

**COGEMA**

COGEMA Mining, Inc. and PATHFINDER Mines Corporation

**Fax**

Date: 03-23-06

Pages (Including this cover sheet):

4

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WDER Nov. 1, 2005 Letter - Attached

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PATHFINDER Mines Corporation

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# Department of Environmental Quality



To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor



November 1, 2005

## FAXED AND MAILED

Ms. Donna Wichers  
Cogema Mining Inc.  
P.O. Box 730  
Mills, WY 82644

**RE: Postmining Groundwater Restoration Demonstration for the Irigaray Mine,  
Permit No. 478, TFN 4 1/170, Change No. 34**

Dear Ms. Wichers:

The Land Quality Division (LQD) has completed its review of the "Wellfield Restoration Report - Irigaray Mine" submitted under your letter of July 26, 2004 as well as the related supplementary information included with your letter of May 4, 2005. The report was excellent which included supporting data and discussions to demonstrate the groundwater restoration has been completed. This letter contains my formal decision concerning the restoration of the Irigaray Mine wellfield Units 1 through 9.

### Statutory and Regulatory Requirements

There are several statutes and Land Quality Division's regulations which govern evaluation of groundwater restoration. The most important of these are listed below.

*W.S. §35-11-103(f)*

*(iii) "Groundwater restoration" means the condition achieved when the quality of all groundwater affected by the injection of recovery fluids is returned to a quality of use equal to or better than, and consistent with the uses for which the water was suitable prior to the operation employing the best practicable technology.*

*(i) "Best practicable technology" means a technology based process justifiable in terms of existing performance and achievability in relation to health and safety which minimizes, to the extent safe and practicable, disturbances and adverse impacts of the operation on human or animal life, fish, wildlife, plant life, and related environmental values.*

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*Land Quality Division Non-Coal Rules and Regulations, Chapter 11, Section 5(a)*

*(ii) The ...operation will achieve the standard of returning all affected groundwater to the pre-mining class of use or better using Best Practicable Technology,...*

*(B) The evaluation of restoration of the groundwater within the production zone shall be based on the average quality over the production zone. For groundwater affected outside the production zone, the restoration shall be evaluated separately for each well.*

*(D) Regardless of the restored groundwater in the production zone, the adjacent aquifers and other waters within the same aquifers must be fully protected to their class of use and, outside the aquifer exemption boundary, to applicable Maximum Contaminant Levels from the U.S. Environmental Protection Agency Rules (40 CFR 141 as amended July 1, 2001). If the restored groundwater in the production zone poses a threat to groundwater outside the production zone, then flow and/or transport models shall be used to assist in determining what action, including monitoring sufficient to verify the model, needs to be taken. A monitoring program sufficient to verify the model may be required.*

**Facts and Restoration Results**

The Irigaray Mine pre-dates LQD's specific Rules & Regulations concerning in situ mining and the joint LQD/WQD Advisory Board Policy on in situ mines. The groundwater in these wellfield units was historically classified as Class I. Applying the new joint policy, the "pre-discharge use suitability of the water" is Class IV(A) (not Class V as proposed in the restoration report) suitable for industry as determined by WQD and LQD due to naturally high concentrations (i.e. >5pci/l) of radium in the groundwater.

The permit established target restoration values for twenty-nine constituents. Twenty-five were established at the baseline range. Three were established higher than the baseline range but below Class I standards. The remaining constituent (bicarbonate) does not have a Class I, II, or III standard. Twenty-seven of the twenty-nine were restored below the target restoration values. Only bicarbonate and manganese did not meet their target restoration value. The target restoration value for bicarbonate is 295 mg/l and the post-restoration mean is 423 mg/l. However, as noted bicarbonate does not have a Class I, II, or III standard.

The post-restoration mean concentration for manganese is 0.226 mg/l. Both the baseline range (0.005 to 0.19 mg/l) and the restoration result for manganese exceed the WQD Class I standard for manganese (0.05 mg/l)

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### Restoration Determination

The Land Quality Division concurs that COGEMA has used Best Practicable Technology (BPT) in its restoration efforts in the Irigaray Mine wellfield Unit 1 through 9. As outlined in the Joint LQD/WQD Policy, restoration results have reached baseline or have become asymptotic.


I have determined the groundwater, as a whole, has been returned to its premining class of use.

I have also determine, in accordance with LQD Rules and Regulations, Chapter 11, Section 5(a)(ii)(D), that although the groundwater has not been returned to baseline conditions, the groundwater quality within the wellfield based on the mean concentrations will not endanger the class of use and the Maximum Concentration Limits (MCL's) of the U.S. Environmental Protection Agency of the groundwater outside the aquifer exemption boundary.

Because the groundwater conditions do not significantly differ from the background water quality no natural attenuation monitoring is required. Wells within the wellfield may be abandoned as described in the Mine and Reclamation Plan.

If you have any questions or need additional information, please contact me.

Sincerely,

  
Richard A. Chancellor  
Administrator  
Land Quality Division

RAC

xc: John Corra  
John Wagner  
District III