

1R - 426-04

# WORKPLANS

Date:

5-18-12

# Rice Environmental Consulting & Safety

P.O. Box 5630 Hobbs, NM 88241  
Phone 575.393.4411 Fax 575.393.0293

CERTIFIED MAIL  
RETURN RECEIPT NO. 7007 2560 0000 4569 9439

May 18<sup>th</sup>, 2012

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

**RE: Corrective Action Plan (CAP)  
Rice Operating Company – EME SWD System  
BD M-26-1 (1R426-04): UL/M sec. 26 T21S R37E**

2012 MAY 22 A 10:49  
RECEIVED OGD

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 BD Salt Water Disposal (SWD) system. ROC is the service provider (agent) for the BD 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 1 mile northeast of Eunice, New Mexico at UL/M sec. 26 T21S R37E as shown on the Site Location Map (Figure 1). Groundwater sampling at the site indicates that groundwater is located at 46 ft bgs.

## **Background and Previous Work**

In 2003, ROC initiated work on the former BD M-26-1 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 remediated backfill were taken to a commercial laboratory for analysis. Laboratory tests of the four-wall composite showed a chloride reading of 1,900 mg/kg, negligible gasoline range organics (GRO) and diesel range organics (DRO), and negligible BTEX. The bottom composite showed a chloride laboratory reading of 851 mg/kg, a GRO reading of 114 mg/kg, and a DRO reading of 867 mg/kg. BTEX for the bottom composite showed negligible benzene and toluene, an ethyl benzene reading of 0.334 mg/kg, and a total xylenes reading of 0.674 mg/kg. A 20-mil poly liner was placed at the bottom of the excavation, and the excavated soil was blended on site and backfilled over the liner. Laboratory analysis of the remediated backfill showed a chloride reading of 248 mg/kg, a GRO reading of 26 mg/kg, and a DRO reading of 324 mg/kg. The BTEX reading for the

backfill showed negligible benzene, toluene, and ethyl benzene. Total xylenes showed a reading of 0.070 mg/kg.

The area was contoured to the surrounding landscape and seeded. NMOCD was notified of potential groundwater impact on March 17<sup>th</sup>, 2003, and a junction box disclosure report was submitted to NMOCD with all the 2003 junction box closures and disclosures.

As part of the Investigation and Characterization Plan (ICP) approved by NMOCD on May 19<sup>th</sup>, 2011, seven soil bores (SB-1 through SB-7) were advanced through the former junction box site on May 23<sup>rd</sup>, May 24<sup>th</sup>, and June 6<sup>th</sup>, 2011. RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID) for hydrocarbons. Representative samples from the bores were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers. SB-1, SB-2 and SB-5 had low laboratory chloride readings which tapered off (below 250 mg/kg) prior to reaching the capillary fringe. SB-3, SB-4, SB-6 and SB-7 had laboratory chloride readings which indicated that chlorides may have affected the groundwater beneath the site. GRO readings in all seven bores were non-detect and DRO readings were low.

On October 25<sup>th</sup>, 2011, a near-source monitor well was installed 18 ft southeast of the former junction box site to determine if groundwater beneath the site has been affected by residual chlorides. The monitor well was not sampled as it was installed.

On November 17<sup>th</sup>, 2011, a Report of Further Investigation was submitted to NMOCD, and was approved on November 22<sup>nd</sup>, 2011. In the report, RECS recommended that the monitor well be sampled quarterly to evaluate groundwater for possible chloride impacts from the site. If groundwater showed impact from residual chlorides, a groundwater remedy would be developed to address these concerns. If the monitor well indicated no impact to groundwater from the site, ROC would submit a Corrective Action Plan that would address the vadose zone only.

Two surface samples were taken 10 feet outside SB-6 and SB-7 (Figure 2) on May 4<sup>th</sup>, 2012. The surface sample 10 feet east of SB-6 returned laboratory results of non-detect for chlorides, GRO and DRO. The surface sample 10 ft west of SB-7 showed a chloride laboratory reading of 48 mg/kg and GRO and DRO readings of non-detect (Appendix A).

