1R - 427-363

REPORTS

DATE:

3-12-13

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

CERTIFIED MAIL
RETURN RECEIPT NO. 7008 1140 0001 3073 0681

March 12th, 2013

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: **Excavation Summary and Initial Corrective Action Plan (CAP) Report**
Rice Operating Company – EME SWD System
EME I-35 EOL (1R427-363): UL/P sec. 35 T19S 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.

Background and Previous Work

The site is located approximately 3 miles southwest of Monument, New Mexico at UL/P sec. 35 T19S R36E as shown on the Site Location Map (Figure 1). RECS conducted a groundwater study of NM OSE records and BLM well records which indicated that groundwater would likely be encountered at a depth of approximately 46 +/- feet. However, soil bore installation at the site indicates that groundwater is located at approximately 33 feet.

In 2011, ROC initiated work on the former EME I-35 EOL junction box. The site was delineated using a backhoe to form a 30 ft x 30 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 blended backfill were taken to a commercial laboratory for analysis. Laboratory analysis of the composite samples resulted in elevated chloride concentrations and low concentrations of TPH. The excavated soil was blended on site and returned to the excavation to a depth of 5 ft bgs where a 20-mil reinforced poly liner was installed and properly seated into the excavation. The excavation was then backfilled with the remainder of the blended soil to ground surface.

The area was contoured to the surrounding landscape and seeded. NMOCD was notified of potential groundwater impact on February 15th, 2012 and a junction box disclosure report was submitted to NMOCD with all the 2011 junction box closures and disclosures.

Investigation and Characterization Plan (ICP) Report

As part of the Investigation and Characterization Plan submitted to NMOCD on May 22nd, 2012, and approved on May 30th, 2012, thirteen soil bores were installed at the site on June 12th and 13th, 2012 and August 8th and 10th, 2012. While the bores were advanced, samples were taken at regular intervals for chloride and hydrocarbon field testing. Representative samples for each bore were taken to a commercial laboratory for confirmation of field numbers. Chloride concentrations decreased laterally with the edges being defined by SB-7 to the west, SB-13 to the south, SB-5 to the east, and SB-8 to the north. Chloride concentrations in SB-7 decreased from 1,220 mg/kg at 10 ft to 224 mg/kg at 25 ft. Chloride concentrations in SB-13 were low throughout, all less than 144 mg/kg. Chloride concentrations in SB-5, resulted in 336 mg/kg at 5 ft and 352 mg/kg at 10 ft, and SB-8 resulted in 416 mg/kg at 10 ft and 800 mg/kg at 20 ft. SB-10 was drilled near the Climax Chemical fence line and is representative of background soil concentrations.

Corrective Action for the Vadose Zone

On August 28th, 2012, ROC submitted an ICP Report and Corrective Action Plan that was approved by NMOCD on September 13th, 2012. The plan stated that in order to lessen the movement of residual chlorides in the vadose zone to groundwater, RECS recommended that ROC install a 20-mil reinforced poly liner at 4-4.5 ft bgs measuring 105 ft x 60 ft (Figure 2). The liner would cover the existing liner measuring 30 ft x 30 ft at 5 ft bgs and would provide a barrier that would inhibit the downward migration of chlorides to groundwater. 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 properly disposed of at a NMOCD approved facility. The soils over and surrounding the site would then be prepared with soil amendments as necessary and seeded with a native vegetative mix. Vegetation above the liner would also provide a natural infiltration barrier for the site since plants capture water through their roots thereby reducing the volume of water moving through the vadose zone to groundwater.

Corrective Action for Groundwater

This site is located within the regionally impacted groundwater plume in an area with groundwater chloride concentrations greater than 10,000 mg/L (Figure 3 and 4). Monitor well sampling of the Environmental Protection Agency monitor wells located around Climax Chemical shows an up gradient well with a chloride concentration of 23,000 mg/L and a down gradient well with a chloride concentration of 10,700 mg/L. Based on

this regional data, monitoring well installation at this site was not warranted since the minute amount of chlorides added to the aquifer by the site can only be negligible in relation to the high regional concentrations. Therefore, ROC proposed to remove 1,739 kg of chloride impacted groundwater from the existing groundwater recovery system located at EME K-6. An addendum to the CAP was submitted September 13th, 2012, which stated that groundwater recovery would occur from both the EME K-6 and the EME L-6. NMOCD approved the CAP and Addendum on September 13, 2012.

