**ENVIRONMENTAL MANAGEMENT ADVISORY BOARD**

**to the**

**U.S. DEPARTMENT OF ENERGY**

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**PUBLIC MEETING MINUTES**

**July 30, 2024**

[www.em.doe.gov/emab](http://www.em.doe.gov/emab)

**PARTICIPANTS**

**Environmental Management Advisory Board (EMAB) Members:**

David Abelson

Mark Barnett

Bruce Bordenick

Amy Fitzgerald, EMAB Vice Chair

Brent Gerry

Diahann Howard

Andy Kelsey

Frazer Lockhart

Tracye McDaniel

Shari Meghreblian

Josiah Pinkham

Michael Shapiro

Jake Washington

**U.S. Department of Energy (DOE) Federal and Contractor Participants:**

Candice Robertson, Senior Advisor for Environmental Management (EM)

Dae Chung, Associate Principal Deputy Assistant Secretary, EM  
Joceline Nahigian, Director, Office of Intergovernmental and Stakeholder Programs, EM  
Kelly Snyder, EMAB Designated Federal Officer, Office of Intergovernmental and Stakeholder Programs, EM  
Charles Love, Office of Intergovernmental and Stakeholder Programs, EM  
April Kluever, Director, Office of Subsurface Closure, EM  
Hannah Hidle, Office of Subsurface Closure, EM  
Julie Karceski, Office of Subsurface Closure, EM  
Alexander Koenig, Office of Subsurface Closure, EM  
Carol Eddy-Dilek, Savannah River National Lab

**Members of the Public:**

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Elizabeth Moran

Beatrice O'Connor

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Bart Schaffer

Maggie Schappell

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Kelsey Shank

Hai Shen

Timothy Smith

Kaitlin Victorino

David Wilson

Shelly Wilson (Recused Member)

Tifany Wyatt

Ming Zhu

**LIST OF ACRONYMS**

ALTEMIS Advanced Long-Term Environmental Monitoring Systems

D&D Decontamination and Decommissioning

DFO Designated Federal Officer

DOE U.S. Department of Energy

EM (DOE) Office of Environmental Management

EMAB Environmental Management Advisory Board

EPA U.S. Environmental Protection Agency

FACA Federal Advisory Committee Act

LM (DOE) Office of Legacy Management

LTM Long-Term Monitoring

NNLEMS Network of National Laboratories for Environmental Management and Stewardship

PFAS Per- and Polyfluoroalkyl Substances

SRS Savannah River Site, EM

TRAC Tracking Restoration and Closure **MEETING MINUTES**

The U.S. Department of Energy’s (DOE) Environmental Management Advisory Board (EMAB) met virtually on July 30, 2024. Participants included EMAB members, DOE staff, DOE contractor staff, and members of the public. The meeting was open to the public and conducted in accordance with the requirements of the Federal Advisory Committee Act (FACA).

The meeting was live streamed via Zoom.

Ms. Kelly Snyder, EMAB Designated Federal Officer (DFO) called the meeting to order and noted that the EMAB Chair, Shelly Wilson, recused herself from participation in any discussions related to the current charge due to potential conflict of interest.

EMAB Vice Chair Amy Fitzgerald provided an overview of the meeting’s agenda and the charge. She noted that the EMAB had established three subcommittees (groundwater strategy, Advanced Long-Term Environmental Monitoring Systems [ALTEMIS], and stakeholder and regulatory) to look into key issues of the charge and provide draft recommendations for the full board to deliberate on. Additionally, Dr. Fitzgerald noted that many of the EMAB members attended in-person subcommittee meetings and tour at the Savannah River Site in May. These activities gave members the opportunity to observe firsthand the research and technology implementation to improve monitoring efficiency and effectiveness in support of EM's long-term remediation goals. She then thanked EM’s Senior Advisor Candice Robertson, DOE staff, and fellow EMAB members.

**Remarks from Senior Advisor for Environmental Management, Candice Robertson**

Ms. Robertson thanked Dr. Fitzgerald and the EMAB for their service and providing her the draft report to review prior to the meeting. She noted that the report provides very actionable and detailed recommendations that will help inform DOE’s path forward on a groundwater strategy.

Ms. Robertson provided a brief introduction of herself, informing the board that she worked in many capacities at DOE since 2008. Her experience includes things such as the Yucca Mountain Project in 2008 and moving to Headquarters in 2010. Most of her career has been focused on DOE’s EM program. She then expressed her enthusiasm to step into the role of Senior Advisor. She also stated that former Senior Advisor Ike White’s leadership has set EM on a good trajectory, and that this report is an example of his leadership continuing past his tenure as Senior Advisor.

