

1R - 427-17

**GENERAL  
CORRESPONDENCE**

**YEAR(S):**

2007

**SENDER: COMPLETE THIS SECTION**

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1. Article Addressed to:

Kristin Farris Pope  
Rice Operating Company  
122 West Taylor  
Hobbs, NM 88240

2. Article Number

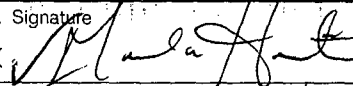
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2001 1940 0004 3929 4432

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# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**

Governor

**Joanna Prukop**

Cabinet Secretary

**Mark E. Fesmire, P.E.**

Director

Oil Conservation Division

**CERTIFIED MAIL  
RETURN RECEIPT NO: 3929 4432**

**March 26, 2007**

Kristin Farris Pope  
Rice Operating Company  
122 West Taylor  
Hobbs, New Mexico 88240

**RE: REQUIREMENT TO SUBMIT ABATEMENT PLAN**

Dear Ms. Pope:

The New Mexico Oil Conservation Division (OCD) has determined after reviewing your Notification of Groundwater Impact for each of the following six sites:

- 1) Rice EME Sarah Phillips EOL  
Unit K, Section 33, T19S, R37E  
Lea County, New Mexico  
OCD Case #1R0427-17
- 2) Rice EME A-2  
Unit A, Section 2, T20S, R36E  
Lea County, New Mexico  
OCD Case #1R0427-62
- 3) Rice EME Jct. A-2-1  
Unit A, Section 2, T20S, R36E  
Lea County, New Mexico  
OCD Case #1R0427-177
- 4) Rice BD K-4  
Unit K, Section 4, T18S, R38E  
Lea County, New Mexico  
OCD Case #1R0459


- 5) Rice EME C-16 (1)  
Unit C, Section 16, T20S, R37E  
Lea County, New Mexico  
OCD Case #1R0476
- 6) Rice EME C-16 (2)  
Unit C, Section 16, T20S, R37E  
Lea County, New Mexico  
OCD Case #1R0477

that the Rice Operating Company (ROC) must submit for each of the six sites a separate Stage 1 Abatement Plan in accordance with OCD Rule 19 (19.15.1.19 NMAC) to investigate the ground water contamination at each of these sites. The Stage 1 Abatement Plans must be submitted to the OCD Santa Fe Office with a copy provided to the OCD Hobbs District Office and must meet all of the requirements specified in OCD Rule 19 (19.15.1.19 NMAC), including, but not limited to, the public notice and participation requirements specified in Rule 19G. The Stage 1 Abatement Plan is due sixty (60) days from the receipt by ROC of this written notice.

ROC's Stage 1 Abatement Plans must specifically meet all of the requirements specified in OCD Rule 19E.3, including, but not limited to, a site investigation work plan and monitoring program that will enable it to characterize the release using an appropriate number of isoconcentration maps and cross sections that depict the contamination that has been released from the sites and to provide the data necessary to select and design an effective abatement option. ROC may, if it chooses, concurrently submit a Stage 2 Abatement Plan that addresses appropriate proactive abatement options.

ROC should submit one paper copy and an electronic copy on CD for each of the Plans and for all future workplans and/or reports for each of the Plans. Please be sure to include the current corresponding OCD Case # on each of the respective Abatement Plans. An Abatement Plan # will be assigned as each of the Plans are submitted to the OCD. If you have any questions, please contact Edward J. Hansen of my staff at (505) 476-3489 or <mailto:edwardj.hansen@state.nm.us>.

Sincerely,



Wayne Price  
Environmental Bureau Chief

WP:EJH:ejh

cc: Chris Williams, OCD Hobbs District Supervisor  
Larry Johnson, OCD Hobbs

# **RICE Operating Company**

122 West Taylor • Hobbs, New Mexico 88240  
Phone: (505)393-9174 • Fax: (505) 397-1471

2007 FEB 26 AM 10 04

## **CERTIFIED MAIL**

**RETURN RECEIPT NO. 7005 1820 0001 6802 2361**

February 12, 2007

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

1R0427-17  
EME Sarah Phillips  
EOL

**RE: NOTIFICATION OF GROUNDWATER IMPACT**  
**Sarah Phillips EOL**  
**Eunice-Monument-Eumont (EME) SWD System**  
**Unit 'K', Sec. 33, T19S, R37E**

Mr. Price:

Rice Operating Company (ROC) notifies the Director of the New Mexico Oil Conservation Division (OCD), Environmental Bureau of groundwater impact at the Sarah Phillips end-of-line junction box (Sarah Phillips EOL) site in accordance with NM Rule 116. The remediation of this site may be subject to NM Rule 19 procedures.

As a result of the Junction Box Upgrade initial delineation conducted by ROC, OCD was notified of the potential for groundwater impact at this site on November 6, 2003. A Junction Box Disclosure Report was submitted to OCD on March 11, 2004.