### **Corrective Action Plan**

ROC proposes to excavate the site to the dimensions of 49 ft x 67 ft with the southwest corner angled to remain a safe distance from nearby pipelines and properly seat a 20-mil reinforced poly liner at approximately 5 ft bgs (Figure 2). The liner will provide a barrier that will inhibit the downward migration of chlorides to groundwater. The liner will cover the existing 20-mil poly liner measuring 30 ft x 30 ft installed at 12 ft bgs. The soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID reading below 100 ppm. Excavated soil will be evaluated for use as backfill and any soils requiring disposal will be properly disposed of at a NMOCD approved facility. Upon completion of backfilling, the site will be seeded with a native

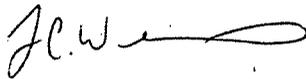
vegetative mix and soil amendments will be added as necessary. Vegetation above the liner will also provide a natural infiltration barrier for the site since plants capture water through their roots thereby reducing the volume of water moving through the vadose zone to groundwater.

The monitor well has been sampled quarterly since its installation. During the most recent sampling event on January 24<sup>th</sup>, 2012, the laboratory chloride reading was 212 mg/L (Appendix B). Given that the near-source monitor well has shown chloride values below WQCC standards since its installation (Figure 3), it is evident that chlorides in the vadose zone have not impacted groundwater beneath the site. Therefore, ROC proposes to plug and abandon the near-source monitor well with a 1-3% bentonite/concrete slurry and a three foot concrete cap.

Upon completion of the CAP work elements, we anticipate ROC will submit a written report which will include a request for 'remediation termination' and the closure 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.

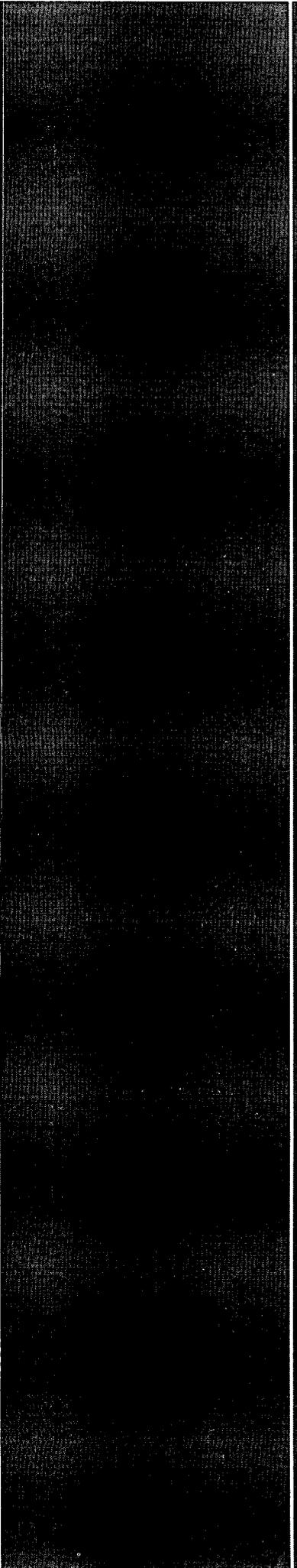
Sincerely,



Lara Weinheimer  
Project Scientist  
RECS  
(575) 441-0431

Attachments:

