



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON D.C. 20460

OFFICE OF THE ADMINISTRATOR  
SCIENCE ADVISORY BOARD

May 20, 2010

**Memorandum**

**SUBJECT:** Formation of the Panel for the Review of Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields, and Aquatic Life Benchmark for Conductivity in Central Appalachian Streams

**FROM:** Edward Hanlon */Signed/*  
Designated Federal Officer (DFO)  
EPA Science Advisory Board Staff Office (1400F)

**THRU:** Wanda Bright */Signed/*  
Ethics Officer  
EPA Science Advisory Board (1400F)

**TO:** Vanessa Vu, Ph.D.  
Director  
EPA Science Advisory Board (1400F)

EPA's Office of Research and Development (ORD) prepared a scientific assessment of the ecological impacts related to mountaintop mining and valley-fill operations entitled "The Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields." The scope of this assessment includes: loss of headwater streams, downstream water quality and subsequent effects on in-stream biota, and cumulative ecological impacts. In addition, the draft assessment evaluates restoration and recovery methods used by mining companies to address these ecological impacts associated with mountaintop mining and valley-fill operations. ORD also developed the "Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams" report that uses field data to derive an aquatic life benchmark value for conductivity (a measure of salinity) that may be applied to waters in the Appalachian Region that are dominated by salts of  $\text{SO}_4^{2-}$  and  $\text{HCO}_3^-$ . This benchmark value is intended to protect the biological integrity of waters in the region. ORD requested that the Science Advisory Board (SAB) review and provide advice on the scientific adequacy, suitability and appropriateness of both the draft Aquatic Ecosystem Report and the draft Conductivity Benchmark Report. The SAB Staff Office is forming one expert panel under the auspices of the SAB to provide advice on the ecological impacts related to mountaintop mining and valley-fill operations and on deriving an aquatic life ambient water quality advisory value for conductivity using field data.

This memorandum documents the set of determinations that were necessary for forming the Panel to review the mountaintop mining aquatic ecosystem report and the conductivity benchmark document. This memorandum addresses:

- A) The type of review body that will be used to conduct the review, and the nature of the review;
- B) The types of expertise needed to address the general charge;
- C) Financial conflict of interest considerations, including identification of parties who are potentially interested in or may be affected by the topic to be reviewed;
- D) How regulations concerning “appearance of a lack of impartiality,” pursuant to 5 C.F.R. § 2635.502 apply to members of the Panel; and
- E) How individuals were selected for the Panel.

#### **DETERMINATIONS:**

(A) The type of advisory body that will be used to conduct the advisory activity and the types of expertise needed to address the general charge

In a Federal Register Notice (Volume 74, Number 185, Pages 48952 – 48953) published on September 25, 2009, the SAB Staff Office solicited public nominations for an expert SAB Panel to provide advice on ORD’s draft mountaintop mining aquatic ecosystem report. To form the Panel, the SAB Staff Office sought public nominations of nationally and internationally recognized scientists and engineers in one or more of the following areas associated with mountaintop mining and valley-fill operations: aquatic ecology, aquatic toxicology, hydrogeology, water quality, mining engineering, ecosystem restoration, inorganic chemistry, freshwater ecological risk assessment, and systems ecology.

In a Federal Register Notice (Volume 75, Number 22, Pages 5589 – 5590) published on February 3, 2010, the SAB Staff Office solicited public nominations for an SAB expert Panel to conduct a peer review of EPA’s draft mountaintop mining aquatic ecosystem report and the conductivity benchmark document. To form the Panel, the SAB Staff Office sought public nominations of experts with nationally recognized expertise, knowledge, and experience in statistics with emphasis in management of empirical data sets associated with aquatic ecology or water quality criteria. The February 2010 Federal Register Notice noted that since the mountaintop mining assessment report and the conductivity advisory document are related, the SAB Staff Office is forming one expert panel under the auspices of the SAB to cover the necessary expertise for the review of both reports.

(B) Financial conflict of interest considerations, including identification of parties who are potentially interested in or may be affected by the topic concerning which advice is to be given

(a) Identification of parties who are potentially interested in or may be affected by the topic concerning which advice is to be given: The principal interested and affected parties for this topic are the set of people that are employed or have significant financial interests in organizations involved in or associated with mountaintop mining and valley-fill operations in Southern Appalachia.

(b) Conflict of interest considerations: For Financial Conflict of Interest (COI) issues, the basic 18 U.S.C. § 208 provision states that: “An employee is prohibited from participating *personally and substantially* in an official capacity in any *particular matter* in which he, to his knowledge, or any person whose interests are imputed to him under this statute has a *financial interest*, if the particular matter will have a direct and predictable effect on that interest [emphasis added].” For a conflict of interest to be present, all elements in the above provision must be present. If an element is missing the issue does not involve a formal conflict of interest; however, the general provisions in the appearance of impartiality guidelines must still apply and need to be considered.