Corrective Action Report for the Vadose Zone

On January 22nd, 2013, RECS personnel were on site to begin excavating for liner installation. The site was then excavated to 105 ft x 60 ft x 4.5 ft. Based on the soil bore chloride concentrations, the soil with low chloride concentrations was stockpiled on site to use as backfill and the soil with higher chloride concentrations was sent to a NMOCD approved facility for disposal. A total of 588 yards of contaminated soil was disposed of at a NMOCD approved facility. Three samples of the stockpiled soil were field tested for hydrocarbons and returned results of 7.2 ppm, 11.2 ppm and 5.4 ppm. The samples were then taken to a commercial laboratory for analysis of chlorides and returned results of 320 mg/kg, 416 mg/kg and 496 mg/kg.

A total of 288 yards of blow sand was imported to the site to serve as padding for the liner. A sample of the imported blow sand was field tested for hydrocarbons and returned a result of 2.8 ppm. The sample was then taken to a commercial laboratory for analysis of chlorides and returned a result of 32 mg/kg. The liner was padded below with the blow sand, properly seated into the excavation and then padded above. The site was then backfilled with the stockpiled soil. Top soil was imported onto the site to bring the excavation to the surface and contour it to the surrounding location. A sample of the top soil was field tested for hydrocarbons and returned a result of 0.2 ppm. The sample was then taken to a commercial laboratory for analysis of chlorides and returned a result of non-detect.

Silt net fencing was installed around the excavated area. Soil amendments were added to the top soil and the site was seeded with a blend of native vegetation. Documentation of Corrective Actions for the Vadose Zone can be found in Appendix A.

Corrective Action Report for Groundwater

On September 27th, 2012, groundwater removal for the site began at EME K-6. Groundwater recovery did not take place at EME L-6 because the site was down. During groundwater recovery, a total of 430 barrels were removed from the site. Given the chloride concentration in RW-1 was 11,300 mg/L, this equates to 773 kg removed (Appendix B). This leaves a total of 966 kg remaining to be removed for the site in 2013. The site was shut in on October 25th, 2012 for the winter season and will begin pumping in spring 2013.

The vadose zone remediation is completed for the site; as such, ROC requests soil closure or similar closure status. A total of 966 kg of chloride remain for groundwater removal. Once groundwater removal is completed, 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