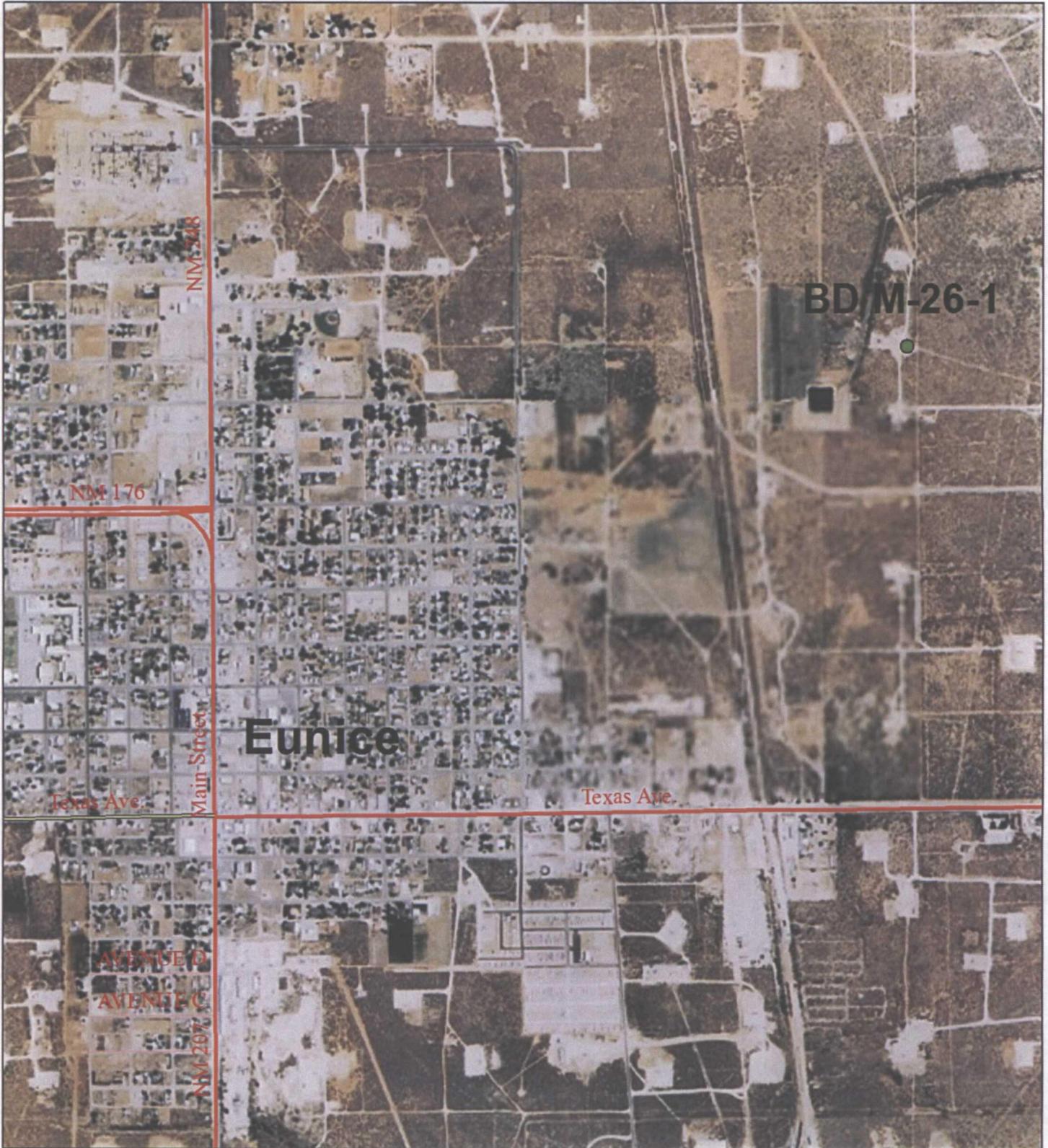
- Figure 1 – Site Location Map
- Figure 2 – Soil Bore and MW Installation and Proposed Liner
- Figure 3 – MW Sampling Data
- Appendix A – Surface Sampling Lab
- Appendix B – Monitor Well Sampling Lab



# 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



BD/M-26-1

Eunice

Texas Ave.

Texas Ave.

