



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

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SUBJECT: U.S. EPA Science Advisory Board (SAB) Radiation Advisory Committee (RAC)
RadNet Review Panel

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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 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; and
6. How individuals were placed on the Panel.

A. Background

The Environmental Radiation Ambient Monitoring System (ERAMS), was established in 1973 and constitutes the U.S.'s single major source of environmental radiation data. The ERAMS has continuously monitored radiation in air, precipitation, drinking water, and milk via a national network of fixed sampling stations. EPA's Office of Radiation and Indoor Air

(ORIA) and its National Air and Radiation Environmental Laboratory (NAREL) in Montgomery, AL maintains, receives and analyzes samples and data from this system. EPA's ORIA over the past decade, has requested that the SAB provide advice regarding ERAMS. The SAB's Radiation Advisory Committee (RAC) had conducted reviews of the reconfigured ERAMS on two previous occasions. The first advisory by the SAB's RAC took place in 1995 and resulted in an advisory delivered to the EPA Administrator on April 5, 1996 (EPA-SAB-RAC-ADV-96-03). This activity provided advice on technical issues pertinent to developing a new vision and re-orienting the ERAMS at that time. The second advisory on ERAMS by the SAB's RAC took place in 1997 and 1998 and resulted in an advisory to the Administrator on August 28, 1998 (EPA-SAB-RAC-ADV-98-001) on the Agency's proposed reconfiguration to ERAMS. The previous SAB advisories on ERAMS can be obtained on the SAB's Web site (www.epa.gov/sab).

The EPA Office of Radiation and Indoor Air (ORIA) has requested the SAB to provide advice on the ERAMS (Environmental Radiation Ambient Monitoring System) upgrade, now known as RadNet, which is the National Monitoring System (NMS) upgrade.

B. Determinations

1) The charge to the Panel

RadNet, when it is fully operational, will provide data on ionizing radiation in air in almost real-time from fixed monitors in 180 highly populated metropolitan areas, resulting in coverage of approximately 70% of the U.S. population. In addition to the fixed monitors, 40 deployable monitors will be available to support the system during emergency conditions. The updated system will identify radioactive environmental contaminants and their concentrations so that early protective action decisions can be implemented to protect the public health. Data from all collection sites will be sent electronically to a central EPA database and made available to federal, state, and local decision makers and the public.

The upgraded system is designed to provide improved national coverage as well as additional air monitoring capabilities that are important during radiological emergencies. Routine operation of the air monitoring network will continue to generate valuable data for identifying long-term trends, and to define normal background levels for use in comparing with emergency data and scientific studies. Additionally, RadNet will have the capability of monitoring a radioactive plume from an accident or incident, transmitting data to NAREL for analysis and verification on a near real-time basis.

The specific objectives for the upgraded air monitoring network are to: provide data quickly in the event of a radiological incident for decision makers, for use in assessing potential protective actions for the public, as well as for dispersion modelers, for validating/refining source term and meteorological assumptions and estimates; provide data needed to determine large-scale national impacts of a radiological incident for follow-up monitoring and assessment and population dose reconstruction; and develop baseline data for trend analysis and

abnormality identification during normal operations. Background information on RadNet, the upgrade to the ERAMS air network, can be found at <http://www.epa.gov/radiation/news/nms.htm>. EPA's ORIA is seeking advice from the SAB about the RadNet and EPA's implementation strategy. EPA seeks comments on the following specific charge questions:

Charge Question 1: Are the proposed upgrades and expansion of the RadNet air monitoring network reasonable in meeting the air network's objectives?

Charge Question 2. Is the overall approach for siting monitors appropriate and reasonable given the upgraded and expanded system's objectives?

2a) Is the methodology for determining the locations of the fixed monitors appropriate given the intended uses of the data and the system's objectives?

2b) Are the criteria for the local siting of the fixed monitors reasonable given the need to address both technical and practical issues?

2c) Does the plan provide sufficient flexibility for placing the deployable monitors to accommodate different types of events?

2d) Does the plan provide for a practical interplay between the fixed and deployable monitors to accommodate the different types of events that would utilize them?

Charge Question 3. Given that the system will be producing near real-time data, are the overall proposals for data management appropriate to the system's objectives?

3a) Is the approach and frequency of data collection for the near real-time data reasonable for routine and emergency conditions?

3b) Do the modes of data transmission from the field to the central database include effective and necessary options?

3c) Are the review and evaluation of data efficient and effective considering the decision making and public information needs during an emergency?

3d) Given the selected measurements systems are the quality assurance and control procedures appropriate for near real-time data?

