

1R - 488

# GENERAL CORRESPONDENCE

YEAR(S):  
2007

L. Peter Galusky, Jr. Ph.D., P.G.

Texerra

RECEIVED

2007 AUG 31 AM 10 17

August 22nd, 2007

Mr. Edward Hansen

New Mexico Energy, Minerals, & Natural Resources  
Oil Conservation Division, Environmental Bureau  
1220 S. St. Francis Drive  
Santa Fe, New Mexico 87504

RE: Investigation and Characterization Plan  
Rice Operating Company – ABO SWD System  
ABO F-31 SWD Facility (UL F Sec 31 T 16S R 37E) - Lea County

1R488

Sent via E-mail and U.S. Certified Mail: Return Receipt No. 7006 0100 0001 2438 3869

Dear Mr. Hansen:

RICE Operating Company (RICE) has retained Texerra to address potential environmental concerns at the above-referenced site. ROC is the service provider (agent) for the ABO 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 Partners, who provide all operating capital on a percentage ownership/usage basis. Environmental projects of this magnitude require System Partner AFE approval, and work begins as funds are received. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission would be greatly appreciated.

For all such environmental projects, ROC will choose a path forward that:

- protects public health,
- provides the greatest net environmental benefit,
- complies with NMOCD Rules, and
- is supported by good science.

It is anticipated that this site shall have three submissions, as described below:

1. This Investigation and Characterization Plan (ICP) is a proposal for data gathering and site characterization and assessment.
2. Upon evaluating the data and results from the ICP, a recommended remedy will be submitted in a Facility Closure Plan (essentially a "Corrective Action Plan").
3. Finally, after implementing the FCP, a Closure Report with final documentation will be submitted.

### Background and Previous Work

The site is located approximately 3.5 miles southeast of Lovington, New Mexico on the east side of NM 18 in Lea County (Figures 1 & 2). The topography is gently sloping toward the southeast. Soils on the site belong to Kimbrough-Lea soil association<sup>1</sup>. These are characterized as nearly level and gently sloping, gravelly and loamy soils that are very shallow to moderately deep to indurated caliche. Groundwater occurs at a depth of approximately 91 ft, in unconsolidated Tertiary alluvium of the Ogallala Formation<sup>2</sup>.

The ABO F-31 SWD site had been an active terminal facility for the ABO SWD system with tanks, pumps and a well to facilitate produced water disposal. The SWD well at this location operated until 2005, when it was plugged and abandoned (Figure 3). An emergency overflow pit associated with the facility was closed and restored to natural grade in December, 2001<sup>3</sup>, and this work was approved by NMOCD on December 3<sup>rd</sup>, 2004; (see Appendix).

To complete the abandonment of the site, Rice plans to remove the remaining surface facilities, to restore the ground surface and return the land to productive use for rangeland pasture and wildlife habitat. Rice therefore proposes additional investigative work, as outlined below, to result in the development and implementation of a Facility Closure Plan (Corrective Action Plan).

### Proposed Work Elements

1. Summarize information and data collected by ROC to date.
2. Conduct a vertical and lateral delineation of soil hydrocarbon concentrations and chlorides at the tank, pump and well locations (Figure 4). PID and field titration methods will be verified against laboratory analysis of representative samples. Prepare graphics to illustrate the horizontal and vertical extent of contamination.
3. Prepare a Facility Closure Plan which will emphasize surface, ecological restoration and the protection of groundwater. This Plan will be developed in consultation with OCD and the City of Lovington, New Mexico.

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<sup>1</sup> USDA SCS. Soil Survey of Lea County, New Mexico. Issued January, 1974.

<sup>2</sup> New Mexico Bureau of Geology & Mineral Resources. 1982. Circular 175 – Western extent of the Ogallala Formation in New Mexico.

<sup>3</sup> This work was directed and supervised by Whole Earth Environmental, per their Pit Closure Report of January 24, 2002.

**Texerra**

I appreciate the opportunity to work with you and your staff on this project. Please call either myself, at the number below, or Kristin Farris Pope (ROC) at 505-393-9174, if you have any questions or wish to discuss these matters.

Thank you for your consideration.