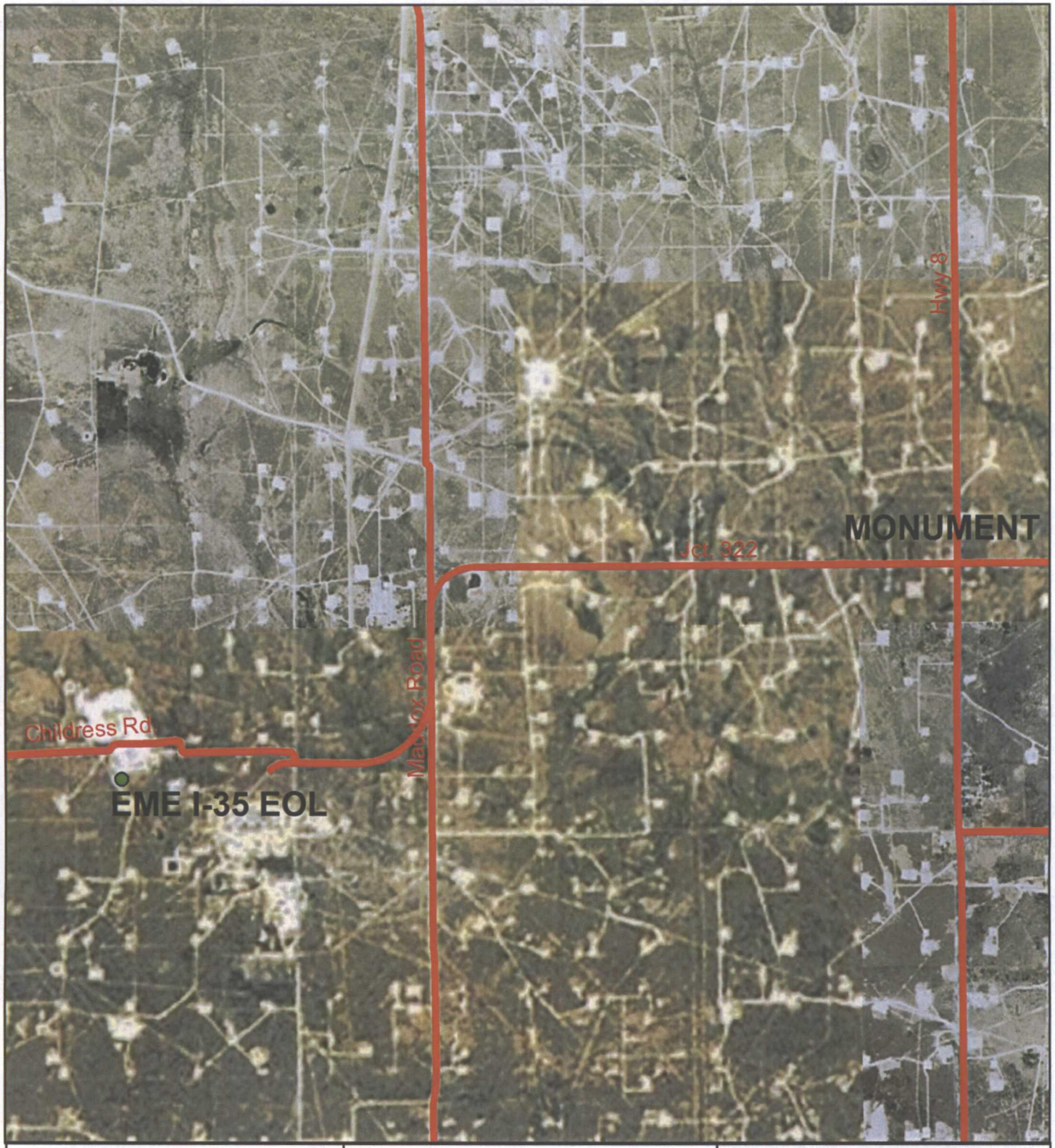
Attachments:

Figure 1 – Site Location Map
Figure 2 – NMOCD Approved Liner
Figure 3 – EME Groundwater Contamination
Figure 4 – EME Groundwater Chloride Contamination Concentrations
Appendix A – Vadose Zone Remediation Documentation
Appendix B – EME K-6 RW-1 Groundwater Withdrawal and 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 I-35 EOL