ROC retained Whole Earth Environmental (Whole Earth) of Katy, Texas to address this site. On March 23, 2005 Whole Earth submitted an Investigation & Characterization Plan to OCD for additional delineation. Additional delineation in 2005 was conducted using a trackhoe excavator under the direction of Whole Earth. On October 6, 2006 a delineation soil boring at the former junction site was converted to a 2-inch monitoring well. Groundwater was encountered at approximately 28 feet below ground surface. After appropriate development, the well was sampled pursuant to OCD guidelines by a third party and Environmental Lab of Texas performed the analyses. Chloride and Total Dissolved Solids (TDS) concentrations exceed New Mexico Water Quality Control Commission standards; ethylbenzene is present within the laboratory's detection limit but below the WQCC Human Health Standards. Upon evaluation of the monitoring well

data, Whole Earth will present a remedy for this site in the submission of a Corrective Action Plan. In 2007, this well will continue to be sampled on a quarterly basis.

ROC is the service provider (agent) for the EME Salt Water Disposal System and has no ownership of any portion of the pipelines, wells, or facilities. The EME System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis. Environmental remediation projects of this magnitude require System Partner AFE approval and work begins as funds are received.

Please accept this notification for the above-referenced site. Should you have any questions or concerns regarding this site, please do not hesitate to contact me.

RICE OPERATING COMPANY

A handwritten signature in black ink that reads "Kristin Farris Pope". The signature is written in a cursive, flowing style.

Kristin Farris Pope  
Project Scientist

enclosures: water analysis, well log, survey map

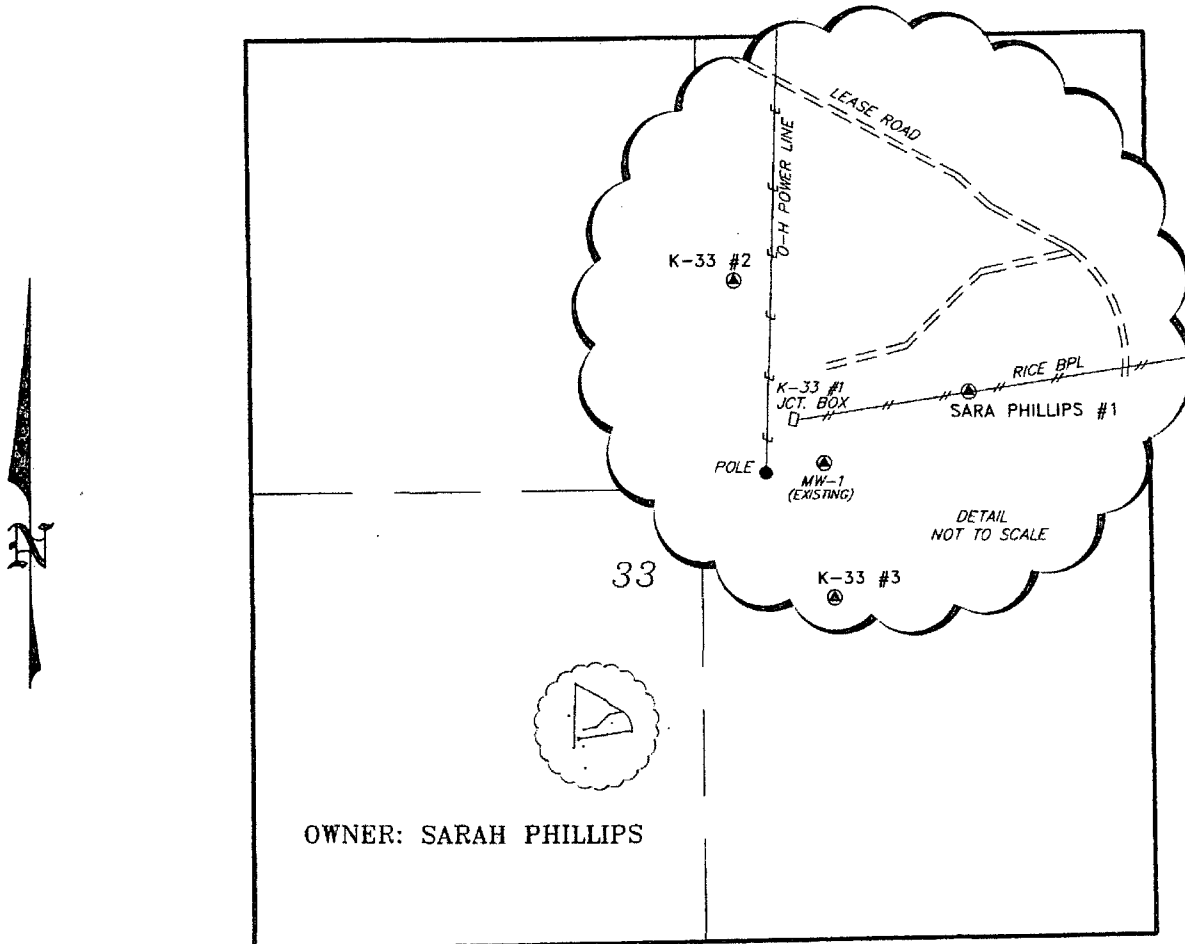
cc: SC, CDH, Whole Earth, file,

Mr. Chris Williams  
NMOCD, District 1 Office  
1625 N. French Drive  
Hobbs, NM 88240