AVENUE D  
AVENUE C

NM 207



**BD M-26-1**

LEGALS: UL/M sec. 26  
T21S R37E

NMOCD Case #: 1R426-04

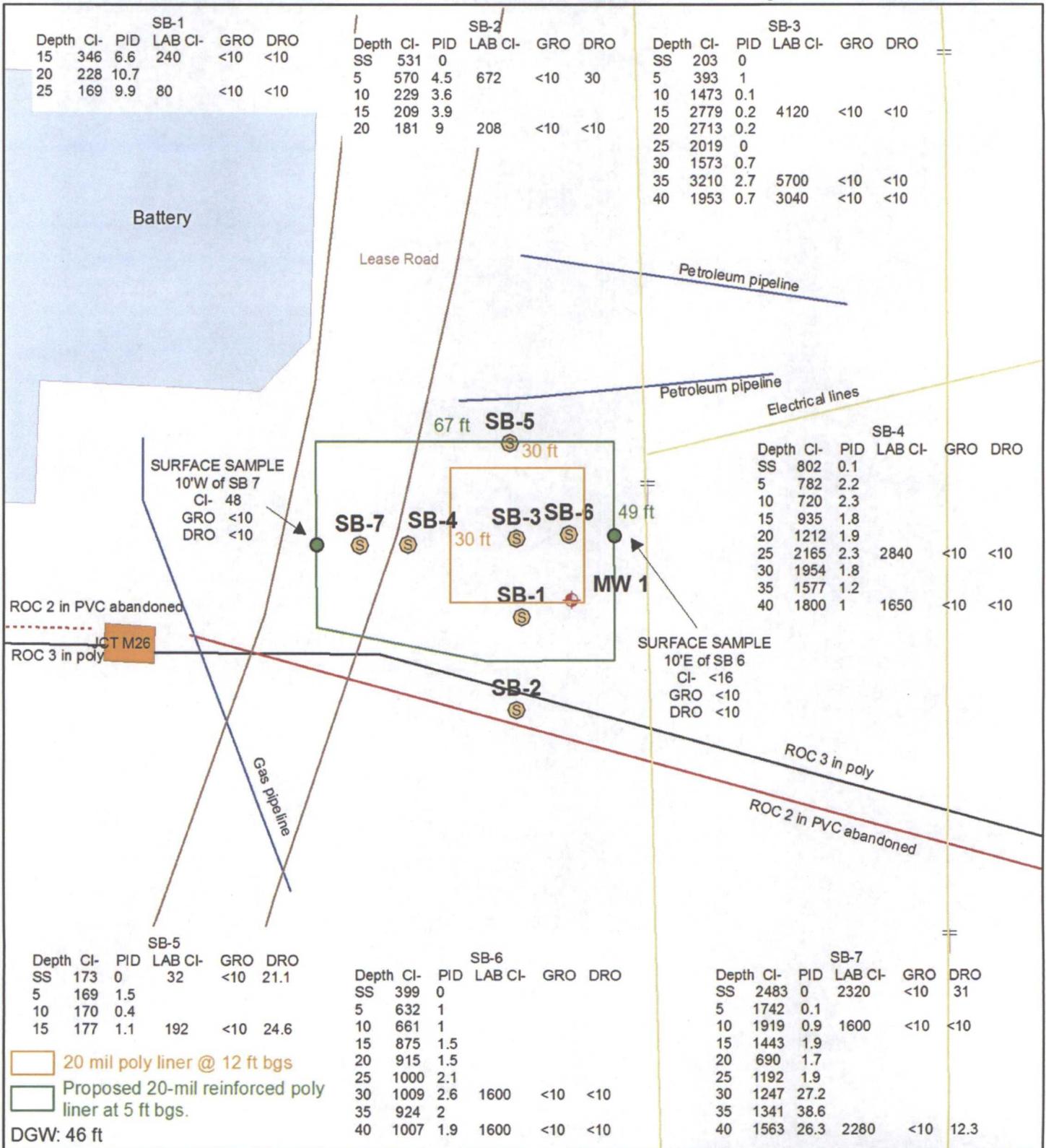
Figure 1



0 365 730 1,460  
Feet

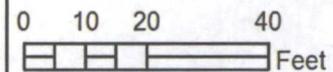
Drawing date: 7-1-11  
Drafted by: L. Weinheimer