Legals: UL/P sec. 35
T-19-S R-36-E
LEA COUNTY, NM

NMOCD CASE #: 1R427-363

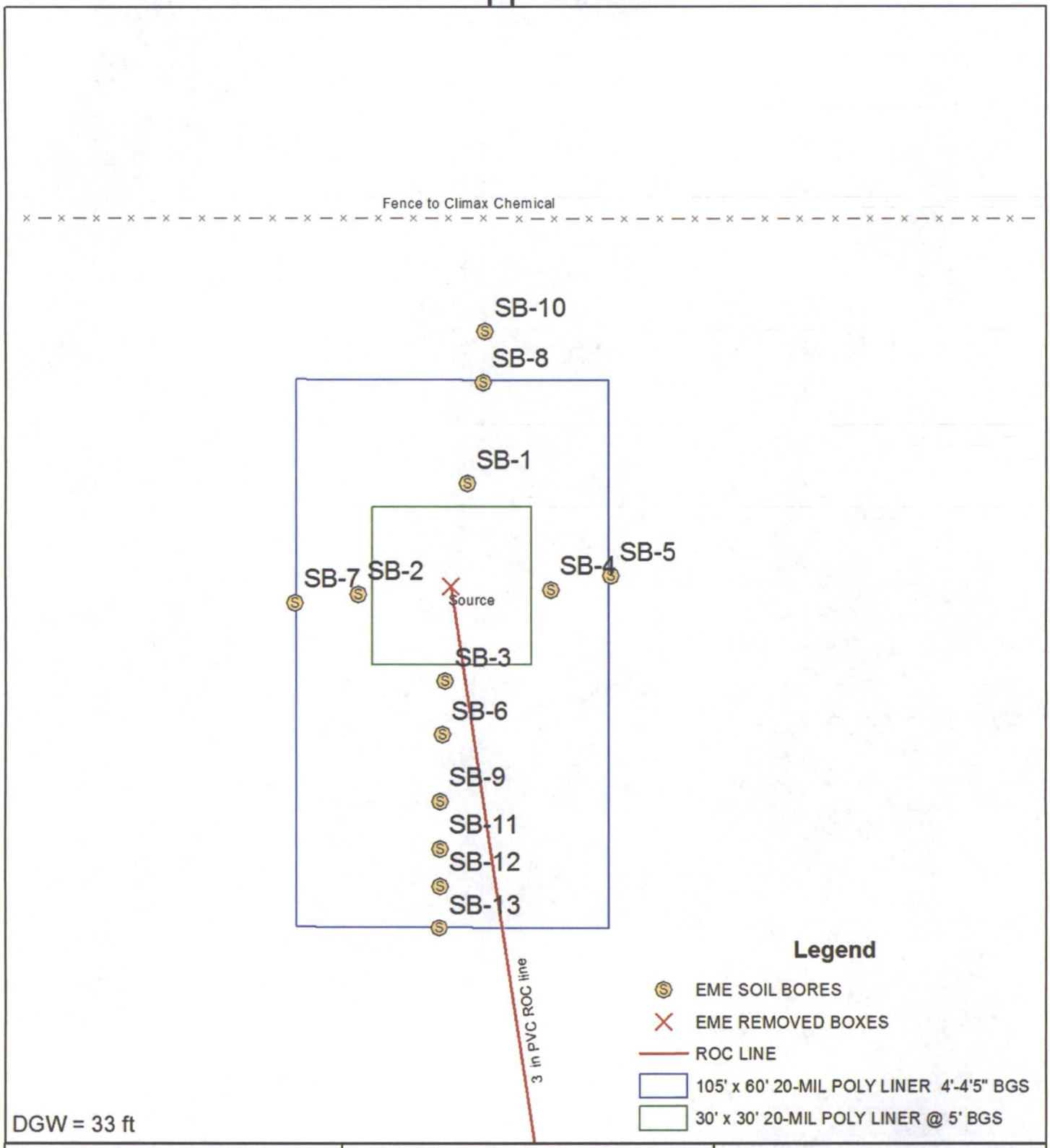
Figure 1

N
W E
S

0 0.2 0.4 0.8 Miles

Drawing date: 5-3-12
Drafted by: L. Weinheimer

NMOCD Approved Liner



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME I-35 EOL