Logger: Mike Griffin; Mort Bates		RICE Operating Company		Well ID:	
Driller: Atkins Engineering Associates, Inc.		Project Name:		MW-1	
Drilling Method: 4.25 in. Hollow Stem Auger		Sarah Phillips EOL			
Start Date: 10/6/2006 0800		Location:			
End Date: 10/6/2006 1130		EME SWD System unit 'K', Sec. 33, T19S, R37E Monument, NM			
Notes: at former junction box site TD = 42 ft Groundwater = 28.35 ft					

Depth (feet BGS)	chloride (mg/kg) lab analysis	Description	Lithology	4-in. x 4-in. x 5 ft well cover	Well Construction					
1		0 - 10 ft ~~ BACKFILL ~~ SILTY CLAY w/CALICHE loose, tan, dry		2-in. sch. 40 PVC casing	2 x 2 ft concrete pad on surface  bentonite seal					
2										
3										
4										
5										
6										
7										
8										
9										
10										
11		10 - 14 ft SILTY SAND w/CALICHE loose, tan, dry								
12										
13										
14										
15		14 - 17 ft SANDY CLAY loose, tan, dry								
16										
17										
18		17 - 27 ft CALICHE firm, light tan, dry								
19										
20										
21										
22										
23										
24										
25										
26										
27	319 EC = 1400								27 - 40 ft SILTY SAND soft, light tan, wet	
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40		40 - 42 ft CLAY stiff, reddish tan, wet								
41										
42										

SECTION 33, TOWNSHIP 19 SOUTH, RANGE 37 EAST, N.M.P.M.,  
LEA COUNTY, NEW MEXICO.



NEW MEXICO STATE PLANE COORDINATES (NAD83)  
TOP CASING

NOTE:  
ELEVATIONS ARE ON BLACK MARK  
ON NORTH SIDE OF PVC CASING.

WELL	NORTHING	EASTING	LATITUDE	LONGITUDE	TOP CASING	GROUND
SARA PHILLIPS #1	588405.631	872331.319	N 32°36'46.7"	W 103°15'30.2"	3563.07'	3560.80'
K-33 #1	588339.470	872191.720	N 32°36'46.1"	W 103°15'31.8"	3563.86'	3560.50'
K-33 #2	588512.766	872105.535	N 32°36'47.8"	W 103°15'32.8"	3562.84'	3560.15'
K-33 #3	588213.537	872201.136	N 32°36'44.8"	W 103°15'31.7"	3562.87'	3560.75'

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED  
FROM FIELD NOTES OF AN ACTUAL SURVEY AND  
MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND  
SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES N.M. P.S.  
TEXAS P.L.S.

**BASIN SURVEYS** P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 17231 Drawn By: K. GOAD

Date: 10-18-2006 Disk: KJG - RC17231.DWG

80 0 80 160 FEET

**RICE OPERATING COMPANY**

REF: MONITOR WELLS

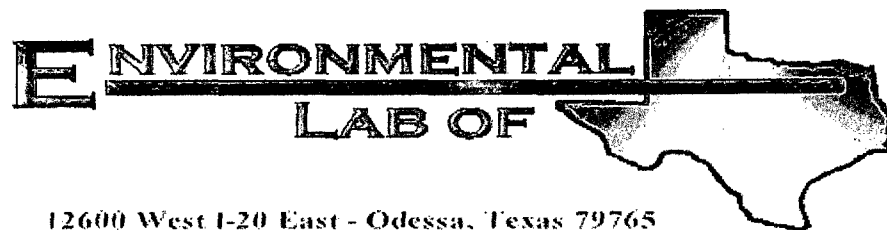
MONITOR WELLS LOCATED IN

SECTION 33, TOWNSHIP 19 SOUTH, RANGE 37 EAST,  
N.M.P.M., LEA COUNTY, NEW MEXICO.

Survey Date: VARIES

Sheet 1 of 1 Sheets





12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Kristin Farris-Pope

Rice Operating Co.

