



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

OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

October 14, 2005

MEMORANDUM

SUBJECT: U.S. EPA Science Advisory Board (SAB) Geographic Information System Screening Tool (GISST) Review Panel

FROM: Thomas M. Armitage, Ph.D. */Signed/*
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THRU: Daniel Fort */Signed/*
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This memorandum documents the process and addresses the set of determinations used in forming this Science Advisory Board Panel. It provides background information on the subject SAB activity and addresses:

1. The general charge developed for the Panel;
2. The type of panel that will be used to conduct the review, the name of the Panel, identification of the Panel Chair, and the types of expertise needed to address the charge;
3. How individuals were placed on the "short list" candidates for the Panel;
4. Identification of parties who are potentially interested in or may be affected by the topic to be reviewed;
5. Whether the charge involves a particular matter and how conflict of interest regulations apply to members of the panel;
6. How individuals were placed on the Panel.

A. Background

U.S. EPA Region 6 has developed a Geographic Information System Screening Tool (GISST) for use in comparative evaluation of potential direct and cumulative environmental effects of projects (particularly large, significant, complex projects such as those subject to the National Environmental Policy Act). The tool was developed to provide a systematic approach to considering single media and cumulative impacts in making environmentally sound decisions, and to facilitate communication of technical and regulatory data to industry, the public, and other stakeholders. Region 6 staff have used the tool to assist in decision-making when little or no data are available and also to check the information provided by permit applicants.

EPA Region 6 is seeking comment from the Science Advisory Board in order to refine and enhance GISST. Specifically, Region 6 is asking for comments on the methodology and the usefulness of GISST, particularly for use in environmental impact assessments as conducted under the National Environmental Policy Act (NEPA). EPA Region 6 is also interested in making the GISST more user-friendly, and asks for comments on further enhancements to GISST.

B. Determinations

1) The general charge to the Panel.

The U.S. EPA Region 6 GISST uses geographic information system coverages and databases, and applies a scoring/decision structure on the data so that decisions can be made. The decision structure consists of criteria that are used to score the data on a one to five scale, where one equals a lower level of concern or potential environmental vulnerability and five equals a higher level of concern or vulnerability. Scores are used to help prioritize potential project locations and alternatives, and to identify levels of environmental concern. To score the data, approximately 90 criteria have been identified in several different categories (e.g., ecological, socioeconomic, toxicity, water quality, air quality) to provide an assessment of the potential environmental vulnerability of a project location, or the impact of a specified activity.

The GISST User's Manual contains background information on the GISST, the criteria used to score the data, and geographic information system (GIS) programming involved. The User's Manual also contains a series of case studies in which GISST has been successfully applied. Region 6 is seeking advice regarding: the methodology and framework applied in the GISST, appropriate use of the GISST, and potential enhancements to the GISST.

2) Type of panel that will be used to conduct the review, the name of the panel, and identification of the panel chair, and types of expertise needed to address the charge:

The SAB Staff Office is augmenting the expertise on the SAB Ecological Processes and Effects Committee (EPEC) to conduct the review of the GISST. Review of the GISST requires a panel with broad expertise in ecology; landscape ecology; the use of geographic information

system (GIS) technology to assess environmental vulnerability and impacts; decision science and decision structures; and ecological risk assessment. EPEC members available for this review provide the required expertise in ecology, landscape ecology, and risk assessment. The expertise on the EPEC is being augmented to provide additional expertise in the use of GIS technology for ecological risk assessment, environmental impact assessment, decision-making, and planning. Dr. Virginia Dale, a member of the Chartered SAB and Chair of the EPEC, will chair this SAB panel. The name of the panel is the, “Geographic Information System Screening Tool (GISST) Review Panel.”