UL/P SECTION 35
T-19-S R-36-E
LEA COUNTY, NM

NMOCD CASE #: 1R427-363

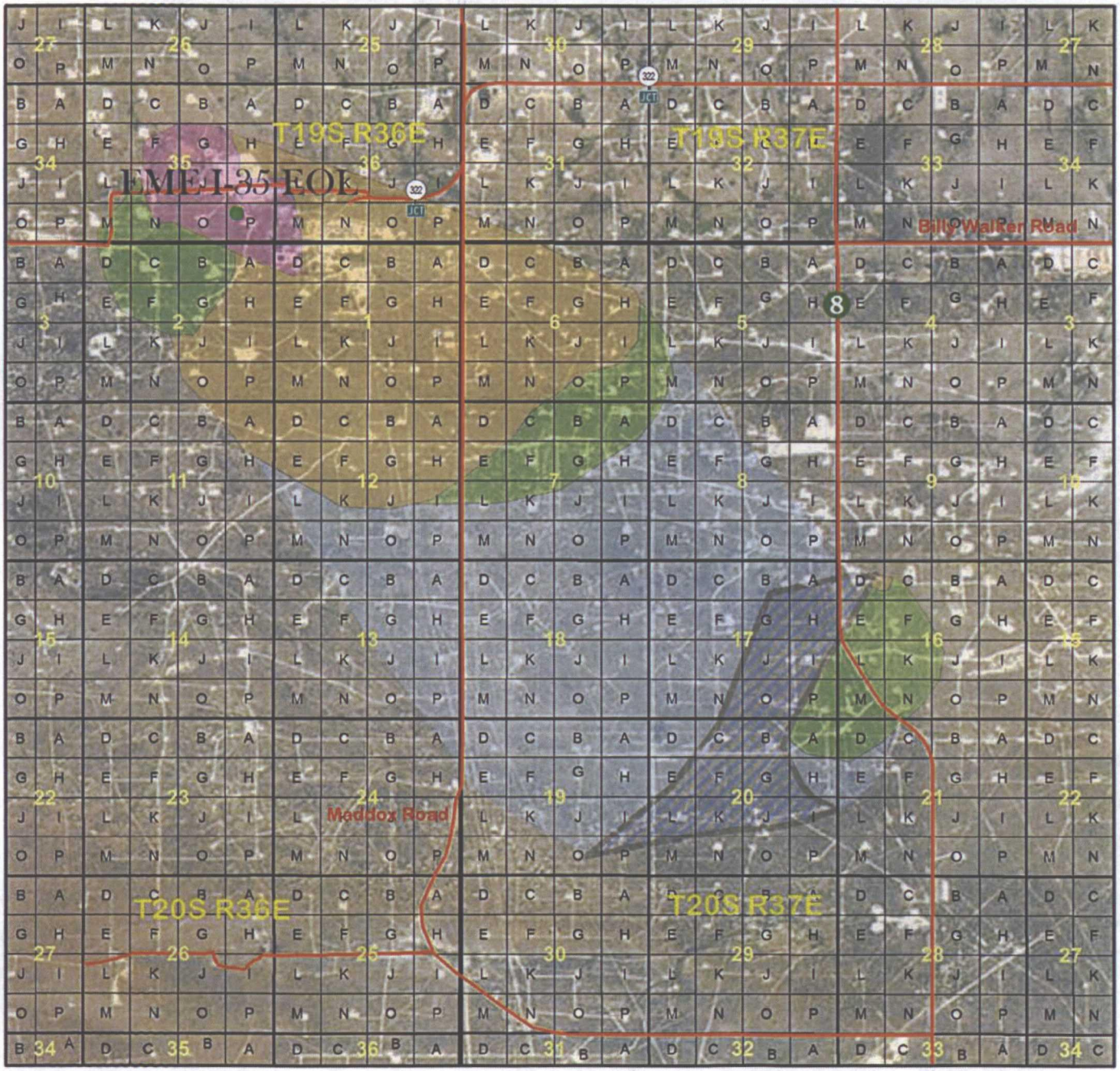
Figure 2

N W E S

0 20 40 Feet

GPS date: 6/14/12 by TG
Drawing date: 6/20/12
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 > 500
- Hypothetical Cl- contamination area

