

1R - 427-164

REPORTS

DATE:

1-26-12

Rice Environmental Consulting & Safety

P.O. Box 5630 Hobbs, NM 88241

Phone 575.393.4411 Fax 575.393.0293

RECEIVED OGD

2012 JAN 30 A 11:32

CERTIFIED MAIL

RETURN RECEIPT NO. 7008 1140 0001 3070 6198

January 26th, 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 B-7 (1R427-164): UL/B sec. 7 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.

The site is located approximately 3 miles south of Monument, New Mexico at UL/B, Sec. 7, T20S, R37E as shown on the Site Location Map (Figure 1). Groundwater at this site is located approximately 31 +/- feet below ground surface (bgs).

In 2004, ROC initiated work on the former EME B-7 junction box prior to it being replaced by a new, watertight junction box at the site. The site was delineated using a backhoe and soil samples were screened at regular intervals for both hydrocarbons and chlorides. The excavation reached dimensions of 25 x 35 x 6 feet bgs where composite samples were collected for laboratory verification. In some areas, vertical samples were collected to a depth of 14 ft bgs. Laboratory tests of the site showed negligible gasoline range organics (GRO) while the diesel range organics (DRO) showed 77.6 mg/kg on the side wall composite, 133 mg/kg on the bottom composite and 132 mg/kg in the remediated backfill. Chlorides at the site showed 1,540 mg/kg for the sidewall composite, 1,200 mg/kg for the bottom composite and 1,380 mg/kg in the remediated backfill. At 6 feet bgs, a clay layer was installed to inhibit further chloride migration. The soils were blended on site and then backfilled into the excavation. 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.

On July 15th, 2004, a soil bore was drilled 5 feet north of the center of the former junction box to determine the downward extent of chlorides at the site. Laboratory samples taken at 29 feet bgs showed a chloride reading of 659 mg/kg. NMOCD was notified of potential groundwater impact on April 7th, 2004 and a junction box disclosure report was submitted to NMOCD with all the 2004 junction box closures and disclosures.

As part of the Investigation and Characterization Plan approved by NMOCD on August 10th, 2010, nine soil bores (SB-2 through SB-10) were advanced through the former junction box site on September 15th, 2010. Laboratory readings showed chloride numbers ranging from a high of 3,920 mg/kg at 6 ft bgs in SB-4 to a low of 112 mg/kg at ft bgs in SB-8. Laboratory readings for GRO and DRO showed non-detect in all soil bores. On October 22nd, 2010, three monitor wells were installed at the site. The site was believed to be located within a regionally impacted area, which was confirmed through quarterly groundwater sampling. The up-gradient well (MW-2) averages a chloride concentration of approximately 3,700 mg/L.

On September 8th, 2011, ROC submitted an ICP Report and Corrective Action Plan (CAP) which was subsequently approved by NMOCD on September 28th, 2011. In the report, ROC proposed to excavate the site to the dimensions of 73 ft x 98 ft and properly seat a 20-mil reinforced liner at 4 to 5 feet bgs, covering the existing clay barrier (Figure 2). The 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 soil would be evaluated for use as backfill, and any soil requiring disposal would be disposed of at an approved NMOCD facility. Upon completion of backfilling, the site would be seeded with native vegetation. In addition, ROC proposed to remove chloride impacted groundwater from the existing recovery system located at EME A-20. Removed groundwater would be utilized for pipeline and well maintenance. RECS determined that a chloride mass of 1,481 kgs would need to be recovered from the system at EME A-20. As of August 4th, 2011, a total of 3,759 barrels of groundwater had been removed from EME A-20. With a chloride concentration in RW-1 of 4,000 mg/L, this equated to approximately 2,390 kgs of chloride removed for the site. Since groundwater recovery was completed for the site, ROC proposed to plug and abandon MW-1 and MW-3 with a cement grout with 1-3% bentonite and a 3 foot cement cap. MW-2, the up-gradient well, would be used to monitor regional groundwater impact in the area.