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 review will be conducted by an SAB panel consisting of members of the Radiation Advisory Committee (RAC) and invited experts. Dr. Jill Lipoti, a member of the Chartered SAB will chair this SAB panel. The name of the panel is the “Radiation Advisory Committee (RAC) RadNet Review Panel.” The SAB Staff Office requested public nominations of experts in a *Federal Register* notice (70FR 15083) dated March 24, 2005 to augment expertise to the Radiation Advisory Committee (RAC) to form an SAB panel to review the RadNet air monitoring network. The augmented RAC will provide advice through the chartered SAB, and will comply with the provisions of the Federal Advisory Committee Act (FACA) and all appropriate SAB procedural policies, including the SAB process for panel formation described in the *Overview of the Panel Formation Process at the Environmental Protection Agency Science Advisory Board*, which can be found on the SAB’s Web site at: <http://www.epa.gov/sab/pdf/ec0210.pdf>. To supplement expertise on the RAC, the SAB Staff Office was seeking individuals who have radiation expertise and knowledge of RadNet in the following areas:

- 1) instrumentation (especially air monitors and detection equipment involving fixed and deplorable monitors, sodium iodide crystals, and gamma exposure instruments);
 - 2) statistics (especially involving data interpretation, identification of abnormalities during normal operations, monitor siting plans, baseline data and data trends analysis, data coverage issues, and data interpretation);
 - 3) modeling (especially involving validating and refining source terms, dispersion modeling, meteorological assumptions and estimates);
 - 4) risk assessment (with particular experience and expertise in population dose reconstruction, health data interpretation, and health effects); and
 - 5) risk communication.
- 3) How individuals were placed on the “short list”:

Twenty-three (23) outside experts including RAC members were nominated (widecast) to serve as members of the Review Panel. On the basis of candidates’ qualifications and availability to participate in the review meeting, the SAB Staff Office identified twenty (20) candidates to be on the “short list.” On October 3, 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 form a panel to conduct this review. In particular, the notice on the SAB website invited comments from members of the public for relevant information, analysis or other documentation that the SAB Staff Office should consider in the selection of experts to augment the RAC’s expertise for this upcoming review of RadNet. The notice on the SAB website 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 24, 2005. No comments were submitted by the public.

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

Potentially interested and affected parties include: 1) federal, state, and local government agencies, elected officials, and non-governmental organizations that focus on environmental monitoring, particularly related to ionizing radiation in air, precipitation, drinking water, and milk; 2) those involved with the interests of industries and governments that may be affected by policies or regulations pertaining to radioactive emissions to the environment, including but not limited to radioactive fallout, radiological emergencies, homeland security, dietary update and other sources of radioactive contamination and uptake, including identifying long-term trends and to define normal background levels for use in comparing with emergency data and scientific studies, and 3) academic/industry/government researchers addressing radioactive monitoring and uptake from environmental and other sources.

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.” [5C.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 Radiation Advisory Committee’s (RAC) RadNet 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 questions were posed to all prospective advisory panel members:

- 1) 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?
- 2) 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.
- 3) Have you served on previous advisory panels or committees that have addressed the topic under consideration? If so, please identify those activities.
- 4) Have you made any public statements (written or oral) on the issue? If so, please identify those statements.
- 5) 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, 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.

6) How individuals were selected for the final panel:

The SAB Staff Office Director 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 Radiation Advisory Committee (RAC) RadNet Review Panel of the following (16) experts was selected:

1. Dr. Jill Lipoti, Director, Division of Environmental Safety and Health, New Jersey Department of Environmental Protection, Trenton, NJ (Chair)
2. Dr. Bruce Boecker, Scientist Emeritus, Lovelace Respiratory Research Institute, Albuquerque, (NM)

3. Dr. Antone L. Brooks, Professor, Radiation Toxicology, Washington State University, Tri-Cities, Richland, (WA)
4. Dr. Gilles Y. Bussod, Chief Scientist, New England Research, Inc., White River Junction, (VT)
5. Dr. Brian Dodd, Consultant, Las Vegas, (NV)
6. Dr. Shirley A. Fry, Consultant, Indianapolis, (IN)
7. Dr. William C. Griffith, Associate Director, Institute for Risk Analysis and Risk Communication, Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, (WA)
8. Dr. Helen Ann Grogan, Cascade Scientific, Inc. Bend, (OR)
9. Dr. Richard W. Hornung, Director of Biostatistics and Data Management, Cincinnati Children's Hospital Medical Center, Division of General and Community Pediatrics, Cincinnati, (OH)
10. Mr. Richard Jaquish, Health Physicist (Retired), Washington State Department of Health Statistics, Richland, (WA)
11. Dr. Janet A. Johnson, Senior Technical Advisor, MFG, Inc., Carbondale, (CO)
12. Dr. Bernd Kahn, Professor Emeritus, School of Nuclear Engineering and Health Physics, Georgia Institute of Technology, Atlanta, (GA)
13. Dr. Jonathan M. Links, Johns Hopkins University, Bloomberg School of Public Health, Baltimore, (MD)
14. Dr. Gary M. Sandquist, Professor of Mechanical Engineering, Nuclear Engineering Department, University of Utah, Salt Lake City, (UT)
15. Dr. Richard J. Vetter, Head, Radiation Safety Program, Mayo Clinic, Rochester, (MN)
16. Ms. Susan Wiltshire, Vice President Emeritus, JK Research Associates, Inc. S. Hamilton, (MA)

Concurred,

/Signed/

11-22-05

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Date