N W E S

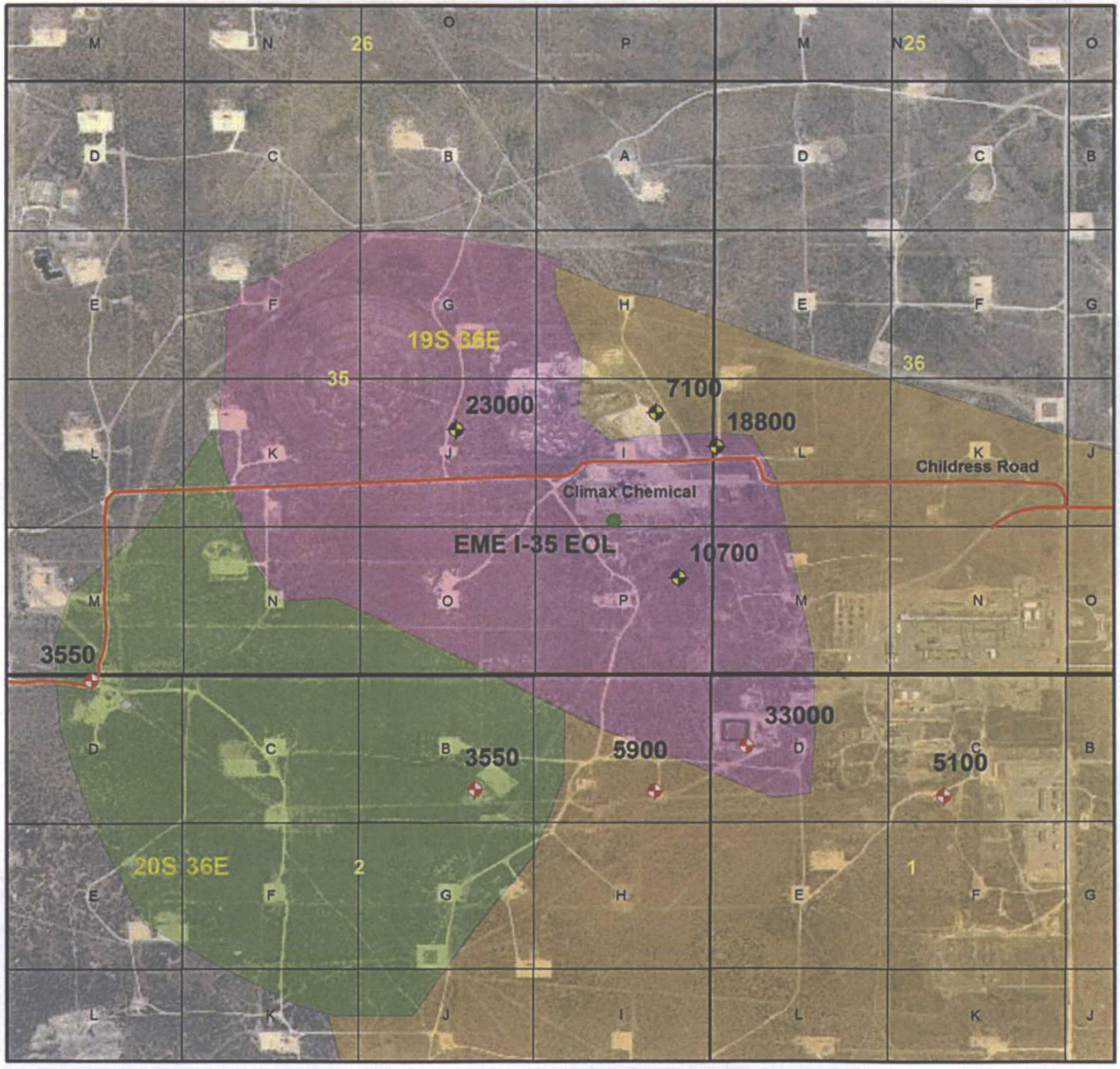
0 0.5 1 Miles

This map was prepared for Rice Operating Company. This map represents the known chloride impact concentrations in the groundwater as of 2012. 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: 8-17-12
Drafted by: Lara Weinheimer

Figure 3

EME Groundwater Chloride Contamination Concentrations



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

EPA Monitor Wells

ROC Monitor Wells

N W E S

0 0.15 0.3 Miles

This map was prepared for Rice Operating Company. This map represents the known chloride impact concentrations in the groundwater as of 2012. 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: 8-24-12
Drafted by: Lara Weinheimer

Figure 4

Appendix A

Vadose Zone Remediation Documentation

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

January 24, 2013

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME I-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 01/23/13 16:22.

