



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

MAY 17 2011

THE ADMINISTRATOR

Duncan T. Patten, Ph.D.  
Chairman  
Science Advisory Board Mountaintop Mining Panel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, NW  
Washington, D.C. 20460

Dear Dr. Patten:

Thank you for the Science Advisory Board's comprehensive review of the U.S. Environmental Protection Agency's draft report "A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams." Your comments help us ensure that we are using the best available science to protect our precious water resources and to improve the clarity and quality of the draft report. In particular, it is important to know that the field-based methodology for establishing a conductivity benchmark identifies a protective level that is comparable to traditional chronic water-quality criteria.

In your transmittal letter, you highlighted a few areas in which the report could be strengthened. In response, we offer the following.

- The panel noted that the credibility of the benchmark would be strengthened by analysis relating the constituent ions to observed biological community changes.

The revised conductivity report has an expanded section on the physiological processes that are altered by the interaction of elevated levels of a mixture of calcium, magnesium, bicarbonate and sulfate ions that are associated with the large volumes of rock from mountaintop mining-valley fill operations. The revised report contains more information in the causal assessment section on the ratios of ions and on the mechanism of volume, pH and ionic regulation.

- The panel expressed some concerns with the selection of ecological endpoints for the analysis and suggested that if data were available, the EPA should consider an ecological effect defined as a specified reduction in genera abundance rather than extirpation. Further, the panel suggested the inclusion of a safety factor if extirpation is retained as the ecological endpoint.

After careful consideration of the panel's advice, the report retains extirpation as the benchmark endpoint, as we believe it is sufficiently protective of other aquatic life and exceptional resources, and it is clear and unambiguous. We did not use a safety factor. However, we have added a section to the report that discusses the possibility of using a 50-percent decline in abundance of genera as an endpoint in situations where there is widespread extirpation or the aquatic organisms are unusually rare.

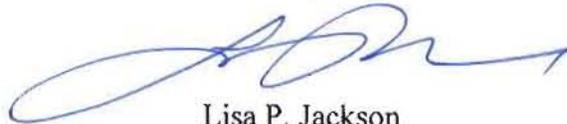
- The panel cautions the EPA not to apply the conductivity benchmark beyond the environmental conditions – geographic region and relative ionic composition, for example – for which it has been validated. To guard against misuse of the benchmark, the EPA document should be more explicit about conditions under which the 300 microsiemens per centimeter value is applicable.

The revised report states more directly that the benchmark level is not applicable when the relative concentrations of dissolved ions are not dominated by salts of sulfate and bicarbonate, when the natural background in the stream exceeds the benchmark and when the receiving stream is not perennial.

We appreciate your positive comments on the clarity of the report, the large data set used to derive the benchmark, the assessment of both causal and confounding factors and the validation with an independent data set.

All of us at the EPA recognize that our efforts to protect public health and the environment can only be as good as the science upon which those efforts are based. Your independent, critical review provides invaluable guidance. Please accept my appreciation for your hard work.

Sincerely,

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Lisa P. Jackson

*Thanks!*



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WASHINGTON, D.C. 20460

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THE ADMINISTRATOR

Deborah L. Swackhamer, Ph.D.  
Chairwoman  
Science Advisory Board  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, NW  
Washington, D.C. 20460

Dear Dr. Swackhamer:

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Lisa P. Jackson

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