(i) Does the general charge to the Panel to review the mountaintop mining assessment report and the conductivity advisory document involve a particular matter? A “particular matter” refers to matters that “...will involve deliberation, decision, or action that is focused upon the interests of specific people, or a discrete and identifiable class of people.” It does not refer to “...consideration or adoption of broad policy options directed to the interests of a large and diverse group of people.” [5 C.F.R. § 2640.103 (a)(1)]. A particular matter of general applicability means a particular matter that is focused on the interests of a discrete and identifiable class of persons, but does not involve specific parties. [5 C.F.R. § 2640.102 (m)]. Additionally, 5 CFR 2637.102(a)(7) defines a particular matter involving specific parties to mean any judicial or other proceeding, application, request for ruling or other determination, contract, claim, controversy, investigation, change, accusation, arrest or other particular matter involving a specific party or parties in which the United States is a party or has a direct and substantial interest.

In providing active advice concerning ORD’s mountaintop mining assessment report and the conductivity advisory document, the Panel’s activity will qualify as a *particular matter of general applicability* because the resulting advice will be part of a deliberation, and under certain circumstances the advice could involve the interests of a discrete and identifiable class of people but does not involve specific parties. That group of people constitutes those who are associated or involved with the potentially interested or affected parties, as identified in Section (B)(a) above.

(ii) Will there be personal and substantial participation on the part of members of the Panel to review the mountaintop mining assessment report and the conductivity advisory document? Participating personally means direct participation in this review. Participating substantially refers to involvement that is of significance to the matter under consideration. [5 C.F.R. § 2640.103(a)(2)]. For this review, the SAB Staff Office has determined that Panel members will be participating personally in matters presented to them through attendance at meetings, teleconferences and other means. For this review, Panel members will be participating personally in the matter through attendance at meetings, teleconferences and other means. SAB Review Panel members will provide advice that might influence the Agency’s mountaintop mining assessment report and the conductivity advisory document, and thus their participation in this review will be substantial.

(iii) Will there be a direct and predictable effect on the financial interests of members of the Panel to review the mountaintop mining assessment report and the conductivity advisory document? A direct effect on a participant’s financial interest exists if “...a close causal link exists between any decision or action to be taken in the matter and any expected effect of the matter on the financial interest. ...A particular matter does not have a direct effect ...if the chain of causation is attenuated or is contingent upon the occurrence of events that are speculative or that are independent of, and unrelated to, the matter. A particular matter that has an effect on a financial interest only as a consequence of its effects on the general economy is not considered to have a direct effect.” [5 C.F.R. § 2640.103(a)(i)]. A predictable effect exists if, “...there is an actual, as opposed to a speculative, possibility that the matter will affect the financial interest.” [5 C.F.R. § 2640.103(a)(ii)].

(C) How regulations concerning “appearance of a lack of impartiality,” pursuant to 5 C.F.R. § 2635.502, apply to members of the Panel to review the mountaintop mining assessment report and the conductivity advisory document

The Code of Federal Regulations at 5 C.F.R. § 2635.502(a) states that:

“Where an employee knows that a **particular matter** involving specific parties is likely to have a **direct and predictable effect** on the financial interest of a member of his household, or knows that a person with whom he has a covered relationship is or represents a party to such matter, and where the person determines that the circumstances would cause a reasonable person with knowledge of the relevant facts to question his impartiality in the matter, the employee should not participate in the matter unless he has informed the agency designee of the appearance problem and received authorization from the agency designee.”

Further, § 2635.502(a)(2) states that:

“An employee who is concerned that circumstances other than those specifically described in this section would raise a question regarding his impartiality should use the process described in this section to determine whether he should or should not participate in a particular matter.”

Each potential member was evaluated against the 5 C.F.R. 2635(a)(2) general requirements regarding an appearance of a lack of impartiality. Information used in this evaluation was provided by prospective Panel members through their submission of a confidential financial disclosure form (EPA Form 3110-48, “Confidential Financial Disclosure Form for Special Government Employees Serving on Federal Advisory Committees at the U.S. Environmental Protection Agency”).

To ascertain whether there is any appearance of a lack of impartiality, the following four questions were posed to each prospective member of the SAB Panel to review the mountaintop mining assessment report and the conductivity advisory document with respect to the forthcoming charge for the Panel:

(a) Do you know of any reason that you might be unable to provide impartial advice on the matter to come before the panel/committee/subcommittee or any reason that your impartiality in the matter might be questioned?