122 W. Taylor

Hobbs, NM 88240

Project: EME Sarah Phillips EOL

Project Number: None Given

Location: T19S-R37E-Sec33K, Lea Co., NM

Lab Order Number: 6J12017

Report Date: 10/24/06

Rice Operating Co.  
122 W. Taylor  
Hobbs NM, 88240

Project: EME Sarah Phillips EOL  
Project Number: None Given  
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Monitor Well #1	6J12017-01	Water	10/12/06 12:05	10-12-2006 16:00

Rice Operating Co.  
122 W. Taylor  
Hobbs NM, 88240

Project: EME Sarah Phillips EOL  
Project Number: None Given  
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Monitor Well #1 (6J12017-01) Water</b>									
<b>Benzene</b>	<b>ND</b>	0.00100	mg/L	1	EJ61608	10/16/06	10/16/06	EPA 8021B	
<b>Toluene</b>	<b>I [0.000440]</b>	0.00100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.00136</b>	0.00100	"	"	"	"	"	"	
<b>Xylene (p/m)</b>	<b>ND</b>	0.00100	"	"	"	"	"	"	
<b>Xylene (o)</b>	<b>ND</b>	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		87.8 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		83.8 %	80-120		"	"	"	"	

Rice Operating Co.  
122 W. Taylor  
Hobbs NM, 88240

Project: EME Sarah Phillips EOL  
Project Number: None Given  
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Monitor Well #1 (6J12017-01) Water</b>									
<b>Total Alkalinity</b>	<b>420</b>	2.00	mg/L	1	EJ61311	10/13/06	10/13/06	EPA 310.1M	
<b>Chloride</b>	<b>767</b>	12.5	"	25	EJ61403	10/19/06	10/19/06	EPA 300.0	
<b>Total Dissolved Solids</b>	<b>2600</b>	10.0	"	1	EJ61404	10/14/06	10/15/06	EPA 160.1	
<b>Sulfate</b>	<b>144</b>	12.5	"	25	EJ61403	10/19/06	10/19/06	EPA 300.0	

Rice Operating Co.  
122 W. Taylor  
Hobbs NM, 88240

Project: EME Sarah Phillips EOL  
Project Number: None Given  
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

**Total Metals by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Monitor Well #1 (6J12017-01) Water</b>									
<b>Calcium</b>	<b>242</b>	4.05	mg/L	50	EJ61604	10/13/06	10/16/06	EPA 6010B	
<b>Magnesium</b>	<b>119</b>	1.80	"	"	"	"	"	"	
<b>Potassium</b>	<b>9.91</b>	0.600	"	10	"	"	"	"	
<b>Sodium</b>	<b>239</b>	2.15	"	50	"	"	"	"	

Rice Operating Co.  
122 W. Taylor  
Hobbs NM, 88240

Project: EME Sarah Phillips EOL  
Project Number: None Given  
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch EJ61608 - EPA 5030C (GC)</b>										
<b>Blank (EJ61608-BLK1)</b>										
				Prepared: 10/16/06 Analyzed: 10/17/06						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: <i>a,a,a</i> -Trifluorotoluene	32.4		ug/l	40.0		81.0	80-120			
Surrogate: 4-Bromofluorobenzene	33.9		"	40.0		84.8	80-120			
<b>LCS (EJ61608-BS1)</b>										
				Prepared: 10/16/06 Analyzed: 10/17/06						
Benzene	0.0482	0.00100	mg/L	0.0500		96.4	80-120			
Toluene	0.0428	0.00100	"	0.0500		85.6	80-120			
Ethylbenzene	0.0413	0.00100	"	0.0500		82.6	80-120			
Xylene (p/m)	0.0853	0.00100	"	0.100		85.3	80-120			
Xylene (o)	0.0409	0.00100	"	0.0500		81.8	80-120			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	36.7		ug/l	40.0		91.8	80-120			
Surrogate: 4-Bromofluorobenzene	42.8		"	40.0		107	80-120			
<b>Calibration Check (EJ61608-CCV1)</b>										
				Prepared: 10/16/06 Analyzed: 10/17/06						
Benzene	50.4		ug/l	50.0		101	80-120			
Toluene	43.5		"	50.0		87.0	80-120			
Ethylbenzene	41.4		"	50.0		82.8	80-120			
Xylene (p/m)	81.9		"	100		81.9	80-120			
Xylene (o)	40.3		"	50.0		80.6	80-120			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	33.7		"	40.0		84.2	80-120			
Surrogate: 4-Bromofluorobenzene	35.0		"	40.0		87.5	80-120			
<b>Matrix Spike (EJ61608-MS1)</b>										
				Source: 6J12016-01 Prepared: 10/16/06 Analyzed: 10/17/06						
Benzene	0.0518	0.00100	mg/L	0.0500	ND	104	80-120			
Toluene	0.0462	0.00100	"	0.0500	ND	92.4	80-120			
Ethylbenzene	0.0424	0.00100	"	0.0500	ND	84.8	80-120			
Xylene (p/m)	0.0932	0.00100	"	0.100	ND	93.2	80-120			
Xylene (o)	0.0432	0.00100	"	0.0500	ND	86.4	80-120			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	37.6		ug/l	40.0		94.0	80-120			
Surrogate: 4-Bromofluorobenzene	39.6		"	40.0		99.0	80-120			

