



Dave Freudenthal, Governor

# Department of Environmental Quality

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



John Corra, Director

E-Mail followed by U.S. Mail

August 11, 2005

Mr. Robert A. Nelson,  
Chief, Uranium Processing Section  
U.S. Nuclear Regulatory Commission  
11545 Rockville Pike,  
Rockville, MD 20852-2738

Re: Pathfinder Mines Corporation, Shirley Basin Annual Groundwater Corrective Action Report, March 1, 2005, NRC Docket No. 40-6622, License No. SUA-442

Dear Mr. Nelson:

The Water Quality Division (WQD), Groundwater Pollution Control Program (GPC) was provided a copy of the above referenced report on the Shirley Basin mill and tailings site. We reviewed the report and wanted to pass along some observations and comments.

As you are aware, we have been concerned about potential impacts to Spring Creek if the collection, injection and pumpback systems are turned off all at once as has been proposed by PMC. Based on the data presented in this report, the corrective action systems appear to be controlling the migration of groundwater contamination very effectively. However, there is mention of the gradient reversals not being as strong as desired or that the gradient has weakened due to pumps or parts of systems being down (e.g., report summary, page 1, page 3.1-2, and page 3.2-1). There is mention of a potential "pulse" of contamination (page 4.1-1) that was moved through the "MC-11 area". Also, the Spring Creek data that was provided (table 5.0-2) shows an increase in most all constituents of concern at sampling site SW1A for the 11/21/00 and 10/29/01 sampling events. This also appears to be a slug or spike of contamination that escaped from the corrective action system. Our thought is that if these sorts of pulses can occur when the system is operational, it seems that when the system is completely shut down, there will be a large amount of constituents being allowed to migrate down gradient, possibly into Spring Creek. We remain concerned about this potential.

The report does a good job at providing an update on all the monitoring well data. We are somewhat puzzled by the elevated contaminant concentrations in well MC-15 that are shown on

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figures 4.0-1 through 4.0-8 and briefly discussed on page 4.4-1. It is not clear how "seasonal cycling" can result in highly elevated contaminant concentrations (e.g., TDS=3920 mg/l, uranium = 0.358 mg/l). We have not seen an explanation of how this would occur. Has this been explained in prior submittals that we are not aware of?

Another curious finding in our review of the data, is the elevated concentrations of uranium and TDS , among others, in wells RPI-32 and WSC-4 located east of Spring Creek. We have commented on these concentrations in previous reviews and PMC has performed extensive hydrologic tests to determine if these elevated readings are from migration under the creek. The additional investigations have shown that it is unlikely that mill tailings related contaminated groundwater migrated under Spring Creek. We are continuing to look into other potential sources for this contamination.

~~We appreciate the opportunity to review these data and provide comments on them. We ask that~~  
Pathfinder and the NRC continue to allow us to review all reports on this site. Please send any future reports to me in our Lander office. Please contact me at the above address or at 307-335-6959 if you have any questions about our comments.

Sincerely,



Mark Thiesse  
GPC West District Supervisor  
Water Quality Division

cc: Mr. Tom Hardgrove, PMC, P.O. Box 730, Mills, WY 82644  
Ms. Roberta Hoy, LQD, Cheyenne  
Mr. Kevin Frederick, WQD, Cheyenne  
File (2) Pathfinder Shirley Basin, Carbon / Chronologic