



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON D.C. 20460

OFFICE OF THE ADMINISTRATOR  
SCIENCE ADVISORY BOARD

February 8, 2005

**MEMORANDUM**

**SUBJECT:** Determination for SAB Superfund Benefits Analysis Advisory Panel

**FROM:** Holly Stallworth, Ph.D. /signed/  
Designated Federal Officer, Environmental Economics Advisory Committee  
EPA Science Advisory Board Staff Office (1400F)

**THRU:** Daniel Fort /signed/  
Ethics and FACA Policy Officer  
EPA Science Advisory Board (SAB) Staff Office (1400F)

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

This memorandum summarizes steps taken in regard to the request from the EPA's Office of Solid Waste and Emergency Response (OSWER) for an SAB advisory on its draft report entitled *Superfund Benefits Analysis* (SBA). OSWER is seeking advice from the SAB in the form of an "advisory" so that advice can be used in the development and completion of this report. The *Superfund Benefits Analysis* was commissioned to quantify and monetize the total benefits of the Superfund program. This report is now complete and posted at <http://www.epa.gov/superfund/news/benefits.htm>.

**A. The Charge to the Panel**

Final draft charge questions listed in Attachment A were agreed upon by the SAB Staff Office, OSWER and the Chair of the Panel.

**B. Formation of Superfund Benefits Analysis Advisory Panel**

The *Federal Register Notice* published on July 30, 2004 solicited nominations for panelists with expertise in one or more of the following areas: (a) Hazardous waste management; (b) valuation for cost-benefit analysis, specifically hedonic pricing models and methods; (c) ecological risk assessment; (d) public health and epidemiology, and (e) toxicology and human health. This Notice may be found at <http://www.epa.gov/EPA-SAB/2004/July/Day-30/sab17376.htm>.

A total of 19 nominations of experts were received in response to this “Widecast” solicitation. The SAB Staff Office confirmed their willingness to serve on the SAB Panel and evaluated their scientific and technical credentials and expertise relevant to the SAB Panel. On October 25, 2004, a “Short List” of 19 candidates for the Superfund Benefits Analysis Advisory Panel was posted on the SAB website for public comment. Comments were received from two members of the public. See Attachment B for the list of public commenters.

### **C. Conflict of Interest Issues:**

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 a lack of impartiality guidelines” may still apply and need to be considered.

#### Personal and Substantial Participation:

Participating personally means participating directly. Participating substantially refers to involvement that is of significance to the matter. [5C.F.R. 2640.103(a)(2)]. For this review, panel members will be participating personally in the matter through attendance at meetings, teleconferences and other means.

#### Direct and Predictable Effect:

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)].

#### 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)].

The work of this SAB Advisory Panel does not qualify as a particular matter because the *Superfund Benefits Analysis* does not focus on the interests of specific persons, or a discrete and identifiable class of persons. Rather, the SAB panel's activity will consider technical aspects of a very broad-based report. Thus, the criteria for particular matter are not met and no financial conflict of interest as defined in 18 USC 208 exists.

#### Appearance of a Lack of Impartiality Considerations

The Code of Federal Regulations [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, 5 C.F.R. 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 advisory panel member was evaluated against the 5 C.F.R. 2635(a)(2) general requirements for considering an appearance of a lack of impartiality. Information used in this evaluation has come from information provided by potential advisory panel members (including, but not limited to, EPA 3110-48 confidential financial disclosure forms) and public comment.

To further evaluate any potential appearance of a lack of impartiality, the following five (5) questions were posed to all prospective advisory panel members:

- Do you know of any reason that you might be unable to provide impartial advice on the matter to come before the Panel or any reason that your impartiality in the matter might be questioned?
- Have you had any previous involvement with the issue(s) or document(s) under consideration, including authorship, collaboration with the authors, or previous peer review functions? If so, please identify those activities.
- Have you served on previous advisory panels or committees that have addressed the topic under consideration? If so, please identify those activities.
- Have you made any public statements (written or oral) on the issue? If so, please identify those statements.
- Have you made any public statements that would indicate to an observer that you have taken a position on the issue under consideration? If so, please identify those statements.

