos attached ☒ Number of photos:	Observations:		

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: OSCAR FRAYRE	Title: Environmental Tech	Date: 10/7/2011
Signature:		

EME P-8-3 Boot (1R427-231)
Unit P, Section 8, T-20-S, R-34-E

Site prior to excavation, facing west 8/15/11

Excavating site, facing northeast 9/19/11

Completed excavation, facing west 9/19/11

Blending backfill, facing west 9/20/11

Plastic liner installed over pad, facing southwest 9/22/11

Installing pad above liner, facing south 9/22/11

Backfilling with blended soil, facing southwest 9/22/11

Exporting the spoil pile, facing east 9/23/11

Seeding the site, facing east 9/26/11

Soil amendments added, facing southeast 9/26/11

Disking the site, facing south 9/26/11

Site complete with silt fence, facing west 10/4/11