Sincerely,



L. Peter (**Pete**) Galusky, Jr. Ph.D., P.G.  
*Principal*

**Texerra**

505 N. Big Spring, Suite 404  
Midland, Texas 79701  
Tel: 432-634-9257  
E-mail: [lpg@texerra.com](mailto:lpg@texerra.com)  
Web site: [www.texerra.com](http://www.texerra.com)

End: C-103 form

cc: CDH, KFP, file

Submit 3 Copies To Appropriate District Office District I 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Ave., Artesia, NM 88210 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505		State of New Mexico Energy, Minerals and Natural Resources <b>OIL CONSERVATION DIVISION</b> 1220 South St. Francis Dr. Santa Fe, NM 87505		Form C-103 May 27, 2004																									
SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO. <b>30-025-05369</b>																											
1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <b>SWD WELL</b>		5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>																											
2. Name of Operator <b>RICE OPERATING COMPANY</b>		6. State Oil & Gas Lease No.																											
3. Address of Operator <b>122 W. TAYLOR ST., HOBBS, NM 88240</b>		7. Lease Name or Unit Agreement Name <b>Abo SWD System</b>																											
4. Well Location Unit Letter <b>F</b> : <b>2310</b> feet from the <b>NORTH</b> line and <b>2626</b> feet from the <b>WEST</b> line Section <b>31</b> Township <b>16S</b> Range <b>37E</b> NMPM County <b>LEA</b>		8. Well Number <b>F-31</b>																											
11. Elevation (Show whether DR, RKB, RT, GR, etc.) <b>3823' GL</b>		9. OGRID Number																											
Pit or Below-grade Tank Application <input type="checkbox"/> or Closure <input type="checkbox"/> <b>NA</b> Depth to Groundwater: 91 ft Distance from nearest fresh water well: 990 ft Distance from nearest surface waters: >1000 ft		10. Pool name or Wildcat																											
12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data																													
<table border="0"> <tr> <td colspan="3">NOTICE OF INTENTION TO:</td> <td colspan="3">SUBSEQUENT REPORT OF:</td> </tr> <tr> <td>PERFORM REMEDIAL WORK <input type="checkbox"/></td> <td>PLUG AND ABANDON <input type="checkbox"/></td> <td>REMEDIAL WORK <input type="checkbox"/></td> <td>ALTERING CASING <input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>TEMPORARILY ABANDON <input type="checkbox"/></td> <td>CHANGE PLANS <input type="checkbox"/></td> <td>COMMENCE DRILLING OPNS <input type="checkbox"/></td> <td>P AND A <input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>PULL OR ALTER CASING <input type="checkbox"/></td> <td>MULTIPLE COMPL <input type="checkbox"/></td> <td>CASING/CEMENT JOB <input type="checkbox"/></td> <td></td> <td></td> <td></td> </tr> </table>						NOTICE OF INTENTION TO:			SUBSEQUENT REPORT OF:			PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>			TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS <input type="checkbox"/>	P AND A <input type="checkbox"/>			PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPL <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>			
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PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPL <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>																											
OTHER: <b>ABANDON SWD WELL LOCATION</b> <input checked="" type="checkbox"/> OTHER: <input type="checkbox"/>																													
13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1105. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.																													
Proposed work at the abandoned SWD site according to Texerra's Investigation & Characterization Plan (8/15/07): Conduct vertical and lateral delineation of hydrocarbon and chloride concentrations at the tank, pump, and SWD well locations. Based on this investigation, a subsequent Facility Closure Plan will be submitted with an emphasis on surface and ecological restoration that is protective of groundwater. NMOCD and the surface owner, the City of Lovington, will be notified of all significant activities conducted at this location.																													
Water supply wells for the City of Lovington are located within 1000 ft of this site.																													
Site Assessment Criteria: Depth to groundwater = 91 ft, score = 10      <1000 ft from water source = 20      Surface water body >1000 ft = 0 <b>TOTAL RANKING SCORE = 30</b>																													
I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines <input type="checkbox"/> a general permit <input type="checkbox"/> or an (attached) alternative OFD-approved plan <input type="checkbox"/> .																													
SIGNATURE <u>Kristin Farris Pope</u> TITLE <u>Project Scientist</u> DATE <u>8-15-07</u> Type or print name <u>Kristin Farris Pope</u> E-mail address: <u>kpope@riceswd.com</u> Telephone No. <u>(505) 393-9174</u>																													
<b>For State Use Only</b>																													
APPROVED BY: _____ TITLE _____ DATE _____ Conditions of Approval (if any): _____																													