# Soil Bore and MW Installation and Proposed Liner



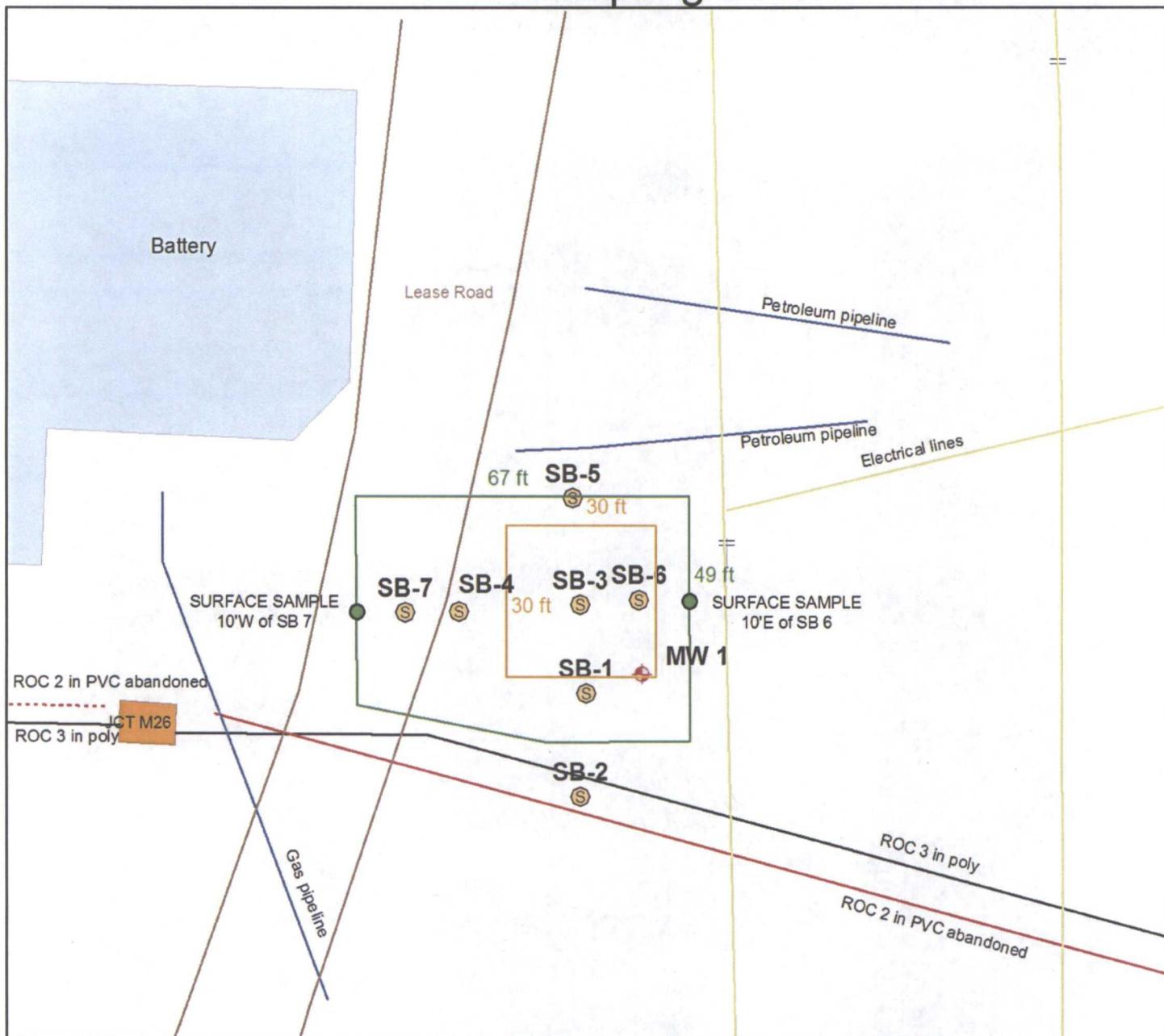
**BD M-26-1**  
 LEGALS: UL/M sec. 26  
 T21S R37E  
 NMOCD Case #: 1R426-04