Rice Operating Co.  
122 W. Taylor  
Hobbs NM, 88240

Project: EME Sarah Phillips EOL  
Project Number: None Given  
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
<b>Batch EJ61608 - EPA 5030C (GC)</b>										
<b>Matrix Spike Dup (EJ61608-MSD1)</b>		<b>Source: 6J12016-01</b>		Prepared: 10/16/06 Analyzed: 10/17/06						
Benzene	0.0500	0.00100	mg/L	0.0500	ND	100	80-120	3.92	20	
Toluene	0.0424	0.00100	"	0.0500	ND	84.8	80-120	8.58	20	
Ethylbenzene	0.0453	0.00100	"	0.0500	ND	90.6	80-120	6.61	20	
Xylene (p/m)	0.0807	0.00100	"	0.100	ND	80.7	80-120	14.4	20	
Xylene (o)	0.0412	0.00100	"	0.0500	ND	82.4	80-120	4.74	20	
Surrogate: a,a,a-Trifluorotoluene	33.8		ug/l	40.0		84.5	80-120			
Surrogate: 4-Bromofluorobenzene	34.7		"	40.0		86.8	80-120			

Environmental Lab of Texas

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.*

Page 6 of 10

Rice Operating Co.  
122 W. Taylor  
Hobbs NM, 88240

Project: EME Sarah Phillips EOL  
Project Number: None Given  
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EJ61311 - General Preparation (WetChem)**

**Blank (EJ61311-BLK1)**

Prepared & Analyzed: 10/13/06

Total Alkalinity	ND	2.00	mg/L
Carbonate Alkalinity	ND	0.100	"
Bicarbonate Alkalinity	ND	2.00	"
Hydroxide Alkalinity	ND	0.100	"

**LCS (EJ61311-BS1)**

Prepared: 10/13/06 Analyzed: 10/20/06

Bicarbonate Alkalinity	196	2.00	mg/L	200	98.0	85-115
------------------------	-----	------	------	-----	------	--------

**Duplicate (EJ61311-DUP1)**

Source: 6J12011-01

Prepared & Analyzed: 10/13/06

Total Alkalinity	238	2.00	mg/L	242	1.67	20
------------------	-----	------	------	-----	------	----

**Reference (EJ61311-SRM1)**

Prepared & Analyzed: 10/13/06

Total Alkalinity	250		mg/L	250	100	90-110
------------------	-----	--	------	-----	-----	--------

**Batch EJ61403 - General Preparation (WetChem)**

**Blank (EJ61403-BLK1)**

Prepared & Analyzed: 10/19/06

Chloride	ND	0.500	mg/L
Sulfate	ND	0.500	"

**LCS (EJ61403-BS1)**

Prepared & Analyzed: 10/19/06

Chloride	9.62	0.500	mg/L	10.0	96.2	80-120
Sulfate	9.55	0.500	"	10.0	95.5	80-120

**Calibration Check (EJ61403-CCV1)**

Prepared & Analyzed: 10/19/06

Chloride	10.5		mg/L	10.0	105	80-120
Sulfate	10.1		"	10.0	101	80-120



Rice Operating Co.  
122 W. Taylor  
Hobbs NM, 88240

Project: EME Sarah Phillips EOL  
Project Number: None Given  
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch EJ61403 - General Preparation (WetChem)</b>										
<b>Duplicate (EJ61403-DUP1)</b>		<b>Source: 6J12011-01</b>		<b>Prepared &amp; Analyzed: 10/19/06</b>						
Chloride	1430	25.0	mg/L		1430			0.00	20	
Sulfate	291	25.0	"		308			5.68	20	
<b>Duplicate (EJ61403-DUP2)</b>		<b>Source: 6J12016-02</b>		<b>Prepared &amp; Analyzed: 10/19/06</b>						
Sulfate	236	12.5	mg/L		237			0.423	20	
Chloride	690	12.5	"		692			0.289	20	
<b>Matrix Spike (EJ61403-MS1)</b>		<b>Source: 6J12011-01</b>		<b>Prepared &amp; Analyzed: 10/19/06</b>						
Sulfate	781	25.0	mg/L	500	308	94.6	80-120			
Chloride	2040	25.0	"	500	1430	122	80-120			S-07
<b>Matrix Spike (EJ61403-MS2)</b>		<b>Source: 6J12016-02</b>		<b>Prepared &amp; Analyzed: 10/19/06</b>						
Chloride	979	12.5	mg/L	250	692	115	80-120			
Sulfate	476	12.5	"	250	237	95.6	80-120			
<b>Batch EJ61404 - Filtration Preparation</b>										
<b>Blank (EJ61404-BLK1)</b>		<b>Prepared: 10/14/06 Analyzed: 10/15/06</b>								
Total Dissolved Solids	ND	10.0	mg/L							
<b>Duplicate (EJ61404-DUP1)</b>		<b>Source: 6J12011-01</b>		<b>Prepared: 10/14/06 Analyzed: 10/15/06</b>						
Total Dissolved Solids	3380	10.0	mg/L		3260			3.61	5	
<b>Duplicate (EJ61404-DUP2)</b>		<b>Source: 6J12016-02</b>		<b>Prepared: 10/14/06 Analyzed: 10/15/06</b>						
Total Dissolved Solids	1850	10.0	mg/L		1900			2.67	5	