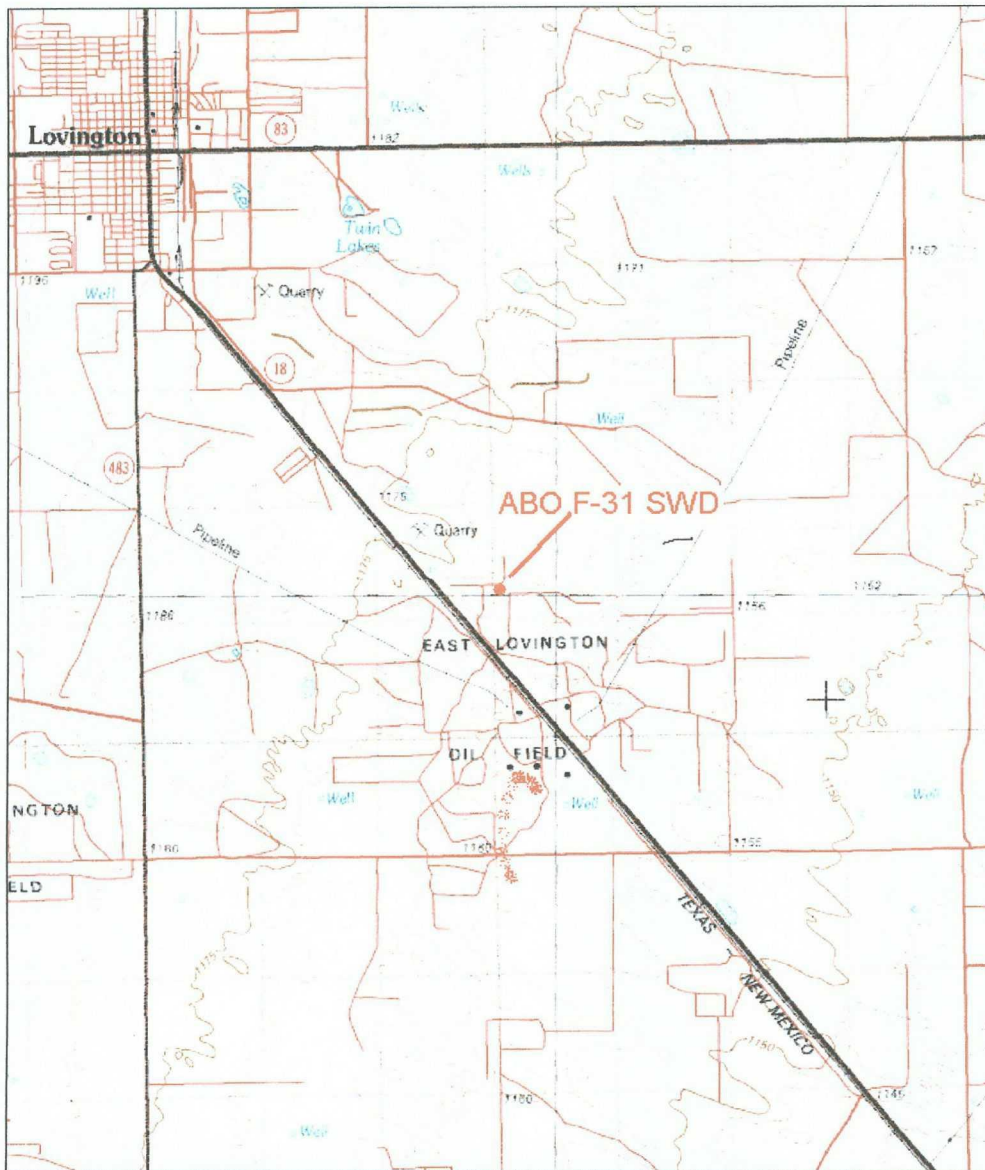
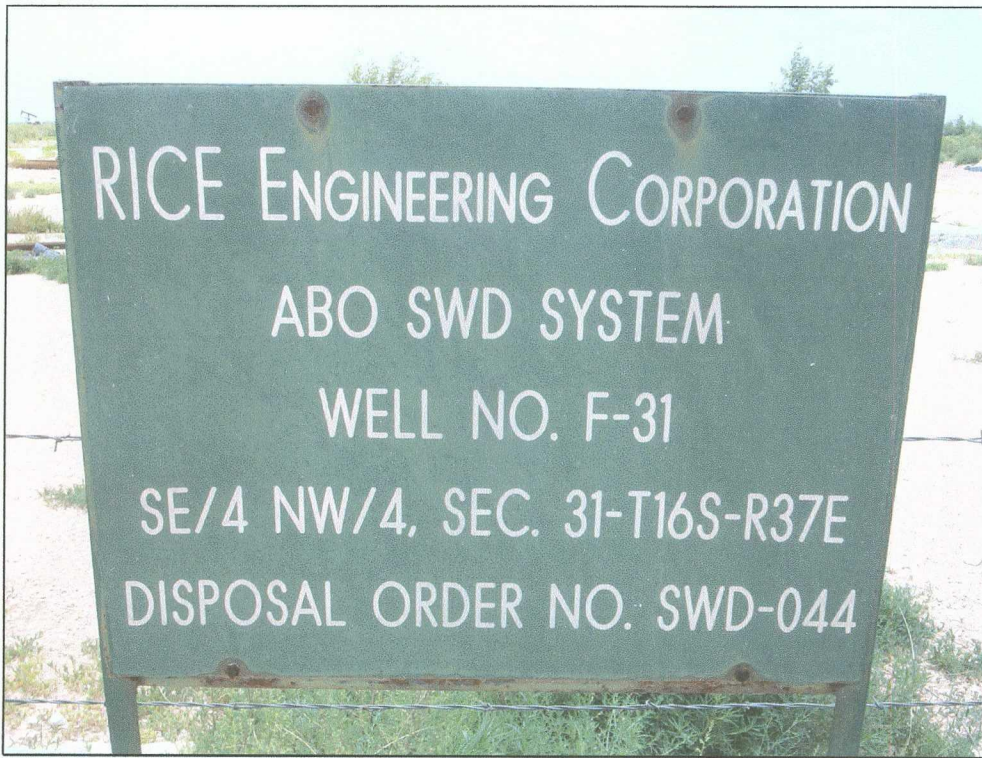


