

**U.S. Environmental Protection Agency
Science Advisory Board
Mountaintop Mining Panel**

Public Teleconference Call
October 20, 2010
12:00 – 5:00 p.m. Eastern Time

Minutes of the Meeting

Attendees:

Panel Members: Duncan Patten (Chair), Elizabeth Boyer, William Clements, James Dinger, Gwen Geidel, Kyle Hartman, Robert Hilderbrand, Alex Huryn, Lucinda Johnson, Thomas La Point, Sam Luoma, Douglas McLaughlin, Michael Newman, Todd Petty, Ed Rankin, David Soucek, Bernard Sweeney, Philip Townsend, and Richard Warner (for full roster, see Attachment A).

SAB Staff Office: Stephanie Sanzone (Designated Federal Officer), Tony Maciorowski

Other Attendees: Mike Castle, Susan Cormier, Ben Faulkner, Robert Gensemer, Nick Giuliano, Allan Hershowitz, Margaret Jones, Liz Judge, Lauren Lake, Andy McAllister, Sue Norton, Rachael Novak, Rob Reash, Brooks Smith, Jennifer Smith, Michael Troyer

Purpose: to discuss the draft (dated September 28, 2010) SAB report, *Review of Field-based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams*.

Meeting Materials:

All materials discussed at the meeting are available on the SAB Web site, <http://www.epa.gov/sab>, at the [October 20, 2010, Mountain Mining Panel Meeting](#) page.

Summary of Discussions:

A. Convene and Review Agenda

The meeting was announced in the *Federal Register*¹ and generally proceeded according to the meeting agenda². Stephanie Sanzone, Designated Federal Officer for the panel, convened the meeting and noted that the Science Advisory Board Panel on Ecological Impacts of Mountaintop Mining and Valley Fills (the panel) operates in accordance with the Federal Advisory Committee Act. She noted that panel meetings are announced and open to the public, meeting minutes are prepared, all materials prepared for or by the panel are available to the public, and panel draft reports are reviewed and approved by the chartered SAB. She noted also that all panel members were in compliance with ethics rules that apply to them. Ms. Sanzone noted that discussions on the call would reference the draft report³ (dated September 28, 2010) that had been developed based on discussions at the July 20-22, 2010 panel meeting and the draft responses to charge questions prepared by the lead discussants.

Ms. Sanzone noted that the panel had received a number of public comments⁴, which had been posted to the SAB website along with a summary of public comments submitted to the EPA Docket, that three individuals had registered in advance to provide oral comments at the meeting, and that EPA representatives would be given an opportunity to request clarifications or technical corrections to the draft panel report.

Dr. Patten, Chair of the panel, reviewed the agenda for the call, noting his intention to have the panel discuss each of the eight charge questions as well as some cross-cutting questions in order to reach consensus on the panel's advice to the agency. He then requested each of the registered speakers to provide their summary remarks.

B. Public Comments

Mr. Rob Reash, American Electric Power, offered comments on behalf of the Utility Water Act Group. He noted that the process being used by the EPA to develop a conductivity benchmark is novel and there is a lack of cross-validation with other tools (e.g., aquatic use evaluations, multi-metric indices) and the report does not try to validate the benchmark with toxicological data for individual salts.

Dr. Robert Gensemer, GEI Consultants, offered comments on behalf of the National Mining Association. He noted that the SAB offered critical comments but stopped short of critiquing the underlying assumptions of the agency's approach. He stated that he did not think conductivity is a good enough indicator for regulatory use and he questioned the composite variable approach since variables other than conductivity could be causing effects.

Mr. Ben Faulkner, National Mining Association, noted concerns that specific conductance is a simple field evaluation tool that does not provide information on which substances are contributing to the observed effect, and that the observed shift in the genera mix is not necessarily evidence of impaired function. He further noted that the agency's approach did not include adequate characterization of other land use changes in the assessed watershed.

C. EPA Request for Clarification

Dr. Susan Cormier, EPA Office of Research and Development, requested clarification on whether or not the panel recommended that the conductivity benchmark be applied to ephemeral streams. She also noted typographical errors in the panel draft report with respect to background conductivity values (noting that reference values should be 110 $\mu\text{S}/\text{cm}$ for Ecoregion 69 and 198 $\mu\text{S}/\text{cm}$ for Ecoregion 70). Dr. Cormier agreed to provide her comments in writing to the DFO.