CAP Activities

On October 13th, 2011, RECS personnel were on site to begin the liner excavation and installation. The site was excavated to 73 ft x 98 ft x 5 ft bgs. A total of 412 yards of the excavated soil was taken to a NMOCD approved facility for disposal. The remaining excavated soil was blended on site to use as backfill. A sample of this blended backfill was screened in the field for hydrocarbons with a result of 3.3 ppm. The sample was then taken to a commercial laboratory for analysis of chloride which returned a result of 304 mg/kg. A total of 668 yards of clean sand was imported to the site for use to pad the liner and as the remaining backfill. A sample of this imported sand was screened in the field for hydrocarbons with a result of 0.2 ppm. The sample was then taken to a commercial

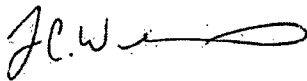
laboratory for chloride analysis which returned a result of non-detect. The excavation was padded with six inches of the imported sand and then the liner was properly seated into the excavation at approximately 4.5 ft bgs. The liner was padded on top with six inches of imported sand and then backfilled with the blended, excavated soil. The remaining imported sand was used to complete the backfill of the site and contour it to the surrounding area. Soil amendments were added to the site and then the site was seeded with a native vegetative mix. Silt net fencing was placed around the site to keep the seed in place. Documentation of these activities can be found in Appendix A.

On November 8th, 2011, MW-1 and MW-3 were plugged and abandoned with a concrete grout with 1-3% bentonite and a 3 foot cement cap. Documentation of this can be found in Appendix B. The up-gradient well, MW-2, will remain open and will be used to monitor regional groundwater impact in the area.

ROC has completed the corrective actions as approved by the NMOCD in the CAP and 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,

A handwritten signature in cursive script, appearing to read 'J.C.W.', followed by a long horizontal flourish.

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

- Figure 1 – Site Location Map
- Figure 2 – NMOCD Approved Liner
- Appendix A – CAP Liner Installation Documentation
- Appendix B – Plug and Abandon of MW-1 and MW-3

