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Alabama Surface Mining Commission  
Attention: Ann Miles  
P.O. Box 2390  
Jasper AL 35502

RE: Black Warrior Riverkeeper's Petition to designate Lands Unsuitable for Mining (LUM)  
upstream of the Birmingham Water Works Board's Mulberry Fork water intake

Dear ASMC,

I am a professor in the Biology Department at the University of Alabama at Birmingham. I have over thirty years of experience in researching the ecological health of aquatic systems, including rivers and creeks in the Black Warrior River drainage in Alabama. Specifically, my research has focused on the effects of toxic substances and silt from coal mining, industrial activities, urban runoff and treated wastewater on the biological health of aquatic ecosystems.

The river is already suffering from abuse. Portions of the Mulberry Fork are currently listed as "impaired" (i.e. on the 303d list), which means that they are already sufficiently impacted by human inputs that they are unable to support their designated uses. The river cannot assimilate pollution from even more coal mines in its watershed.

I am used to the fact that, historically, "jobs" (and the desires of powerful corporate entities) have consistently taken priority over environmental concerns in this state. But, please be aware that the concerns expressed by the Black Warrior Riverkeeper's petition are not "ordinary." This is not just another protest by the tree huggers (in this case, the river huggers). The impacts of the Shepherd Bend mine will not just render the environment more unsuitable for aquatic organisms in the river that it already is. It has enormous economic and esthetic potential in that it will degrade the drinking water supply for much of Birmingham.

The mining company claims that it will prevent excessive runoff from its property into the river. Despite such assurances, they will be unable to do so. In my experience, whenever vegetation is removed from large areas of soil, local streams will receive excessive amounts of silt after significant rainfalls. And you can be assured that there will be significant rainfalls. I have studied the effectiveness of "best management practices" (BMPs) commonly employed to prevent silt runoff from construction sites, such as hay bales and silt fences and have found that they are successful in removing only about half of the sediment particles in runoff when they are properly installed and maintained and it doesn't rain very hard. Often, the BMPs are not well maintained and their effectiveness in preventing silt runoff from the site is further reduced. In a heavy rain, the silt fences usually "blow out" from the hydrostatic pressure and cease holding back silt at all. As a result, streams receiving runoff from sites with exposed soil invariably become choked with excessive silt. The developers may be cited for violating their permit and may even (although rarely) pay a fine, but the river suffers, nonetheless. You can count on it.

It is not only anecdotal evidence that indicates sediment runoff is to be expected from the Shepherd Bend mine. According to a study by Warner Golden, an engineer contracted by the Southern Environmental Law Center, the site will discharge approximately 3,187 tons of sediment during 10-year, 24-hour storm events. This will add to the difficulty and expense of treatment necessary for the use of stream water as drinking water. It will also further degrade the water and habitat quality of the river. Although sediments tend to move downstream during storm events, new silt entering the stream from the mine site will replace it and continue to smother the bottom habitat of the stream and fill in the interstices in the gravel. Interstices are necessary habitat for invertebrates and many fish. Also, by filling in pools, the sediment will reduce the habitat heterogeneity (i.e. riffles, runs and pools – both deep and shallow) characteristic of an undisturbed stream. The result will be further reduction in the abundance and diversity of aquatic life in the river.

In addition to the smothering effects of silt on the aquatic habitats of the river, runoff from coal mines tends to be acidic and to contain heavy metals, such as aluminum, copper, and manganese (among others) that are toxic to aquatic organisms. These add further stress to the aquatic community. In higher concentrations, they are toxic to humans in drinking water; in lower concentrations, they impart an unpleasant taste to the water. Even if the concentrations are sub-toxic, an unpleasant taste has large implications. The public will be unhappy (to put it mildly) if their drinking water (and coffee, soups and other things made using the water) do not taste good. In addition, restaurants do not want the quality of their drinks and food to suffer due to water with an “off” taste.

Streams that have received excessive silt from disturbed properties become highly turbid after a rain event as bottom sediments are disturbed by the increased flow. It can take days to weeks for turbidity to drop back to normal levels as small sediment particles drop out of the water column. Turbidity itself interferes with the activities of aquatic organisms that rely on sight, such as visual predators or fish that use visual cues in courtship. Excessive turbidity quickly wears out the pumps of the drinking water intake stations, adding to the cost of public drinking water. The cost of treating the water is also increased as the sediment has to be removed from the water.

In conclusion, the Mulberry Fork is already unable to adequately assimilate the input from existing sources of runoff pollution. The addition of any new sources of silt and toxic substances will add to the insult, will further degrade the biological “health” of the river and will make it more difficult (read “expensive”), if not impossible to treat the water sufficiently that it can continue to serve as an acceptable source of drinking water for Birmingham. In this case, the potential economic benefits of allowing more surface mining in this watershed is greatly overshadowed by the negative effects on this critical source of public drinking water.

Thank you for your consideration of this important issue.

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