



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON D.C. 20460

OFFICE OF THE ADMINISTRATOR  
SCIENCE ADVISORY BOARD

June 24, 2011

**MEMORANDUM**

**SUBJECT:** Formation of SAB Radiation Advisory Committee (RAC) Augmented for the Advisory on EPA's Draft Scientific and Technical Report Pertaining to Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings In-Situ Leaching and In-Situ Recovery (ISL/ISR) and Post-Closure Stability Monitoring Standards

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**THRU:** Wanda Bright /S/  
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**TO:** Vanessa Vu, Ph.D.  
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The EPA is conducting a review of its regulatory standards in 40 CFR Part 192 - - - Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings. In accordance with the Uranium Mill Tailings Radiation Control Act (UMTRCA, Pub. L. 95-604) section 206, EPA is authorized to develop standards for the protection of public health, safety, and the environment from radiological and non-radiological hazards associated with residual radioactive materials. The Agency is currently undertaking a review to determine if the existing standards, first revised by EPA in 1995, should be updated. Accordingly, EPA is seeking scientific advice and relevant technical criteria to establish standards and procedures, including the relevant period of monitoring for ISL/ISR facilities, once uranium extraction operations are completed, in order to provide reasonable assurances of aquifer stability and groundwater protection. Specifically, the EPA's Office of Radiation and Indoor Air (ORIA) has requested the SAB to provide review comments on a draft technical document pertaining to ISL/ISR post closure stability monitoring and entitled "*Considerations Related to Post-Closure Monitoring of Uranium In-Situ Leach/In-Situ Recovery (ISL/ISR) Sites.*"

This memorandum addresses the set of determinations that were necessary to augment the Radiation Advisory Committee (RAC) for providing advice on uranium and thorium mill tailings standards, including:

- (A) The type of review body that will be used to conduct the review, and the nature of the review;
- (B) The list of candidates to be considered for the panel;
- (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) The selection of Panel members.

**DETERMINATIONS:**

- (A) The type of review body that will be used to conduct the review, and the nature of this review.

The Radiation Advisory Committee (RAC) will be augmented with additional experts to provide advice and information to evaluate what criteria, including site characteristics and integrity features, as well as other relevant factors and specific procedures that should be considered, to establish a specific period of monitoring for In-Situ Leach (ISL) and In-Situ Recovery (ISR) facilities, once uranium extraction operations are completed. Among the issues to be considered is whether a time frame can be established, whether specific site characteristics, features, or benchmarks can be used to aid in establishing a post-closure monitoring time period, and if there are other technical approaches EPA should consider in order to provide reasonable assurances of aquifer stability and groundwater protection.

- (B) The list of candidates to be considered for the Panel.

The SAB Staff Office requested public nominations of experts in a *Federal Register* notice (75FR 71702) dated November 24, 2010 to augment expertise to the Radiation Advisory Committee (RAC) to form an SAB panel to review the draft which at the time of the *FR* notice was under preparation. 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 augment expertise on the RAC, the SAB Staff Office was seeking nominations of nationally and internationally recognized scientists and engineers with demonstrated expertise and experience in one or more of the following areas: environmental statistics, geochemistry, geology, geostatistics, hydrogeology, environmental monitoring, and radiation health science.

The SAB Staff Office identified 12 experts to be considered to augment the Radiation Advisory Committee (RAC) for this advisory review. On April 20, 2011, the SAB Staff Office posted a notice on the SAB Web site inviting public comments on members of the RAC and the List of Candidates for the Panel by May 11, 2011. The SAB Staff Office received one comment from Mr. Anibal Taboas of Woodbridge, IL.

(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.

(a) 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, and elected officials that focus on implementation of the EPA regulatory standards in 40 CFR Part 192 – Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings; 2) EPA stakeholders, including industry and trade organizations involved with and who may be subject to and/or affected by policies or regulations, including cleanup, removal, remediation or compliance activities pertaining to radioactive releases to the environment; 3) individuals from academia and non-government organizations (NGOs) concerned about and/or dealing with the topic of exposures from radioactivity; and 4) interested members of the public concerned with radioactive sources introduced into the environment.

(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 or 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 involve a particular matter? A “particular matter” refers to matters that “...will involve deliberation, decision, or action that is focused upon the interest 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)].

The Radiation Advisory Committee (RAC) activity augmented with expertise to review the draft under preparation and to be entitled “*Considerations Related to Post-Closure Monitoring of Uranium In-Situ Leach/In-Situ Recovery (ISL/ISR) Sites,*” will qualify as a *particular matter of general applicability* because it does include matters that involve deliberation, decision or action that is focused upon the interest of specific people, or a discrete and identifiable class of people. However, it does not include matters which involve formal parties, nor does it extend to legislation or policy-making that is narrowly focused upon the interests of a discrete and identifiable class of persons.