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:	01/23/2013	Sampling Date:	01/23/2013
Reported:	01/24/2013	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: STOCK PILE A 8 PT. COMP (H300194-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**320**	16.0	01/24/2013	ND	416	104	400	0.00	

Sample ID: STOCK PILE B 8 PT. COMP (H300194-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**416**	16.0	01/24/2013	ND	416	104	400	0.00	

Sample ID: STOCK PILE C 8 PT. COMP (H300194-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**496**	16.0	01/24/2013	ND	416	104	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

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Rice Operating Company	**BILL TO**
Project Manager: Hack Conder	P.O. #:
Address: 122 West Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: 575-393-9174 Fax #: 575-397-1471	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: EME I-35 EOL	Phone #:
Sampler Name: ROBERT EGANS	Fax #:

ANALYSIS REQUEST

Lab I.D. (FOR LAB USE ONLY) H300194	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							
1	Stock Pile A 5pt. Comp	C	1			✓							1-23-13	10:33	✓											
2	Stock Pile B 5pt Comp	C	1			✓							1-23-13	1:45	✓											
3	Stock Pile C 5pt Comp	C	1			✓							1-23-13	3:45	✓											

Please Rush

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: Robert Egans	Date: 1/23/13 Time: 4:22	Received By: Jodi Henson	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☐ Yes ☑ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: email results Hack Conder, Katie Jones, Lpena@rice swd.com bbaker@riceswd.com; regans@riceswd.com; Lweinheimer@riceswd.com zconder@riceswd.com

† 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
	X	MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM 7300	SERIAL NO: 590-000183

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : HHAL-248-100-1	EXPIRATION DATE:
METER READING ACCURACY: 100 PPM	

ACCURACY : +/- 2%

COMPANY
RICE OPERATING COMPANY

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	I-35 EOL	P	35	T19S	R36E

SAMPLE ID	PID	SAMPLE ID	PID
SPOIL PILE (A) 8 PT. COMPOSITE	7.2		
SPOIL PILE (B) 8 PT. COMPOSITE	11.2		
SPOIL PILE (C) 8 PT. COMPOSITE	5.4		

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

SIGNATURE: Robert Evans DATE: 1-23-2013

CARDINAL Laboratories

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

January 25, 2013

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME I-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 01/24/13 16:35.

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:	01/24/2013	Sampling Date:	01/24/2013
Reported:	01/25/2013	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: IMPORTED SOIL (H300216-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	01/25/2013	ND	400	100	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

Celey D. Keene, Lab Director/Quality Manager

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Rice Operating Company	BILL TO
Project Manager: Hack Conder	P.O. #:
Address: 122 West Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: 575-393-9174 Fax #: 575-397-1471	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: EME I-35 EOL	Phone #:
Sampler Name: Robert	Fax #:

ANALYSIS REQUEST

Lab I.D. (FOR LAB USE ONLY)	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							
	Imported Soil	C	1			✓							1-24-13	2:30	✓											

Please Rush

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: Robert [signature]	Date: 1/24/13 Time: 4:35	Received By: [signature]	Phone Result: ☐ Yes ☑ No Add'l Phone #: Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date: Time:	Received By:	REMARKS: Call Robert w/ verbal email results Hconder KJones Lpena @riceswd.com bbaker@riceswd.com; regans@riceswd.com; Lweinheimer@riceswd.com zconder@riceswd.com
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool ☐ Yes ☑ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials) [initials]	

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

#26

NEED SAMPLES BACK, PLEASE 631-1322

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

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : HHAL-248-100-1	EXPIRATION DATE:
METER READING ACCURACY: 100 PPM	

ACCURACY : +/- 2%

COMPANY
RICE OPERATING COMPANY

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	I-35 EOL	P	35	T19S	R36E

SAMPLE ID	PID	SAMPLE ID	PID
IMPORTED SOIL 8 PT. COMPOSITE	2.8		

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

SIGNATURE: Robert Rice

DATE: 1-24-2013

CARDINAL Laboratories

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

January 31, 2013

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME I-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 01/29/13 8:05.

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.

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Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

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

Received:	01/29/2013	Sampling Date:	01/28/2013
Reported:	01/31/2013	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: IMPORTED TOP SOIL (H300240-01)

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	01/31/2013	ND	432	108	400	3.64	

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, 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 Operating	BILL TO
Project Manager: Katie Jones	P.O. #:
Address: 112 W. Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: EME I-35 EOL 19.36	Phone #:
Sampler Name: Imported top soil	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					
H300240																									
1	Imported top soil		1			✓						✓	1/28/13	14:09	✓										