D. Panel Discussion of the Draft Report

Dr. Patten requested that panel members raise any issues with the draft report that required panel deliberation, with the lead discussants taking the lead. During discussion of the draft response to the charge questions, members made the following points:

Charge Question 1:

- Dr. Geidel asked Dr. Cormier to clarify the percent of the samples that were duplicates and the rationale for removing reference sites from the analysis.
- Dr. McLaughlin requested that the draft report be revised to be clear that the observed effects are associated with, rather than a direct result of, the mountaintop mining activity. He noted several places in the draft report where this language could be revised.
- Dr. Johnson noted that the prevailing discussion at the July panel meeting had been that there was a strong relationship between conductivity and the biological response and that it was sufficient to discuss the response to conductivity versus as a response to individual ions. She noted that there are few datasets for the individual ions, so the report acknowledges that conductivity is a composite measure that can be used for situations with similar ionic composition.

- Mr. Rankin suggested that EPA check the data to make sure that reference conditions are similar before applying the benchmark near the boundaries of the ecoregions.
- Several members questioned the applicability of the conductivity benchmark to ephemeral streams, but noted that the benchmark could be applied to intermittent streams which have a component of base flow.

Charge Question 2:

- Dr. Luoma agreed to clarify the discussion of how confounded sites were addressed in the statistical analysis. He agreed with the need to be cautious about extrapolating from the field data, but he noted that there also are issues associated with extrapolating from laboratory data.
- Dr. Johnson noted that the draft report language does not convey the panel's strong preference for field data.
- Dr. McLaughlin noted that the report should be clarified to reflect the role of laboratory studies as a complement to field data.
- Dr. Luoma noted that in this specific case, most of the laboratory data are from surrogate species that osmoregulate in a different way and are inherently less sensitive to high conductivity.

Charge Question 3:

- Several members recommended that additional data on constituent ions be collected in the future. However, Drs. Sweeney and LaPoint noted that the data show that ionic composition was relatively consistent across the region, although this might not be the case if the approach was applied to other regions.
- Dr. Boyer noted that EPA needs to clarify what is meant by statements that conductivity is "dominated by sulfate and bicarbonate." Ionic composition needs to be calculated so that dominance can be expressed as mg/L rather than as a percent of total conductivity.

Charge Question 4:

- Drs. Clements, LaPoint and Newman requested that the panel draft be clarified to recommend that the approach focus on SSD for total conductivity, not for individual ions, because data would not be available for individual ions. In addition, the ions work in conjunction so looking at toxicity one by one would not really be an improvement.

Charge Question 5: Only minor editorial suggestions.

Charge Question 6:

- Dr. Clements noted his concern that total extirpation of a genus is not the appropriate response variable.

Charge Question 7:

- Several members suggested deleting the mention of "other treatment technologies" since the draft panel report does not address the effect of treatment technologies on ionic composition.
- Dr. McLaughlin requested that language be clarified regarding the need to apply the benchmark only in areas where the ionic composition is "reasonably consistent" across the region.

Charge Question 8: Only minor editorial suggestions.

In closing, Dr. Patten entertained final panel member comments on the important “take home” messages for the panel report.

- Dr. McLaughlin urged the agency to tie the benchmark to a management goal and clarify how it would relate to how states evaluate stream condition and impairment.
- Dr. Johnson noted that the benchmark approach fits well into the Tiered Aquatic Life Use (TALU) alteration of biological communities in response to increasing levels of stress.
- Mr. Rankin agreed that the approach has a strong link to state application if used with a weight-of-evidence approach, i.e., in combination with other measures of impairment.
- Dr. Clements noted that the approach is unique and effective because of the causal assessment methodology used to eliminate other confounding factors.
- Dr. Johnson noted that panel members were confident in the field-based benchmark, given the strong response signal in the field data, and concluded that the technique is promising. However, she noted the concern that using extirpation as the response variable makes the approach less conservative than it appears.
- Dr. Clements agreed that the field-based approach was a strength of the benchmark process.
- Dr. Luoma noted that the work would not have been possible without the field and laboratory data, which emphasizes the value of having field data collection programs.

Dr. Patten thanked the members of the panel and requested that text revisions discussed on the teleconference, as well as minor editorial corrections, be submitted to Ms. Sanzone by October 29, 2010.

E. Adjournment. The DFO adjourned the meeting at 4:15 p.m.

Respectfully Submitted:

/signed/

Stephanie Sanzone,
Designated Federal Officer
EPA SAB Staff Office

Certified as Accurate:

/signed/

Dr. Duncan Patten, Chair
SAB Mountaintop Mining Panel

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by panel members during the course of deliberations at the meeting. Such ideas, suggestions and deliberations do not necessarily reflect consensus advice from the panel. The reader is cautioned not to rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final advisories, commentaries, letters or reports prepared and transmitted to the EPA Administrator following the public meetings.