Figure 1 – Site Location Map. (Scale: one inch equals approximately 3 miles)

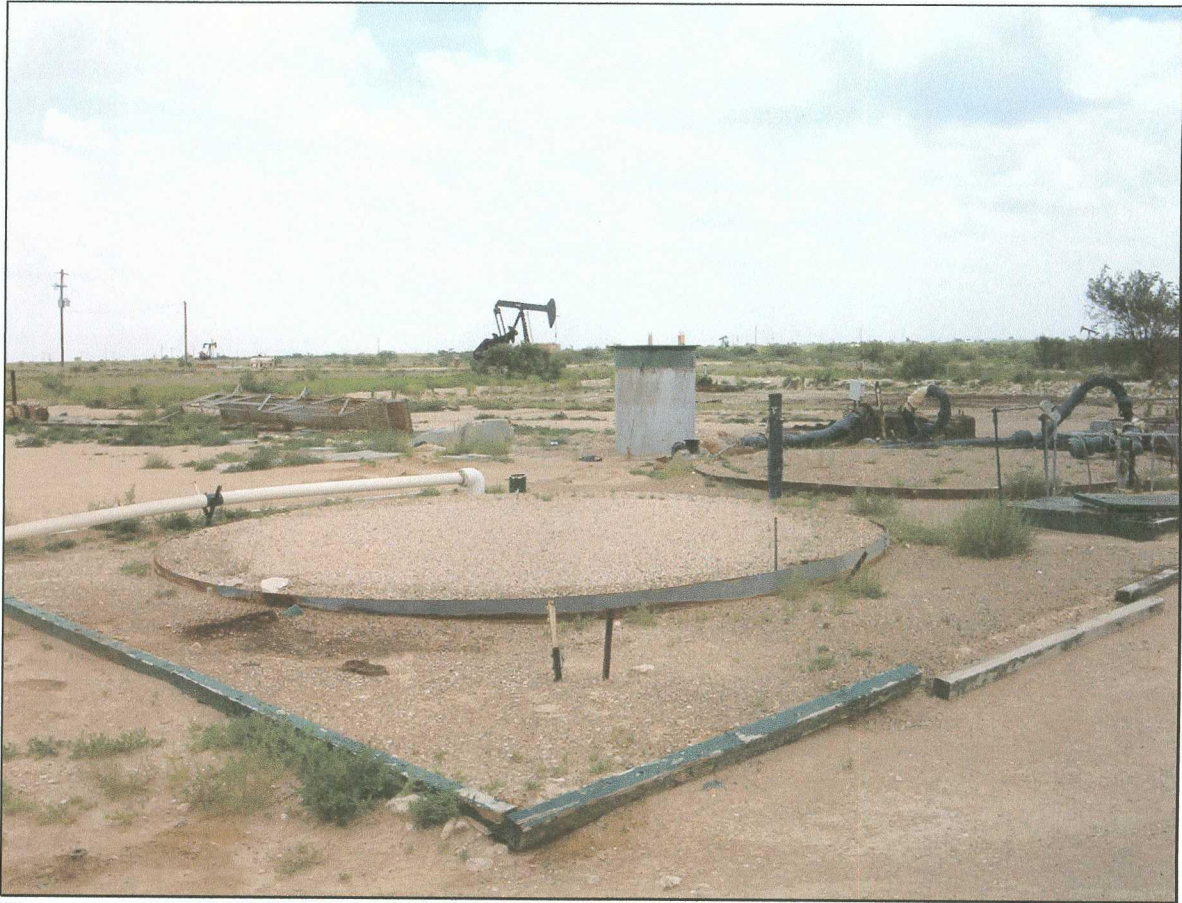


**Figure 2** – Entrance to ABO F-31 SWD facility.



Figure 3 – “Dead man” indicating location of plugged-and closed SWD well.

ABO F-31 SWD



**Figure 4** – Location of former tankage.

## Appendix – Correspondence w/ NMOCD regarding Pit Closure

08/06/2007 16:28 FAX

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Submit 3 Copies To Appropriate District Office:  
 District I  
 1625 N. French Dr., Hobbs, NM 87240  
 District II  
 811 South First, Artesia, NM 87210  
 District III  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 District IV  
 2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico  
 Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION  
 2040 South Pacheco  
 Santa Fe, NM 87505

Form C-103  
 Revised March 25, 1999

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.) 1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other SWD Well <input type="checkbox"/>		WELL APT NO. 30-025-25211 5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/> 6. State Oil & Gas Lease No.
2. Name of Operator RICE OPERATING COMPANY		7. Lease Name or Unit Agreement Name: ABO SWD SYSTEM
3. Address of Operator 122 W. TAYLOR, HOBBS, NM 88240		8. Well No. F-31
4. Well Location Unit Letter <u>F</u> : 2310 feet from the <u>NORTH</u> line and 2626 feet from the <u>WEST</u> line Section <u>31</u> Township <u>16S</u> Range <u>37E</u> NMPM <u>LEA</u> County		9. Pool name or Wildcat