Rice Operating Co.  
122 W. Taylor  
Hobbs NM, 88240

Project: EME Sarah Phillips EOL  
Project Number: None Given  
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

**Total Metals by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

**Batch EJ61604 - 6010B/No Digestion**

**Blank (EJ61604-BLK1)**

Prepared: 10/13/06 Analyzed: 10/16/06

Calcium	ND	0.0810	mg/L
Magnesium	ND	0.0360	"
Potassium	ND	0.0600	"
Sodium	ND	0.0430	"

**Calibration Check (EJ61604-CCV1)**

Prepared: 10/13/06 Analyzed: 10/16/06

Calcium	1.99		mg/L	2.00	99.5	85-115
Magnesium	2.20		"	2.00	110	85-115
Potassium	1.94		"	2.00	97.0	85-115
Sodium	1.79		"	2.00	89.5	85-115

**Duplicate (EJ61604-DUP1)**

Source: 6J12001-04

Prepared: 10/13/06 Analyzed: 10/16/06

Calcium	0.426	0.0810	mg/L	0.427		0.234	20
Magnesium	0.432	0.0360	"	0.422		2.34	20
Potassium	0.596	0.0600	"	0.582		2.38	20
Sodium	0.890	0.0430	"	0.866		2.73	20

Rice Operating Co.  
122 W. Taylor  
Hobbs NM, 88240

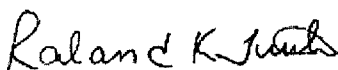
Project: EME Sarah Phillips EOL  
Project Number: None Given  
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

### Notes and Definitions

S-07 Recovery outside Laboratory historical or method prescribed limits.  
DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date:

10/24/2006

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.



# Environmental Lab of Texas

## Variance/ Corrective Action Report- Sample Log-In

ent: Ride Op.  
 ite/ Time: 10/12/06 4:00  
 b ID #: 6.512017  
 tials: UR

### Sample Receipt Checklist

Client Initials

1 Temperature of container/ cooler?	Yes	No	2.0 °C	
2 Shipping container in good condition?	Yes	No		
3 Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
4 Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
5 Chain of Custody present?	Yes	No		
6 Sample instructions complete of Chain of Custody?	Yes	No		
7 Chain of Custody signed when relinquished/ received?	Yes	No		
8 Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid	
9 Container label(s) legible and intact?	Yes	No	Not Applicable	
#10 Sample matrix/ properties agree with Chain of Custody?	Yes	No		
#11 Containers supplied by ELOT?	Yes	No		
#12 Samples in proper container/ bottle?	Yes	No	See Below	
#13 Samples properly preserved?	Yes	No	See Below	
#14 Sample bottles intact?	Yes	No		
#15 Preservations documented on Chain of Custody?	Yes	No		
#16 Containers documented on Chain of Custody?	Yes	No		
#17 Sufficient sample amount for indicated test(s)?	Yes	No	See Below	
#18 All samples received within sufficient hold time?	Yes	No	See Below	
#19 VOC samples have zero headspace?	Yes	No	Not Applicable	

### Variance Documentation

Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/ Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken: \_\_\_\_\_

- Check all that Apply:
- ☐ See attached e-mail/ fax
  - ☐ Client understands and would like to proceed with analysis
  - ☐ Cooling process had begun shortly after sampling event

**Hansen, Edward J., EMNRD**

**From:** Hansen, Edward J., EMNRD  
**Sent:** Wednesday, May 23, 2007 2:48 PM  
**To:** chaynes@riceswd.com  
**Cc:** kpope@riceswd.com; ldeuel@hughes.net; Price, Wayne, EMNRD; 'Mike Griffin'  
**Subject:** RE: Sarah Phillips EOL Remediation Protocol

1R427 ~~XXXXXXXXXX~~  
 - 17

Dear Ms. Haynes:

The New Mexico Oil Conservation Division (NMOCD) has reviewed your "Remediation Protocol" (submitted by Mike Griffin via email on May 17, 2007, and the revised version on May 23, 2007) for the above referenced site. Since this is an experimental protocol, additional measures may be required to encourage vegetative diversity or density. However, the vegetative diversity and density can be monitored with relative ease. Therefore, the NMOCD hereby approves the protocol with the condition that the proposed corrective action be initiated by June 15, 2007, at the site. Also, Rice Operating Company must submit a quarterly summary report(s) for the site. Upon review of the report(s), the NMOCD will determine if additional measures will be required for the site to encourage additional vegetative diversity or density.

Please be advised that NMOCD approval of these plans does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve the owner/operator of responsibility for compliance with any NMOCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen  
 Hydrologist  
 Environmental Bureau

---

**From:** Mike Griffin [mailto:whearth@msn.com]  
**Sent:** Thursday, May 17, 2007 8:06 AM  
**To:** Price, Wayne, EMNRD; Hansen, Edward J., EMNRD  
**Cc:** chaynes@riceswd.com; kpope@riceswd.com; ldeuel@hughes.net  
**Subject:** Sarah Phillips EOL Remediation Protocol

Good Morning, All:

Attached, please find a copy of the Rice Operating remediation protocol discussed last week. It contains some new approaches including the exclusive use of conductivity, sodium adsorption ratios, exchangeable sodium percentages, and cation exchange capacities as the delineation and remediation objectives, the use of bentonite matting as a contaminant migration barrier, and re-vegetation loading calculations developed by our Dr. Lloyd Deuel.

