

January 25, 2013

Dr. Randall C. Johnson, Director  
Alabama Surface Mining Commission  
P.O. Box 2390  
Jasper, AL 35502-2390  
(Attention: Ann Miles)

Sherry Wilson  
Field Office Director  
Office of Surface Mining  
Reclamation and Enforcement  
135 Gemini Circle, Suite 215  
Homewood, AL 35209

Re: Petition - Lands Unsuitable for Mining  
Mulberry Fork, Black Warrior River

Dear Dr. Johnson and Ms Wilson:

My name is Warner Golden, P.E., a senior engineer and partner with NewFields, an environmental consulting firm headquartered in Atlanta, Georgia. I hold a Bachelor's Degree in Engineering from the Georgia Institute of Technology. I am a Professional Engineer licensed in the states of Alabama and Mississippi and a member of the American Society of Civil Engineers.

I have twenty five years' experience in civil engineering and environmental projects and specialized expertise in surface water and contamination assessment projects. I also have experience in various environmental remediation projects involving the remediation of water pollution. In my practice, I have worked on various projects involving NPDES permits and discharges, and am familiar with the design, construction and effectiveness of storm water pollution abatement measures as they relate to large construction and earthwork projects.

I have been asked to provide input regarding the petition for Lands Unsuitable for Mining (LUM) designation near the Birmingham Water Works Board (BWVB) drinking water intake structure on the Mulberry Fork of the Black Warrior River. This area includes the proposed Shepherd Bend (SB) Mine. I have reviewed the NPDES permit for the SB mine, the permit



application, the ASMC permit and proposed storm water control structures at the SB mine provided by SB engineers. I have formed several opinions that based on my best professional judgment make the SB site and the other land in the proposed LUM designated area applicable for this designation.

- The slopes at the SB mine and other LUM proposed area sites are steep and will be very difficult to control sediment discharge through conventional sediment pond construction. For example, the SEDCAD analysis from SB mine assumes that the sediment ponds will capture 90% of the sediment from the site and prevent it from being released. This is high for a sediment pond and could be difficult to achieve in practice, especially as the retention time for the pond is reduced as sediment builds up over time.
- Existing wetlands are located at the discharge outfalls locations of many of the proposed mine discharges identified at the SB site. The other areas under the LUM proposed area have similar layouts and have similar wetlands. As such, high sediment loading coming from the sediment pond discharges directly into these wetlands which will negatively impact the wetlands along the river.
- Water Quality Standards will be violated in the river and at the BWWB intake during certain storm events as shown in the table below. This table is based on calculations provided by SB engineers, and represents conditions applicable if only the SB mine were operational. If other mines in the LUM proposed area were also in operation, the loadings and concentrations would be multiple times higher.

Parameter	Shepherd Bend Estimate		Engineers Estimate		WQ Standard
	River Mixed mg/l	Pounds Discharged	River Mixed mg/l	Pounds Discharged	
TSS	2,953	1.4 mil	11,254	5.4 mil	Narrative - Free from objectionable deposits
Aluminum	12.16	5,893	46.28	22,480	0.05 to 0.2 <sub>2</sub>



Arsenic	0.04	17.5	0.14	67	zero <sub>1</sub>
Mercury	0.00016	0.1	0.00061	0.3	0.002 <sub>1</sub>
Lead	0.005	2.4	0.019	9.0	zero <sub>1</sub>
Iron	9.25	4,480	35.19	17,092	0.30 <sub>2</sub>
Manganese	0.53	258	1.96	954	0.050 <sub>2</sub>

Notes:

1. Shepherd Bend estimate based on flow and sediment discharged estimates from Shepherd Bend provided SedCad analysis results for basin 008 (10 yr 24 hr rainfall)
2. Tons assumes total sediment discharged during 10 yr storm by ASMC permitted outfalls 004, 005, 006, 007 and 008
3. Coal exposure to rainfall in each basin is 25 %
4. Walker County coal data provided by BWWB
5. All values of mg/l (ppm) are total concentrations including solid and dissolved phase
6. Mass balance based on 10 yr storm event at mine site and 7Q10 river flow of 37.1 cfs or 23.9 mgd
7. Engineers estimate based on a 60% capture efficiency for basin 008, (Designing for Effective Sediment and Erosion Control on Construction Sites, Jerald Field 2001)
8. Highlighted in red exceeds relevant standard
9. 1 – Primary standard for drinking water (40CFR141.51)
10. 2 – Secondary standard for drinking water (40CFR143.3)

- The SB permit fails to set any discharge limits for TDS, sulfates, chlorides, and aluminum, all of which are known to be present in significant levels in typical discharges from coal-mining operations. The state typically writes similar permits for all surface mines, therefore the other mines would also fail to set these discharge limits. Failure to include discharge limits on these pollutants will cause a violation of the water quality standards for the receiving waters because the discharges are not effectively treated or controlled (because there are no limits on them), and could render the water unsuitable as a source of drinking water.

In summary, the ASMC should not allow mining to occur at the proposed LUM area, which includes the Shepherd Bend mine. The topography is too steep to control runoff. Wetlands located along the discharge point drainageways will be silted in as a result of mine runoff. The mining company engineers at the SB site, using their own estimates for sediment discharge



during storm events indicate a violation of Water Quality Standards will occur in the river and at the BWWB intake. Therefore, the entire area as proposed should be designated as LUM.

Sincerely,

Warner Golden, P.E.