10. Elevation (Show whether DR, RKB, RT, GR, etc.) 3823' GL		

11. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data NOTICE OF INTENTION TO: PERFORM REMEDIAL WORK <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> TEMPORARILY ABANDON <input type="checkbox"/> CHANGE PLANS <input type="checkbox"/> PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPLETION <input type="checkbox"/> OTHER: Close Emergency Overflow Pit <input type="checkbox"/>		SUBSEQUENT REPORT OF: REMEDIAL WORK <input type="checkbox"/> ALTERING CASING <input type="checkbox"/> COMMENCE DRILLING OPNS. <input type="checkbox"/> PLUG AND ABANDONMENT <input type="checkbox"/> CASING TEST / CEMENT JOB <input type="checkbox"/> OTHER: Close Emergency Overflow Pit <input checked="" type="checkbox"/>
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12. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

ROC began remediation activity on May 21, 2001: excavated 32,000 cubic yards of soil and disposed of 5088 cubic yards at commercial disposal. TPH was arrested at 6 feet BGS; chloride concentration declines with depth, but is present to groundwater. Delineation coring was conducted, a monitor well was completed and groundwater was sampled. Analytical results are within NMWQCC drinking water standards. Closure activity was suspended while a risk-based closure plan was formulated and submitted. NMOCD approved the remediation protocol revision on November 5, 2001.