The SAB Staff Office announced to the public through a *Federal Register* notice published on September 22, 2005 that the SAB EPEC would conduct this review. The *Federal Register* notice stated that the expertise needed to review the GISST is similar to the expertise that was required on SAB panels that had previously reviewed EPA’s methods for regional vulnerability assessment (ReVA) and the Agency’s Critical Ecosystem Assessment Model (CrEAM). The *Federal Register* notice therefore announced that the SAB Staff Office would select a set of nominees for consideration to serve on the GISST Review Panel from the rosters of SAB panels that had reviewed the CrEAM and ReVA methods, and from previously published short lists of candidates for those panels.

3) How individuals were placed on the “short list”:

On the basis of candidates’ qualifications and availability to participate in the review meeting, the SAB Staff Office identified seven candidates to be on the “short list.” On September 29, 2005, the SAB Staff Office posted a notice on the SAB website inviting public comments on the “short list” of prospective candidates for the Panel. The SAB Staff Office indicated that it intended to select candidates from the “short list” to augment the expertise on the EPEC and form the GISST Review Panel.

In particular, the notice on the SAB website stated that the Staff Office would welcome any information, analysis or documentation that the SAB Staff Office should consider in evaluating the candidates on the “short list,” and asked that any advice, observations or comments which would be helpful in selecting the final candidates be provided to the SAB Staff Office no later than October 13, 2005. *The SAB Staff Office received no comments on the “short list” of candidates for the GISST Review Panel.*

4) Identification of parties who are potentially interested in or may be affected by the topic to be reviewed:

The GISST will be used by EPA Region 6 to assist in conducting comparative screening level evaluations for decision making processes (such as environmental impact assessment under the National Environmental Policy Act) concerning the potential effects of proposed projects. Potentially interested and affected parties include: 1) federal, state, and local government agencies, elected officials, and non-government organizations facing EPA decisions that may be affected by analyses conducted using the GISST; 2) those involved with the interests of

industries and governments that may be affected by EPA decisions made using information obtained from GISST analyses, and 3) academic researchers involved with decision science, landscape ecology, and the application of geographic information system technology to the development of environmental policy. Within EPA, the Agency's Regional Offices may be interested in the use of the GISST for environmental assessment, regulation, and policy development.

5) Whether the charge involves a particular matter and how conflict of interest regulations apply to members of the panel:

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 Geographic Information System Screening Tool Review Panel's activity qualifies 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 above.

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.

As a result of a review of these forms and the responses to the five questions above provided by 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 conflicts of interest or appearances of a lack of impartiality for the members of this panel.

6) How individuals were selected for the final Panel:

The SAB Staff Office Director - in consultation with the Geographic Information Screening System Review Panel Chair - makes the final decision about who serves on the Panel. Selection criteria included: scientific and technical credentials and expertise; the need to maintain a balance with respect to members' qualifying expertise background and perspectives; willingness to serve on the Panel, and availability to meet during the proposed time period; the absence of conflict of interest; and absence of any appearance of lack of impartiality. The final panel was selected from candidates on the "short list."

Accordingly, based on the above-specified criteria, a Geographic Information Screening System Review Panel of the following fifteen (15) experts was selected:

1. Dr. Virginia Dale, Oak Ridge National Research Laboratory (TN) (Chair)
2. Mr. DeWitt Braud, Louisiana State University (LA)
3. Dr. Ivan Fernandez, University of Maine (ME)
4. Dr. Carol Johnston, South Dakota State University (SD)
5. Dr. William Mitsch, Ohio State University (OH)
6. Dr. Thomas Mueller, University of Tennessee (TN)
7. Dr. Michael Newman, College of William and Mary (VA)
8. Dr. James Oris, Miami University (OH)
9. Dr. Charles Rabeni, U.S. Geological Survey (MO)
10. Dr. Mark Ridgley, University of Hawaii (HI)
11. Dr. Amanda Rodewald, Ohio State University (OH)
12. Dr. James Sanders, Skidaway Institute of Oceanography (GA)
13. Dr. David Stoms, University of California, Santa Barbara (CA)
14. Mr. Timothy Thompson, Science, Engineering, and the Environment (WA)
15. Dr. Robert Twiss, University of California, Berkeley (CA)

Concurred,

/Signed/

10/14/05

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Date