If successful, I believe that each of these new approaches may result in significant savings not only to

5/23/2007

our client on this project, but to the industry as a whole.

We do hope to begin the work around the first of June and very much look forward to the opportunity of discussing any questions or comments you may have.

Mike Griffin

Whole Earth Environmental, Inc.

Phone: 281.394.2050

FAX: 281.394.2051

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This inbound email has been scanned by the MessageLabs Email Security System.

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5/23/2007



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**Remediation Protocol  
Rice Operating Company  
Sarah Phillips Project  
Lea County, New Mexico**

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**1.0 Purpose**

This protocol is to provide a detailed outline of the steps to be employed in the remediation of the Rice Operating (ROC) EME Sarah Phillips EOL (end of line) site situated in Lea County, New Mexico within Unit K, Section 33, T19S, R37E.

**2.0 Scope**

This protocol is site specific for the Sarah Phillips remediation project.

**3.0 Preliminary**

Prior to any field operations, Whole Earth Environmental shall conduct the following activities:

**3.1 Client Review**

3.1.1 Whole Earth shall meet with ROC designees to review this protocol and make any requested modifications or alterations.

3.1.2 Upon preliminary client approval, this protocol will be submitted to the Sante Fe and Hobbs offices of the New Mexico Oil Conservation Division for approval.

3.1.2 Changes to this protocol will be documented and submitted for final review by Rice Operating Company prior to the initiation of actual field work.

**4.0 Safety**

**4.1** Prior to work on the site, Whole Earth shall obtain the location and phone numbers of the nearest emergency medical treatment facility. We will review all safety related issues with the appropriate ROC personnel, sub-contractors and exchange phone numbers.

**4.2** A tailgate safety meeting shall be held and documented each day. All sub-contractors must attend and sign the daily log-in sheet.



**4.3** Anyone allowed on to location must be wearing sleeved shirts, steel toed boots, and long pants. Each vehicle must be equipped with two way communication capabilities.

## **5.0 Remediation Procedure**

**5.1** The area of interest will be investigated by Whole Earth personnel to determine the areal extent of contamination. Soil samples will be collected in accordance with WEQP-77 and analyzed for conductivity and pH in accordance with WEQP-12 and WEQP-13.

**5.2** Based upon the survey results, the surface soils will be excavated to a maximum depth of four feet below ground surface with the excavated materials being placed immediately beside the excavated area. The sides of the excavation will be tested for electrical conductivity on a five point composite basis per side. An EC value of <8 mmhos/cm on a 1:1 basis is considered acceptable. If soils within the sidewalls exhibit higher numbers, excavation will continue until the values fall within the <8 mmhos/cm acceptance value.

**5.3** The bottom of the excavation will be compacted to remove all sharp protrusions, and provide a smooth surface for applying bentonite matting.

**5.4** Sections of .75 lb/sq. ft. Denefix EC bentonite matting will be applied to the bottom of the excavations and watered to fill all voids.