On November 12, the excavation ((13 feet BGS) was lined with a compacted clay layer and backfilled to 3 feet BGS. A 20 mil polyethylene liner was installed at 3 feet BGS. Three feet of clean topsoil covers the poly liner. The site was contoured to match surrounding topography. The work at the site was completed in December 2001.

A long-term groundwater monitoring program has been proposed and will be scheduled as approved by the NMOCD.

Site Assessment = 30

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Carolyn Doran Haynes TITLE: ENGINEERING MANAGER DATE: 01/24/02

Type or print name CAROLYN DORAN HAYNES Telephone No. 505-393-9174  
 (This space for State use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
 Conditions of approval, if any:

**Kristin Pope**

**From:** "Price, Wayne" <WPrice@state.nm.us>  
**To:** "Mike Griffin" <whearth@msn.com>; "Price, Wayne" <WPrice@state.nm.us>; "Carolyn Doran Haynes (E-mail)" <riceswd@leaco.net>; "Kristin Farris Pope (E-mail)" <enviro@leaco.net>  
**Cc:** <enviro@leaco.net>  
**Sent:** Friday, December 03, 2004 12:57 PM  
**Subject:** RE: Abo F-31 Monitor Well Closure and Pit closure.

*The Plugging procedure is hereby approved and OCD hereby approves of the Pit closure of the Abo F-31 site and requires no further action at this time.  
 In the future, please let OCD know when plugging procedures will be different than the QP-30.*

Please be advised that NMOCD approval of this plan does not relieve (Ricc Operating Company) of liability should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve (Ricc Operating Company) of responsibility for compliance with any other federal, state, or local laws and/or regulations.

-----Original Message-----

**From:** Mike Griffin [mailto:whearth@msn.com]  
**Sent:** Friday, December 03, 2004 9:18 AM  
**To:** wprice@state.nm.us  
**Cc:** enviro@leaco.net  
**Subject:** Abo F-31 Monitor Well Closure

Good Morning, Wayne:

Sorry for the delay in formalizing the plugging of the Abo monitor well.

The well was plugged by Eades Drilling on November 9, 2004 in accordance with the plugging procedure QP-30 (attached).

The measured depth to groundwater was 91.0' and total open bore depth was 93.6'. A dense silt extends below the open bore to a total well depth of 98'.

Five and one half gallons of cement slurry was poured into the casing from a depth of 93.6' below ground surface (bgs) to 67'bgs. Bentonite clay filled the remaining annulus to a depth of 3' bgs. A cement cap was poured the remaining 3' and was used to fill in the surface casinghead.

Photos of the plugging operation are available at the Rice Hobbs office.

Mike Griffin

Whole Earth Environmental, Inc.  
 Phone: 281.394.2050  
 FAX: 281.394.2051

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 For more information please visit <http://www.messagelabs.com/email>

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7/27/2007

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3158				LOG OF BORING Rice ABO-MW (Page 2 of 2)	
Whole Earth 19606 San Gabriel Houston, TX 77064 Contact: Mike Griffin Job#: WHOLETHAIR.01				Date : 09-20-01 Drill Start/End : 1200/1700 Boring Location : S Lovington 4 mi E : 1/4 mi E (SE of pit)	Site Location : Near Lovington, NM Auger Type : Helium Stem Logged By : Mort Bates
Depth to Feet	GRAPHC	USCS	Sample	DESCRIPTION	Lab
60					
65				Sand w/sandstone, tan, firm, dry	
70					
75					
80					
85					
90					
95				Sand, tan, loose, damp	
100				Sand, tan, soft, wet	
105					
110					
115					
120					

Well ABO

Grout

2" PVC Casing

Bentonite Seal

Sand Pack

2" .020 slot screen

Flowing sand

Total depth 110'  
Note: Sand is flowing and was only able to land the casing to 99'

08/06/2007 16:29 FAX