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



EME B-7

Legals: UL/B sec. 7
T-20-S R-37-E

NMOCD Case #: 1R427-164

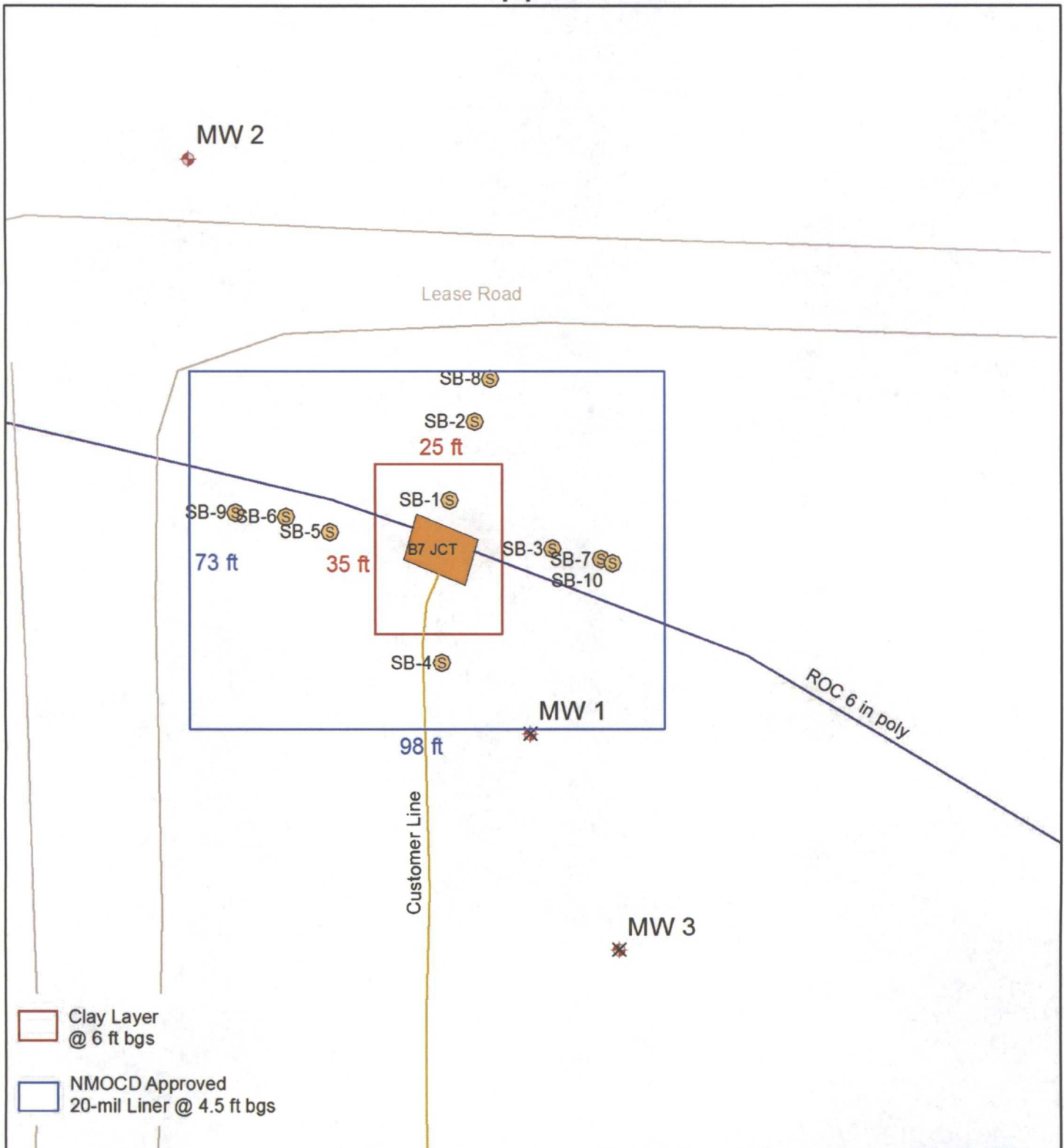
Figure 1



0 875 1,750 3,500
Feet

Drawing date: 9-29-10
Drafted by: L. Weinheimer

NMOCD Approved Liner

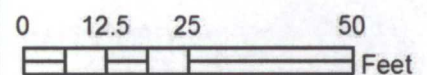


EME B-7

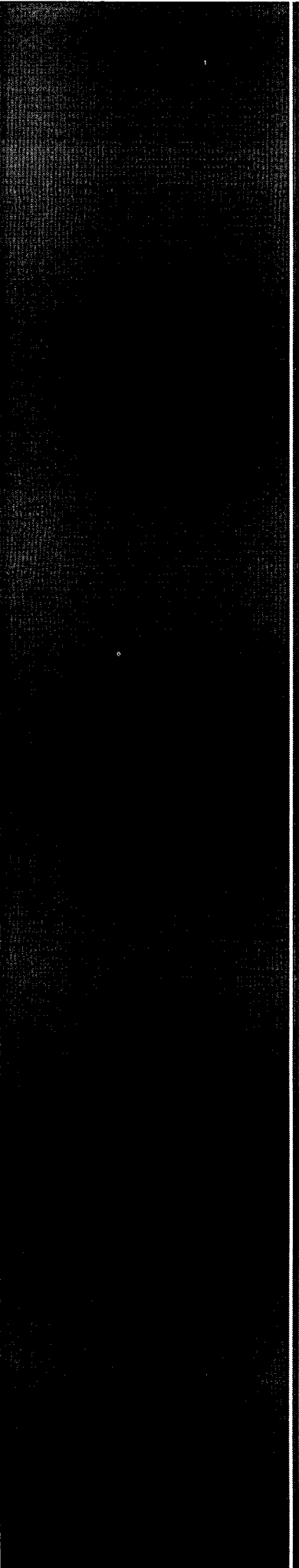
Legals: UL/B sec. 7
T-20-S R-37-E

NMOCD Case #: 1R427-164

Figure 2



Drawing date: 6-29-11
Drafted by: L. Weinheimer



Appendix A

CAP Liner Installation Documentation

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

November 01, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME B-7 JCT (20/37)

Enclosed are the results of analyses for samples received by the laboratory on 10/31/11 16:20.

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 Hydrocarbons

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

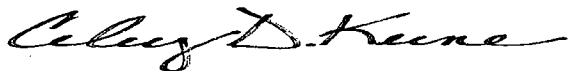
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (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

Lab Director/Quality Manager

Analytical Results For:

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

Received: 10/31/2011
Reported: 11/01/2011
Project Name: EME B-7 JCT (20/37)
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 10/31/2011
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

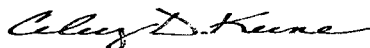
Sample ID: 8 PT COMP BACKFILL (H102355-01)

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	11/01/2011	ND	448	112	400	3.64	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

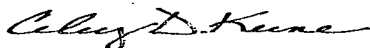
Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

ARDINAL 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

[illegible]

† 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
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 B-7 JCT	B	7	20S	37E

SAMPLE ID	PID	SAMPLE ID	PID
8 Point Composite Backfill	3.3		

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

SIGNATURE:



DATE: 10/31/2011

November 07, 2011

Hack Conder
Rice Operating Company
112 W. Taylor
Hobbs, NM 88240

RE: EME B-7 JCT (20/37)

Enclosed are the results of analyses for samples received by the laboratory on 11/04/11 16:07.