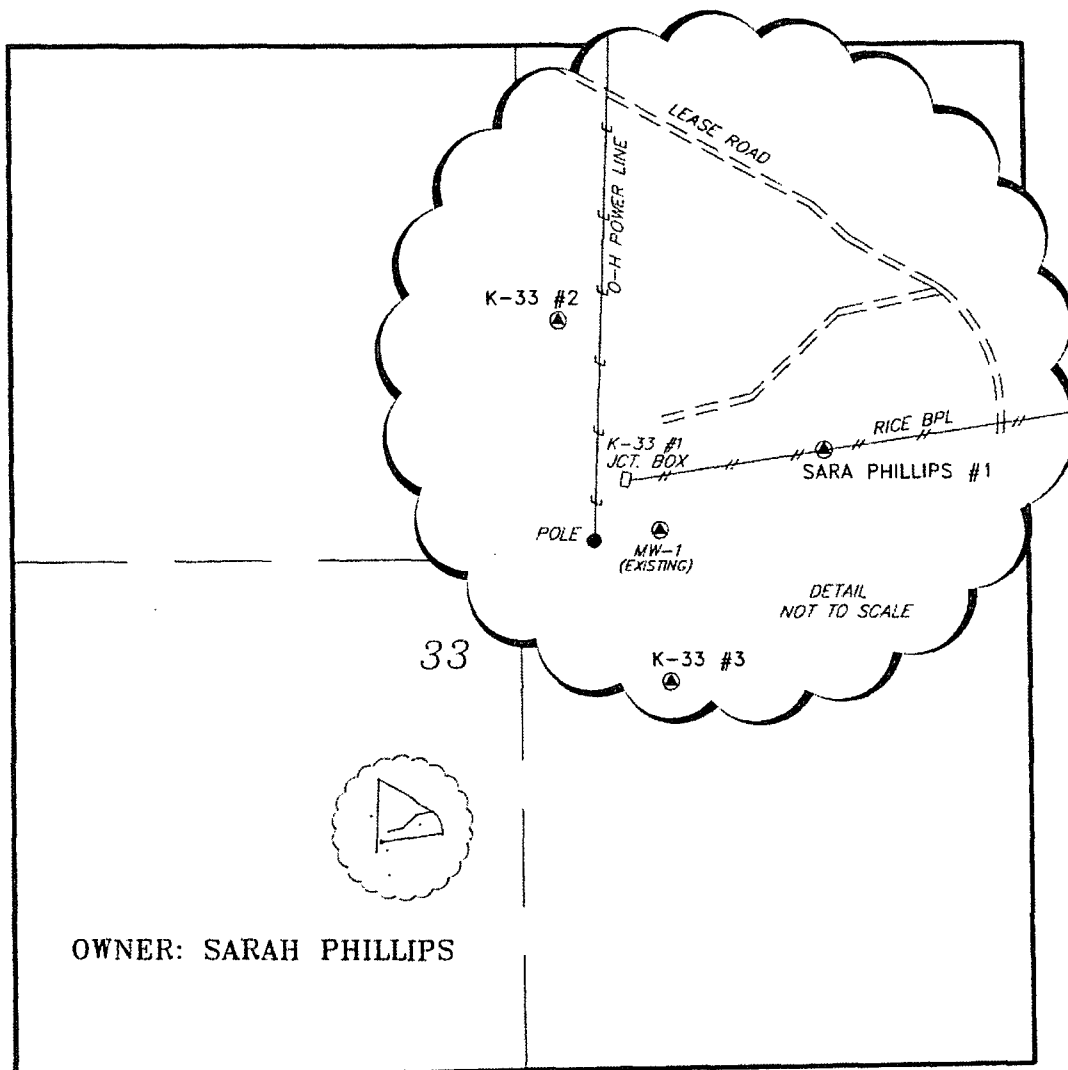
**5.5** The excavated soils will be tested for fertility and amended as necessary with nitrogen, potassium, phosphorus and organic matter to provide a fertile matrix. Once mixed, the soils will be placed within the excavations, lightly compacted and seeded with native grasses.

## **6.0 Closure Report**

At the conclusion of the project, Whole Earth shall prepare a closure report which shall contain the following minimum information:

- Photographs of the affected area location prior to excavation
- Plat map showing the detailed dimensions of the affected area and surrounding features
- Colormetric graphs showing the lateral spread of conductive soils
- Photographs of the site at the point of maximum excavation
- Photographs of the site during installation of the bentonite liner
- Photographs of the site after final remediation
- Laboratory analytical fertility results for the backfill materials prior to remediation
- MSDS of all amendments used in the soil remediation

SECTION 33, TOWNSHIP 19 SOUTH, RANGE 37 EAST, N.M.P.M.,  
LEA COUNTY, NEW MEXICO.



OWNER: SARAH PHILLIPS

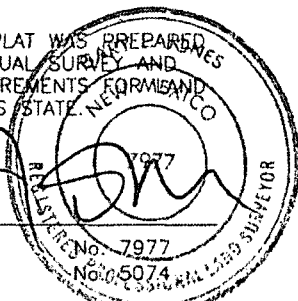
NEW MEXICO STATE PLANE COORDINATES (NAD83)  
TOP CASING

NOTE:  
ELEVATIONS ARE ON BLACK MARK  
ON NORTH SIDE OF PVC CASING.

WELL	NORTHING	EASTING	LATITUDE	LONGITUDE	TOP CASING	GROUND
SARA PHILLIPS #1	588405.631	872331.319	N 32°36'46.7"	W 103°15'30.2"	3563.07'	3560.80'
K-33 #1	588339.470	872191.720	N 32°36'46.1"	W 103°15'31.8"	3563.86'	3560.50'
K-33 #2	588512.766	872105.535	N 32°36'47.8"	W 103°15'32.8"	3562.84'	3560.15'
K-33 #3	588213.537	872201.136	N 32°36'44.8"	W 103°15'31.7"	3562.87'	3560.75'

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED  
FROM FIELD NOTES OF AN ACTUAL SURVEY AND  
MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND  
SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES N.M. P.S.  
TEXAS P.L.S.



**BASIN SURVEYS** P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 17231 Drawn By: K. GOAD

Date: 10-18-2006 Disk: KJG - RC17231.DWG

80 0 80 160 FEET

## RICE OPERATING COMPANY

REF: MONITOR WELLS

MONITOR WELLS LOCATED IN

SECTION 33, TOWNSHIP 19 SOUTH, RANGE 37 EAST,  
N.M.P.M., LEA COUNTY, NEW MEXICO.

Survey Date: VARIES

Sheet 1 of 1 Sheets