Attachment A. Roster

**U.S. Environmental Protection Agency
Science Advisory Board
Panel on Ecological Impacts of
Mountaintop Mining and Valley Fills
(Mountaintop Mining Panel)**

CHAIR

Dr. Duncan Patten, Research Professor, Hydroecology Research Program, Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT

MEMBERS

Dr. Elizabeth Boyer, Associate Professor, School of Forest Resources and Assistant Director, Pennsylvania State Institutes of Energy & the Environment, and Director, Pennsylvania Water Resources Research Center, Pennsylvania State University, University Park, PA

Dr. William Clements, Professor, Department of Fish, Wildlife, and Conservation Biology, Colorado State University, Fort Collins, CO

Dr. James Dinger, Head, Water Resources Section, Kentucky Geological Survey, University of Kentucky, Lexington, KY

Dr. Gwendelyn Geidel, Research Professor/Assistant Director, Dept of Earth & Ocean Sci/ School of the Environment, University of South Carolina, Columbia, SC

Dr. Kyle Hartman, Professor, Wildlife and Fisheries Resources, Division of Forestry and Natural Resources, West Virginia University, Morgantown, WV

Dr. Robert Hilderbrand, Professor, Appalachian Laboratory, University of Maryland Center for Environmental Science, Frostburg, MD

Dr. Alexander Huryn, Professor, Department of Biological Sciences, College of Arts & Sci., University of Alabama, Tuscaloosa, AL

Dr. Lucinda Johnson, Center Director, Center for Water and the Environment, Natural Resources Reserach Institute, University of Minnesota Duluth, Duluth, MN

Dr. Thomas W. La Point, Professor, Department of Biological Sciences, University of North Texas, Denton, TX

Dr. Samuel N. Luoma, Senior Research Hydrologist, John Muir Institute of the Environment, University of California - Davis, Sonoma, CA

Dr. Douglas McLaughlin, Principal Research Scientist, Western Michigan University, National Council for Air and Stream Improvement, Kalamazoo, MI

Dr. Michael C. Newman, Professor of Marine Science, School of Marine Sciences, Virginia Institute of Marine Science, College of William & Mary, Gloucester Point, VA

Dr. Todd Petty, Associate Professor, Wildlife and Fisheries, Forestry and Natural Resources, West Virginia University, Morgantown, WV

Mr. Edward Rankin, Environmental Researcher, Ohio University, Athens, OH

Dr. David Soucek, Associate Professional Scientist, Illinois Natural History Survey, Institute of Natural Resource Sustainability, University of Illinois at Urbana-Champaign, Champaign, IL

Dr. Bernard Sweeney, Director, President, Senior Research Scientist, Stroud Water Research Center, Avondale, PA

Dr. Philip Townsend, Associate Professor, Forest & Wildlife Ecology, College of Agriculture and Life Sciences, University of Wisconsin - Madison, Madison, WI

Dr. Richard Warner, Professor, Biosystems & Agr. Engr., College of Agriculture, University of Kentucky, Lexington, KY

SCIENCE ADVISORY BOARD STAFF

Mr. Edward Hanlon, Designated Federal Officer, U.S. Environmental Protection Agency, Science Advisory Board (1400R), 1200 Pennsylvania Avenue, NW, Washington, DC 20460

Ms. Stephanie Sanzone, Designated Federal Officer, U.S. Environmental Protection Agency, Science Advisory Board (1400R), 1200 Pennsylvania Avenue, NW, Washington, DC 20460

Materials Cited

The following meeting materials are available on the SAB Web site, <http://www.epa.gov/sab>, at the [October 20, 2010 SAB Mountaintop Mining Panel Meeting](#) page.

¹ Federal Register Notice Announcing the Meeting (75 FR 56104-56105)

² Meeting Agenda, SAB Mountaintop Mining Panel, October 20, 2010

³ *Review of Field-based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams*

⁴ Public Comments Received:

- Public Comments submitted by Andy McAllister representing Western Pennsylvania Coalition for Abandoned Mine Reclamation, 10-13-10
- Public Comments submitted by Ben Faulkner, 10-13-10
- Public Comments submitted by Brooks Smith representing Utility Water Act Group, 10-13-10
- Public Comments submitted by B. Sachau, 9-19-2010
- Public Comments submitted by David Roberson representing Alabama Coal Association, 10-13-10.
- Public Comments submitted by Jeffrey Jarrett representing National Mining Association, 10-12-10
- Public Comments submitted by Margaret Hensley Dunn representing Stream Restoration Incorporated-10-12-10
- Public Comments submitted by National Mining Association, prepared by GEI Consultants, 10-13-10
- Public comment transmitted through the EPA Mountaintop Mining Docket as of 9-13-10