## Conflict of Interest and Appearance of a Lack of Impartiality Determination for Advisory Panel Members

Prospective advisory panel members were required to submit 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”). As a result of a review of these forms, the responses to the five questions above, public comments, and information gathered by SAB staff as well as each prospective panel member, the Deputy Ethics Official of the Science Advisory Board, in consultation with the SAB Ethics and FACA Policy Officer, has determined that there are no conflict of interest or appearance of a lack of impartiality for the members of this panel.

### **D. How Individuals Were Selected for the Final Panel:**

The SAB Staff Office Director, in consultation with the Panel Chair, makes the final decision about who serves on the Panel during the “Panel Selection” phase. Members of the Panel were selected from the “short list” candidates. Selection criteria included: scientific credentials and expertise; willingness to serve on the Panel, and availability to meet during the proposed time period; absence of conflict of interest and a lack of appearance of impartiality, and balance of relevant expertise and diversity of scientific viewpoints.

Concurred,

*/signed/*

Vanessa T. Vu, Ph.D.  
Director  
EPA Science Advisory Board Staff Office

Attachment A: Draft Charge Questions  
Attachment B: List of Public Commenters  
Attachment C: Superfund Benefits Analysis Advisory Panel

## Attachment A

### Superfund Benefits Analysis Draft Charge Questions

1. Chapter 1 provides a framework for capturing the benefits of the Superfund program in the *Superfund Benefits Analysis* (SBA). Chapter 2 reviews the literature relevant to the SBA. Please comment on the adequacy and appropriateness of these introductory chapters as a foundation for the SBA.
  
2. The latter part of Chapter 3 discusses some of the data used for the SBA. Please comment on this data discussion, with consideration of the following questions.
  - 2a. The lack of NPL site boundary information makes it necessary to estimate the numbers of nearby residents and homes at various distances from NPL sites; these are needed for the analyses in Chapters 4 and 5. Is the use of circular areas based on site size, as illustrated in Figures 3.5-3.8, an adequate approach?
  
  - 2b. Is it appropriate to ignore proximity to more than one NPL site? What methods might be used to account for effects associated with proximity to two or more NPL sites?
  
  - 2c. Are the correct inferences about comparability between the NPL site groups in Table 3.3 correctly drawn? Are there other groups that it might be useful to define and analyze?
  
  - 2d. Is it appropriate to assume a uniform distribution of populations and residences across census blocks? What other approaches could be taken?
  
3. Chapter 4 presents a benefits transfer analysis applied to all those NPL sites where the benefits are expected to occur from 1980 – 2024. Please comment on this chapter, with consideration of the following questions.
  - 3a. Are the challenges associated with the benefits methodology as applied to hedonic price studies in Chapter 4 satisfactorily met?
  
  - 3b. Both *Circular A-4* (Office of Management and Budget 2003 pp. 24-26) and the recent comments on the *Underground Storage Tanks (UST) Cleanup & Resource Conservation & Recovery Act (RCRA) Subtitle C Program Benefits, Costs, & Impacts (BCI) Assessments: An SAB Advisory* (Science Advisory Board 2002 pp. 20-22) contain specific comments associated with the methodology used in Chapter 4. Have these comments been addressed adequately? In light of these comments, has the benefits transfer methodology been applied correctly?
  
  - 3c. Are the estimates of the price effect (Figures 4.3 and 4.4 and Tables 4.4 and 4.5) based on the best available data and a sound methodology?