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 Hydrocarbons

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

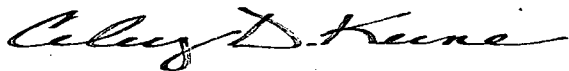
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Sincerely,



Celey D. Keene
Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/04/2011
Reported: 11/07/2011
Project Name: EME B-7 JCT (20/37)
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 11/04/2011
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

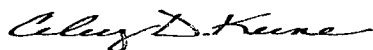
Sample ID: COOPER PIT BLOW SAND (H102401-01)

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	11/07/2011	ND	448	112	400	3.51	

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

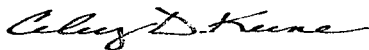
Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
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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

BILLY TO										ANALYSIS REQUEST									
Company Name: <i>Five</i> Project Manager: <i>Hank C. Zander</i> Address: City: State: NM Zip: Phone #: Fax #: Project #: Project Name: Project Location: <i>EME 13-7 Ser 100-37</i> Sampler Name: <i>Kyle Norman</i>										P.O. #: Company: Attn: Address: City: State: Zip: Phone #: Fax #:									
Matrix: ☐ GROUNDWATER ☒ SOIL ☐ WASTEWATER ☐ SLUDGE ☐ OTHER:										Preserv: ☐ ICE/COOL ☐ ACID/BASE ☐ OTHER:									
Containers: ☒ GRAB OR COMP ☐ # CONTAINERS										Sampling: DATE: 11-11-11 TIME: 10:30									
Lab I.D. 11024101 -1										Sample I.D. Cooper Air Blvd Sand									
Chlorides										TPH 8015 M									
BTEX										Texas TPH									
Complete Cations/Anions										TDS									

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Relinquished By: <i>Kyle Norman</i> Date: 11-11-11 Time: 10:07	Received By: <i>Uddi Jensen</i> Date: 11-11-11 Time: 10:07
Relinquished By: Date: Time:	Received By: Date: Time:

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

REMARKS:
 email results
 kjones@riceswd.com; knorman@rice-ecs.com;
 Zcorder@rice-ecs.com; Bbaker@rice-ecs.com;
 hconder@rice-ecs.com; Lweinheimer@rice-ecs.com

† 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.

x

MODEL: PGM 7300 SERIAL NO: 590-000508
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: 100.0 PPM	

ACCURACY : +/- 2%

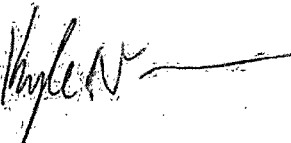
COMPANY
Rice

SITE	UNIT	SECTION	TOWN SHIP	RANGE
EME B-7 JCT	B	7	20S	37E

SAMPLE ID	PID	SAMPLE ID	PID
Cooper Pit Blow Sand	0.2		

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

SIGNATURE:



DATE: 11/4/2011



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

VEGETATION FORM

1. General Information

Site name: EME B-7						
U/L B	Section 7	Township 20S	Range 37E	County Lea	Latitude N 32° 35.489'	Longitude W 103° 17.385'
Contact Name: Bruce Baker						
Email: bbaker@rice-ecs.com						
Site size: 13,000		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):	
Texture: Sandy		Describe soil & subsoil: Blow sand and subsoil caliche			
Soil prep methods:	Rip ☐	Depth(in):	Disc ☐	Depth(in):	Rollerpack ☐
Date completed: 11/14/2011					

3. Bioremediation

Fertilizer ☐	Hay ☐	Other ☒
Type:		Describe: 5 bags of RestorNance
Lbs/acre:		

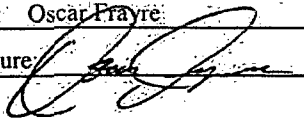
4. Seeding

**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:	Seeding date: 12/2/2011
Broadcast ☒ 15 lbs of winter wheat			
Method: Portable seeder			
Soil conditions during seeding: Dry ☒ Damp ☐ Wet ☐			
Photos attached ☐	Observations:		
Number of photos:			

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: 12/2/2011
Signature: 		



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

VEGETATION FORM

1. General Information

Site name: EME B-7						
U/L B	Section 7	Township 20S	Range 37E	County Lea	Latitude N 32° 35' 489'	Longitude W 103° 17' 385'
Contact Name: Bruce Baker						
Email: bbaker@rice-ecs.com						
Site size: 13,000		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):	
Texture: Sandy		Describe soil & subsoil: Blow sand and subsoil caliche			
Soil prep methods:	Rip ☐	Depth(in):	Disc ☐	Depth (in):	Rollerpack ☐
Date completed: 11/14/2011					

3. Bioremediation

Fertilizer ☐	Hay ☐	Other ☐
Type:		Describe:
Lbs/acre:		