**Figure 2**



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

# MW Sampling Data



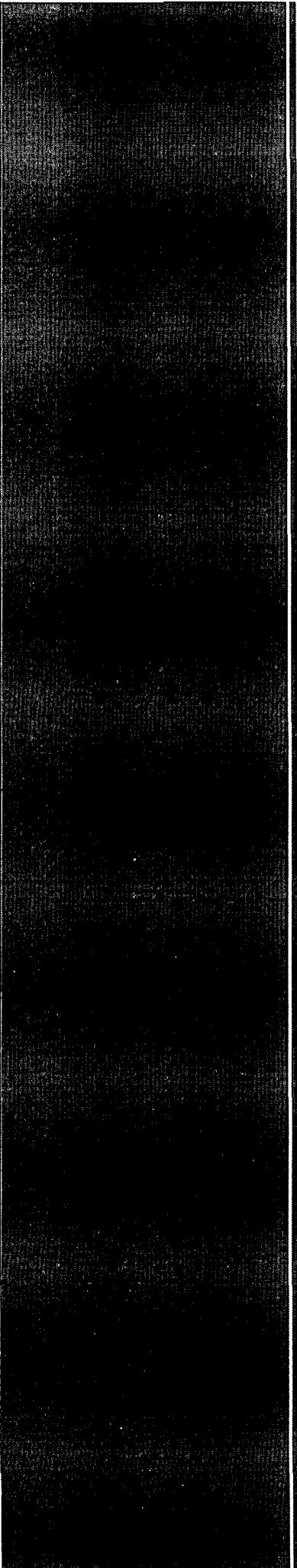
MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
MW-1	46.57	77.29	11/7/2011	236	1200	<0.001	<0.001	<0.001	<0.003	242
	46.59	77.29	1/24/2012	212	1210	<0.001	<0.001	<0.001	<0.003	371

20 mil poly liner @ 12 ft bgs  
 Proposed 20-mil reinforced poly liner at 5 ft bgs.  
 DGW: 46 ft



**BD M-26-1**  
 LEGALS: UL/M sec. 26  
 T21S R37E  
 NMOCD Case #: 1R426-04

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



# Appendix A

Surface Sampling Lab

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

May 09, 2012

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

RE: BD M-26-1

Enclosed are the results of analyses for samples received by the laboratory on 05/04/12 13:12.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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 (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

**Analytical Results For:**

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

 Received: 05/04/2012  
 Reported: 05/09/2012  
 Project Name: BD M-26-1  
 Project Number: NONE GIVEN  
 Project Location: T21S R37E SEC26 M ~ LEA CTY, NM

 Sampling Date: 05/04/2012  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SURFACE SAMPLE 10' E OF SB-6 (H201028-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	05/04/2012	ND	432	108	400	3.77		
TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	05/07/2012	ND	189	94.5	200	5.42		
DRO >C10-C28	<10.0	10.0	05/07/2012	ND	177	88.6	200	1.67		
Surrogate: 1-Chlorooctane	95.7 %	55.5-154								
Surrogate: 1-Chlorooctadecane	101 %	57.6-158								

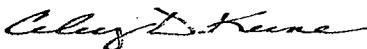
**Sample ID: SURFACE SAMPLE 10' W OF SB-7 (H201028-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	05/04/2012	ND	432	108	400	3.77		
TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	05/07/2012	ND	189	94.5	200	5.42		
DRO >C10-C28	<10.0	10.0	05/07/2012	ND	177	88.6	200	1.67		
Surrogate: 1-Chlorooctane	90.3 %	55.5-154								
Surrogate: 1-Chlorooctadecane	104 %	57.6-158								

Cardinal Laboratories

\*=Accredited Analyte

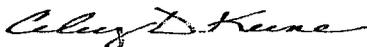
PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celestine D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