- 3d. Does the application of the price effect to estimate the value of Remedial Actions at NPL sites match the relevant theoretical principles? In particular, does the analysis of reversals of the negative price effect found in the literature (and associated with Figure 4.3) provide a sound basis for assuming that reversals always occur?
- 3e. Are the four model specifications (Equations 4.2 through 4.5) appropriate? In particular, these models calibrate the basic benefits transfer model (Equation 4.2) for non-linear effects and/or differences in home values. Are these calibrations appropriate? Are there other calibrations that could be made to improve the estimate?
- 3f. Are the study sites reasonably representative of the policy sites?
- 3g. Although there are no federal facilities among the study sites, federal facilities (e.g., the Camp Pendleton and Savannah River sites) are included among the policy sites. The analysis of NPL site groups in Chapter 3 suggests there may be no significant differences in relevant characteristics (e.g., nearby population, cost of nearby homes, and the price effect). Should federal sites be included in this analysis or not? If so, how? Can estimates both with and without federal sites be included, and which one does the Panel think would be more reliable?
4. Chapter 5 presents a proposed analysis for assessing the health effects of Superfund. Please comment on the proposed health effect-by-effect analysis with consideration of the following questions.
- 4a. Is the epidemiology-based approach adapted from Lybarger et al. (1998) appropriate? If so, does the Panel have any specific recommendations for implementing it?
- 4b. Are there other feasible methods for monetizing the value of avoided morbidity besides Cost of Illness? Of these other methods, how can they be prioritized (i.e. which ones should EPA investigate first)?
- 4c. Have the content and limitations of the literature on the epidemiology of hazardous substances in the environment and related material been described adequately?
- 4d. What recommendations does the Panel have for using the Integrated Exposure Uptake Biokinetic model for lead?
- 4e. What recommendations does the Panel have for using the results from “*Calculating Risks?*” for estimating the benefit of avoided adult cancers?
5. Chapter 5 also presents a proposed method for capturing the ecological benefits of Superfund. Please comment on the ecological benefit analyses proposed in Chapter 5 with consideration of the following questions.
- 5a. Is the method of using data from detailed Natural Resource Damage Assessments to estimate benefits on a site-specific basis appropriate and in accordance with accepted theory?

5b. Previous reviewers have had mixed opinions on the aggregate approach described by Equation 5.1; some have thought it inappropriate, others have made no comment. In the view of the Panel, what would be needed to permit the use of Equation 5.1 or a similar approach to an aggregate analysis? Is there some other approach that might provide insight into the magnitude of this benefit?

5c. In cases where natural recovery would otherwise take place over finite but lengthy periods (decades to centuries), the benefits of active restoration accrue over similar periods. Is the approach described for discounting benefits accruing over long time horizons consistent with current thinking on this issue?

6. Chapter 6 discusses the non-quantified benefits of the Superfund program. Please comment on this discussion.

7. Please comment on the overall organization and flow of the report.

Attachment B

**Public Commenters  
for Superfund Benefits Analysis Advisory Panel**

Dr. William Breffle, Stratus Consulting

Ms. Jane Morley, Computer Sciences Corporation

## Attachment C

### **U.S. Environmental Protection Agency Science Advisory Board Superfund Benefits Analysis Advisory Panel**

#### **CHAIR**

**Dr. Myrick Freeman**, Research Professor of Economics, Department of Economics, Bowdoin College, Brunswick, ME

#### **MEMBERS**

**Dr. Anna Alberini**, Associate Professor, Department of Agricultural and Resource Economics, University of Maryland, College Park, MD

**Dr. Robin L. Autenrieth**, Professor, Department of Civil Engineering  
And Department of Environmental and Occupational Health, Texas A&M University, College Station, TX

**Dr. James Boyd**, Senior Fellow, Director, Energy & Natural Resources Division, Resources for the Future, Washington, DC

**Dr. Ted Gayer**, Associate Professor, Department of Public Policy, Georgetown University, Washington, DC

**Dr. Mark Miller**, Public Health Medical Officer, Office of Environmental Health Hazard Assessment, Oakland, CA

**Horace Keith Moo-Young**, Associate Dean and Professor, College of Engineering, Villanova University, Villanova, PA

**Ms. Katherine N. Probst**, Senior Fellow and Director, Risk, Resource and Environmental Management Division, Resources for the Future, Washington, DC

**Dr. Kathleen Segerson**, Professor, Department of Economics, University of Connecticut, 341 Mansfield Road, Box U-63, Room 338, Storrs, CT, 06269, Phone: 860-486-4567, Fax: 860-486-4463, ([segerson@uconn.edu](mailto:segerson@uconn.edu))

**Mr. Timothy Thompson**, Senior Environmental Scientist, Science, Engineering, and the Environment, Seattle, WA

#### **SCIENCE ADVISORY BOARD STAFF**

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