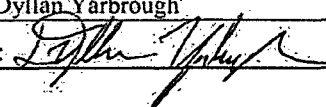
4. Seeding

**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:	Seeding date: 12/13/2011
Broadcast ☒ 13 lbs blue grama			
Method: Portable seeder			
Soil conditions during seeding: Dry ☒ Damp ☐ Wet ☐			
Photos attached ☐	Observations:		
Number of photos:			

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: Dyllan Yarbrough	Title: Environmental Tech.	Date: 12/13/2011
Signature: 		

EME B-7 (1R427-164)
Unit B, Section 7, T-20-S, R-37-E



site prior to excavation, facing west



excavating the site, facing east



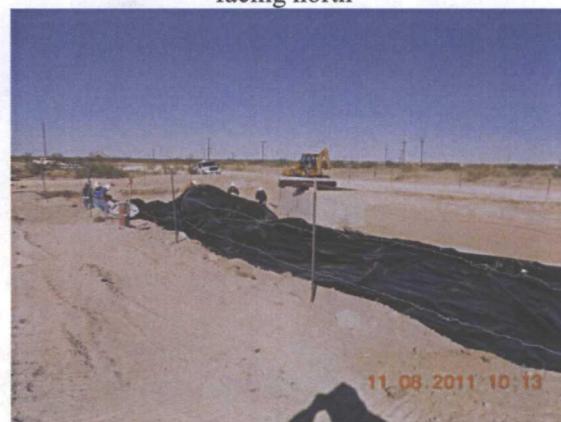
exporting excavated soil, facing east



importing blow sand to pad the excavation,
facing north



73x98 ft excavation complete with a 6 inch blow
sand pad, facing east



installing the south half of the 20-mil reinforced
liner, facing northwest



padding the south liner with 6 inches of blow sand, facing south



installing the north half of the 20-mil reinforced liner, facing east



fusing the north and the south liners, facing west



padding the north liner with 6 inches of blow sand, facing southwest



backfilling the excavation, facing east



adding soil amendments to the backfilled site, facing west 12/2/2012



seeding the backfilled site with winter wheat,
facing southeast 12/2/2011



raking in seed and soil amendments, facing south
12/2/2012



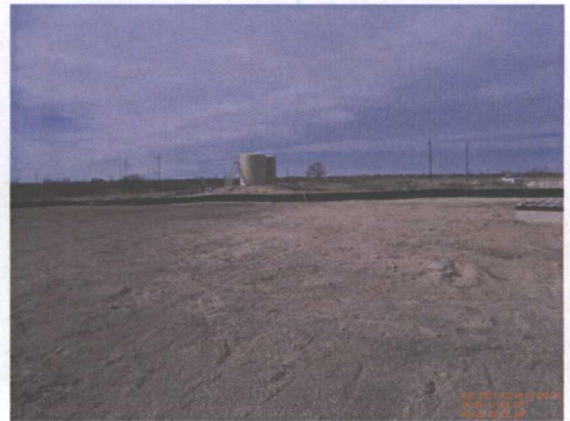
seeding the backfilled site with blue grama,
facing east



raking in seed, facing west



site complete, facing west



site complete, facing southwest



Appendix B

Plug and Abandon of MW-1 and MW-3

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	11/8/2011
Site	EME B-7
Well ID	MW-1
Casing Diameter	4"
Well Depth	75'
Casing Material	PVC
Plugging Material	Portland/Bentonite Slurry
Slurry Interval	3'-75'
Cement Interval	0'- 3'

Copies: File

Email (Lara Weinheimer; Katie Jones)

Regulated by: Texas Dept. of Licensing & Regulation, Water Well Division, P.O. Box 12157, Austin, TX 78711, (800) 803-9202

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Plugging Report

Client	Rice Operating
Contractor	Harrison & Cooper
Date Completed	11/8/2011
Site	EME B-7
Well ID	MW-3
Casing Diameter	2"
Well Depth	45'
Casing Material	PVC
Plugging Material	Portland/Bentonite Slurry
Slurry Interval	3'-45'
Cement Interval	0'- 3'

Copies: File

Email (Lara Weinheimer; Katie Jones)

Regulated by: Texas Dept. of Licensing & Regulation, Water Well Division, P.O. Box 12157, Austin, TX 78711, (800) 803-9202

EME B-7
Unit B, Section 7, T-20-S, R-37-E



Pulling MW-1, facing northwest 11/8/11



Plugging MW-1 with a 1 – 3% bentonite/concrete slurry, facing northwest 11/8/11



MW-1 plugged, facing northwest 11/8/11



Pulling MW-3, facing northwest 11/8/11



Plugging MW-3 with a 1 – 3% bentonite/concrete slurry, facing south 11/8/11



MW-3 plugged, facing south 11/8/11