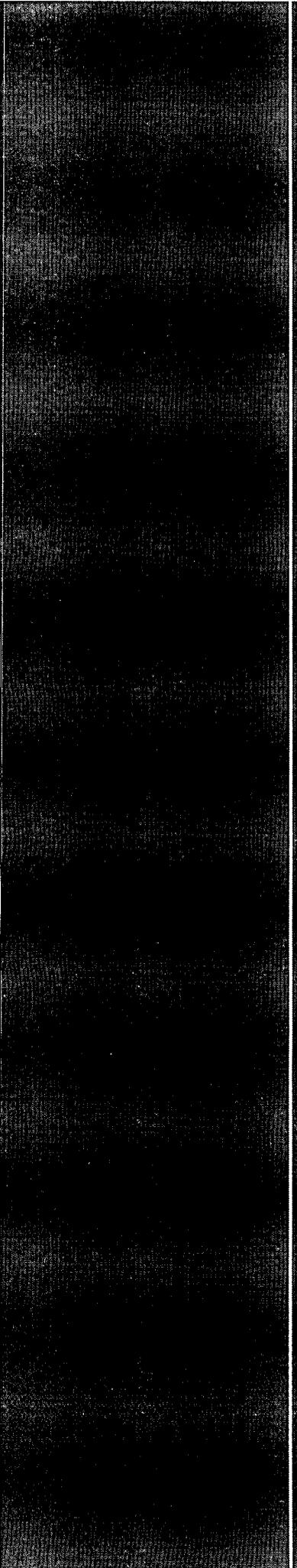
- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- QM-4X The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
- 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



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Celest D. Keene, Lab Director/Quality Manager





# Appendix B

Monitor Well Sampling Lab

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

February 02, 2012

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

RE: BD M-26-1

Enclosed are the results of analyses for samples received by the laboratory on 01/26/12 14:10.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

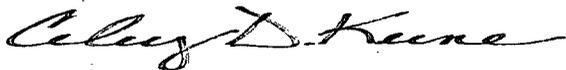
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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

**Analytical Results For:**

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

Received:	01/26/2012	Sampling Date:	01/24/2012
Reported:	02/02/2012	Sampling Type:	Water
Project Name:	BD M-26-1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T21S R37E SEC26 M ~ LEA CTY, NM		

**Sample ID: MONITOR WELL #1 (H200196-01)**

BTEX 8260B		mg/L		Analyzed By: CMS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	02/01/2012	ND	0.024	120	0.0200	12.2		
Toluene*	<0.001	0.001	02/01/2012	ND	0.019	96.6	0.0200	11.1		
Ethylbenzene*	<0.001	0.001	02/01/2012	ND	0.020	99.0	0.0200	10.9		
Total Xylenes*	<0.003	0.003	02/01/2012	ND	0.061	102	0.0600	11.3		

Surrogate: Dibromofluoromethane 123 % 59.8-161

Surrogate: Toluene-d8 88.0 % 75.2-115

Surrogate: 4-Bromofluorobenzene 94.7 % 53.7-120

Chloride, SM4500Cl-B		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	212	4.00	01/27/2012	ND	104	104	100	0.00		

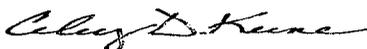
Sulfate 375.4		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	371	10.0	01/28/2012	ND	21.9	110	20.0	1.81		

TDS 160.1		mg/L		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1210	5.00	01/27/2012	ND	238	99.2	240	1.50		

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

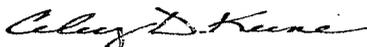
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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Cardinal Laboratories

\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager



**Hansen, Edward J., EMNRD**

---

**From:** Lara Weinheimer <lweinheimer@rice-ecs.com>  
**Sent:** Thursday, June 21, 2012 11:55 AM  
**To:** Hansen, Edward J., EMNRD  
**Cc:** Hack Conder; Laura Pena  
**Subject:** BD M-26-1 (1R426-04) Additional Up-gradient information  
**Attachments:** BD M-26-1 (1R426-04) Additional Up-gradient Information.pdf

Hack asked me to send you the attached map showing the ROC's BD M-26-1 (1R426-04) in relation to the up-gradient site BD F-26. I put the chloride and TDS values from the most recent groundwater sampling event for the F-26 up-gradient well.

If you have any questions regarding this submission, don't hesitate to contact Hack Conder (1-575-631-6432).

Thanks!

Lara Weinheimer  
Project Scientist  
Rice Environmental Consulting & Safety  
122 W. Taylor  
Hobbs, NM 88240  
(575) 441-0431

# Additional Up-gradient Information



***BD M-26-1***  
LEGALS: UL/M sec. 26  
T21S R37E  
NMOCD Case #: 1R426-04