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: 1-28-13	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 9:05	Jodi Henson	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: email results Zconder@rice-ecs.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com; kjones@riceswd.com; Lpena@riceswd.com
	Time:		
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: (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
	X	MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM 7300	SERIAL NO: 590-000183

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : HAL248100-1	EXPIRATION DATE: N/A
METER READING ACCURACY: 100.0 PPM	

ACCURACY : +/- 2%

COMPANY
Rice Operating

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	I-35 EOL	P	35	19S	36E

SAMPLE ID	PID	SAMPLE ID	PID
Imported Top Soil	0.2		

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

SIGNATURE: [signature]

DATE: 1-28-13

RICE ENVIRONMENTAL 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 I-35 EOL						
U/L P	Section 35	Township 19S	Range 36E	County LEA	Latitude N32°36'47.96	Longitude W103°19'5.44
Contact Name: Zachary Conder						
Email: zconder@rice-ecs.com						
Site size: 135'x135' 19,000 square feet				Map detail of site attached ☐		
Additional information:						

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

Salvaged from site ☐	Bioremediated ☐	Imported ☒	Blended ☐	Depth (in):
Texture:	Describe soil & subsoil:	Imported topsoil/excavated soil		
Soil prep methods:	Rip ☐ Depth(in):	Disc ☒ Depth (in): 6"	Roller pack ☐	
Date completed: 2-4-2013				

3. Bioremediation

Fertilizer ☐	Hay ☐	Other ☒
Type:		Describe: 15 bags Restor-N-Hance 15 bags Potting soil 4 bags Manure
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 15 lbs Blue Grama, 15 lbs Winter Rye Seeding date: 2-15-2013
Broadcast ☒ Method: Mechanical Drop Seeder		
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: Eduardo Garcia	Title: Environmental Tech	Date: 2-15-2013
Signature: Eduardo Garcia		

EME I-35 EOL (1R427-363)
Unit Letter P, Section 35, T-19-S, R-36-E

Site prior to excavation, facing southeast 1/22/13

Scraping caliche to 1'6", facing west 1/22/13

Exporting caliche, facing north 1/22/13


Excavating the site down 4'6", facing north 1/23/13


Installing sand pad below liner, facing northeast 1/25/13

Installing liner, facing northwest 1/25/13

Liner installation completed, facing northwest 1/25/13

Padding above liner completed, facing southwest 1/28/13

Importing soil, facing northwest 1/28/13

Backfilling excavation, facing south 1/29/13

Spreading top soil over site, facing east 2/1/13

Excavation completed, facing south 2/4/13

Tilling the site, facing northwest 2/11/13


Spreading soil amendments, facing east 2/11/13

Seeding site, facing north 2/15/13

Site completed, facing east 2/15/13

Site completed, facing north 2/15/13


Site completed, facing south 2/15/13

Appendix B

EME K-6 RW-1 Groundwater Withdrawal and Lab

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

Record of Groundwater Withdrawal
Site Name: EME I-35 EOL (1R427-363)

Date	Fluid Hauled (bbls)	Lab Chloride Conc (ppm)	Remarks
			Started Pumping MW-1
9/27/2012		11,300	RW-1
9/28/2012	130		
10/5/2012	130		
10/8/2012	10		
10/11/2012	20		
10/19/2012	90		
10/25/2012	50		
Total For Sept/Oct	430 bbls 18060 gallons	Total kg of Cl- Removed	772.5192661

CARDINAL Laboratories

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

September 27, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME K-6

Enclosed are the results of analyses for samples received by the laboratory on 09/19/12 15:50.

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

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:	09/19/2012	Sampling Date:	09/19/2012
Reported:	09/27/2012	Sampling Type:	Water
Project Name:	EME K-6	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EME K-6		

Sample ID: RW-1 (H202290-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**11300**	4.00	09/26/2012	ND	100	100	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:	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: EME K-6	Phone #:
Sampler Name: Kyle Norman	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					
H20229D 1	RW-1	G	1	✓									9-19-12	3:00	✓										

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:	Date: 9-19-12	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 3:50	Jodi Henson	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: email results: zconder@rice-ecs.com Knorman@rice-ecs.com; lpena@riceswd.com Kjones@riceswd.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com
	Time:		
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