- (ii) Will there be personal and substantial participation on the part of the Panel members? 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 the *SAB Panel members will be participating personally in the matter through attendance at meetings, teleconferences and other means*. Panel members will be providing the Agency with advice and recommendations on recommended revisions to the draft technical report pertaining to health and environmental protection standards for uranium and thorium mill tailings in-situ leach recovery and post-closure stability monitoring standards entitled “ *Considerations Related to Post-Closure Monitoring of Uranium In-Situ Leach/In-Situ Recovery (ISL/ISR) Sites,*” and such advice is expected to directly and substantially influence the Agency’s decisions pertaining to the health and environmental protection standards and regulation of this activity. *Therefore, participation in this review also will be substantial.*

- (iii) Will there be a direct and predictable effect on a Panel member’s financial interest? 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 speculative, possibility that the matter will affect the financial interest.” [[5 C.F.R. § 2640.103(a)(ii)]

Candidates for the Panel were evaluated against the requirements of 5 C.F.R. § 2640.101(a), using each candidate’s confidential financial disclosure form (EPA Form 3110-48), to determine whether the work of the Panel will have a direct and predictable effect on his or her financial interests.

- (D) How regulations concerning “appearance of a lack of impartiality,” pursuant to 5 C.F.R. § 2635.502, apply to members of the Panel

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 has 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.”

Candidates for the Panel were 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 committee members (including, but not limited to, EPA 3110-48 confidential financial disclosure forms) and public comment as well as their responses to the following supplemental questions (included on the EPA 3110-48 confidential financial disclosure form):

1. 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?
2. 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.
3. Have you served on previous advisory panels, committees or subcommittees 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 that would indicate to an observer that you have taken a position on the issue under consideration? If so, please identify those statements.

(E) The selection of Panel members

The SAB Staff Office Director makes the final decision about who serves on panels, based on all relevant information. This includes a review of the member's confidential financial disclosure form (EPA Form 3110-48) and an evaluation of an appearance of a lack of impartiality, and application of criteria to ensure a balanced panel.

As a result of a review of all relevant information including each candidate's confidential financial disclosure form (EPA Form 3110-48), the responses to the four questions above, and public comments, the SAB Staff Office has determined that there are no conflicts of interest or appearances of a lack of impartiality for the members of this Panel.

For the SAB Staff Office, a balanced committee or panel is characterized by inclusion of candidates who possess the necessary domains of knowledge, the relevant scientific perspectives (which, among other factors, can be influenced by work history and affiliation), and the collective breadth of experience to adequately address the general charge. Specific criteria to be used in evaluating an individual committee member include: (a) scientific and/or technical expertise, knowledge, and experience (primary factors); (b) availability and willingness to serve; (c) absence of financial conflicts of interest; (d) absence of an appearance of a lack of impartiality; (e) skills working in committees, subcommittees and advisory panels; and, for the committee as a whole, (f) diversity of scientific expertise, and viewpoints.

On the basis of the above-specified criteria, the advisory Panel includes the following:

RAC Members:

**Chair: Dr. Bernd Kahn**, Georgia Institute of Technology (GA)  
**Dr. Susan M. Bailey**, Colorado State University (CO)  
**Dr. Thomas B. Borak**, Colorado State University (CO)  
**Dr. Shih-Yew Chen**, Argonne National Laboratory, Argonne (IL)  
**Dr. Faith G. Davis**, University of Illinois (IL)  
**Dr. R. William Field**, University of Iowa (IA)  
**Dr. Jonathan M. Links**, The Johns Hopkins University (MD)  
**Dr. William F. Morgan**, Pacific Northwest National Laboratory (WA)  
**Mr. Bruce A. Napier**, Pacific Northwest National Laboratory (WA)  
**Dr. Dale L. Preston**, Hirosoft International, Eureka (CA)  
**Dr. Daniel O. Stram**, University of Southern California (CA).

Consultants:

**Dr. Thomas Borch**, Colorado State University (CO)  
**Dr. Douglas B. Chambers**, Senes Consultants, Ltd.(Canada)  
**Dr. June T. Fabryka-Martin**, Los Alamos National Laboratory (NM)  
**Dr. Thomas E. Johnson**, Colorado State University (CO)  
**Dr. Brian A. Powell**, Clemson University (SC)

Concurred,

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Staff Director  
EPA Science Advisory Board (1400R)

6/24/11

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Date