(b) Have you had any previous involvement with the review document(s) under consideration including authorship, collaboration with the authors, or previous peer review functions? If so, please identify and describe that involvement.

(c) Have you served on previous advisory panels, committees or subcommittees that have addressed the topic under consideration? If so, please identify those activities.

(d) Have you made any public statements (written or oral) on the issue that would indicate to an observer that you have taken a position on the issue under consideration? If so, please identify those statements.

Upon review of submitted financial disclosure forms, the SAB Staff Office has determined that there are no conflicts of interest or appearances of a lack of impartiality associated with prospective members for this Panel.

(D) How Individuals Were Selected For The Panel to Review the Mountaintop Mining Assessment Report and the Conductivity Advisory Document:

On November 24, 2009, the SAB Staff Office posted on the SAB Web site a list of 98 candidates for the Panel to review the mountaintop mining assessment report for public comment. The SAB Staff Office received six public comments on this list of candidates (Attachment 1). On February 24, 2010, the SAB Staff Office posted on the SAB Web site a list of 107 candidates for the Panel to review the mountaintop mining assessment report and the conductivity advisory document for public comment. The SAB Staff Office received one public comment on this list of candidates (Attachment 2).

The SAB Staff Office Director, taking all factors into account, makes the final decision about the membership for the Panel to Review the Mountaintop Mining Assessment Report and the Conductivity Advisory Document. Specific criteria to be used in evaluating an individual Panel member include: a) scientific and/or technical expertise, knowledge, and experience; b)

availability and willingness to serve; c) absence of financial conflicts of interest; d) absence of appearance of a lack of impartiality; e) skills working in advisory committees and panels; and, for the panel as a whole, f) diversity of scientific expertise and viewpoints.

On the basis of the above-specified criteria, the members of the Panel to review the mountaintop mining assessment report and the conductivity advisory document are as follows:

**Members of the Panel to Review the Mountaintop Mining Assessment Report and the Conductivity Advisory Document**

**Dr. Duncan Patten**, Montana State University, **CHAIR**

**Dr. Mark B. Bain**, Cornell University

**Dr. Elizabeth W. Boyer**, Pennsylvania State University

**Dr. William H. Clements**, Colorado State University

**Dr. James Dinger**, University of Kentucky

**Dr. Gwendelyn Geidel**, University of South Carolina

**Dr. Kyle Hartman**, West Virginia University

**Dr. Robert H. Hilderbrand**, University of Maryland

**Dr. Alexander D. Huryn**, University of Alabama

**Dr. Lucinda Johnson**, University of Minnesota

**Dr. Thomas W. LaPoint**, University of North Texas

**Dr. Samuel Luoma**, University of California, Davis

**Dr. Douglas McLaughlin**, Western Michigan University

**Dr. Michael C. Newman**, College of William & Mary

**Dr. J. Todd Petty**, West Virginia University

**Mr. Edward T. Rankin**, Ohio University

**Dr. David Soucek**, University of Illinois

**Dr. Bernard W. Sweeney**, Stroud Water Research Center

**Dr. Philip Townsend**, University of Wisconsin

**Dr. Richard Warner**, University of Kentucky

Concurred:

*/Signed/*

\_\_\_\_\_  
Vanessa Vu, Ph.D.  
Staff Director  
EPA Science Advisory Board (1400F)

**May 20, 2010**

Date

## **ATTACHMENTS**

Attachment 1 List of public commenters in response to the List of Candidates for the Panel issued on November 24, 2009

Attachment 2 List of public commenters in response to the List of Candidates for the Panel issued on February 24, 2010

**Attachment 1:**  
**Public Comments on the List of Candidates for the Panel issued on November 24, 2009**

Honorable Steven L. Beshear	Governor, State of Kentucky
Honorable Rocky Adkins	Majority Floor Leader, State of Kentucky House of Representatives
Mr. Ed J. Kirk	Director, Biological Division, R.E.I. Consulting Inc.
Mr. Bob Mosher	Water Quality Standards Unit, State of Illinois Environmental Protection Agency
Honorable Rick Boucher	Member of U.S. Congress, State of Virginia
Mr. Bradley C. Lambert	Deputy Director, Department of Mines, Minerals and Energy, State of Virginia
Robert M. Hughes	Professor, Oregon State University

**Attachment 2:**

**Public Comments on the List of Candidates for the Panel issued on February 24, 2010**

Mr. Bob Mosher

Water Quality Standards Unit, State of Illinois  
Environmental Protection Agency

Honorable Pat Quinn

Governor, State of Illinois