Ms. Roberston reiterated that the report provided thoughtful and insightful draft recommendations before turning it back to Ms. Kelly Snyder for public comment.

**Public Comment**

No public comments were received.

**EMAB Recommendation Presentation**

Dr. Fitzgerald thanked the EMAB members that participated in the subcommittees and turned it over to the subcommittee chairs to present.

Mr. Bruce Bordenick shared a [presentation on the subcommittee’s draft report](https://www.energy.gov/em/articles/emab-meeting-july-2024) and provided an overview of the presentation agenda and speakers before turning it to Mr. Andy Kelsey to present his portion of the presentation.

Mr. Kelsey stated that the EMAB reviewed the Network of National Laboratories for Environmental Management and Stewardship (NNLEMS) report and thought it was an excellent report that provided a good structure for groundwater strategy across the EM Complex and that the EMAB’s proposed recommendations are not a criticism of the report, but rather ways to enhance the focus of the report and make it better. Mr. Kelsey then provided an overview of the overarching recommendations:

1. Clearly define or eliminate “closure” terminology.
2. Issue formal strategy or plan of action.
3. Avoid project management strategy recommendations.
4. Revise goals with focus on protecting human health and the environment.
5. Use a Gantt chart construct to communicate DOE-EM ground water plume timelines.
6. Focus the Executive Summary on actions and recommendations.

Once completing the overview of the overarching recommendations, Mr. Kelsey provided a deeper analysis of recommendations related to Charge Question 1:

“What are EMAB’s recommendations for ensuring that the products of late-stage technology development are incorporated by EM sites and their contractors into the groundwater strategy for site cleanup and closure, particularly for large, complex groundwater plumes?”

Mr. Kelsey provided an overview of the following draft recommendations regarding this Charge Question:

1. Focus the strategy on science and technology and regulatory/stakeholder acceptance.
2. Build on SRS and Hanford experience with groundwater science and technology.
3. DOE should take the lead in sponsoring demonstration projects for late-stage technologies.
4. DOE should develop a framework to move promising technologies to late stage.
5. DOE-EM Headquarters engage with U.S. Environmental Protection Agency (EPA) Headquarters to issue updated guidance to regulatory community.
6. DOE-EM develop a concept of operations for ALTEMIS as the project scales from demonstration to working model.
7. Develop business case analyses for ALTEMIS compared to existing methods of sample acquisition and analysis, and underground plume modeling.

Mr. Kelsey then turned it back to Mr. Bruce Bordenick to cover Charge Question 2:

“What are recommended approaches for EM to financially incentivize EM site contractors (through new or amended contracts) to identify, demonstrate, scale, and deploy new technologies for remediating and monitoring EM’s most challenging and persistent groundwater plumes?”

Mr. Bordenick offered an overview of the draft recommendations regarding Charge Question 2:

1. DOE-EM assess its innovation/process improvement system with respect to performance and desired outcomes and make changes holistically.
2. Specific technology activities may be a way to incentivize technology development with a limited scope and time period that fits logically within the contractor’s larger scope & contract period of performance.
3. Frank conversation with contractors during development of incentives can help to ensure the qualitative incentives for new technology applications receive attention desired from the contractors.
4. Avoid developing additional individual incentives for ground water remediation and monitoring due to the lack of equity in employee incentive programs between contractor and DOE, and potentially between different sites.

Mr. Bordenick continued into Charge Question 3, noting that the EMAB does not have any recommendations regarding the question:

“How can EM better utilize the Tracking Restoration and Closure ([TRAC](https://trac.pnnl.gov)) system for measuring progress toward site closure? Are there features that should be added to TRAC?”

Mr. David Abelson took over to discuss Charge Question 4:

“How should EM socialize the principles of its groundwater closure strategy and LTM approaches with sites, site contractors, regulators, Tribes, local communities, and stakeholders?”

Mr. Ableson provided the following draft recommendations regarding Charge Question 4:

1. EM needs to ensure that the end-state at each site is known, has the support of the regulatory agency/agencies, Congress, Tribal leaders and stakeholders including organized and at- large groups specific to each site. The groundwater closure strategy, in turn, must support that end-state vision.
2. The site-specific groundwater closure strategy must define in clear, unambiguous terms what interests are being protected (e.g., downstream water supplies, aquatics species, etc.) and how the groundwater closure strategy will protect those interests.
3. Each DOE field manager should develop a written plan for engaging tribal leaders, state elected officials, local elected officials and other engaged stakeholders on the groundwater closure strategy. This plan can/should be tied into existing engagement plans, should written plans exist at a given site. Additionally, each manager should periodically secure an independent review of the stakeholder and regulatory engagement plan, including the groundwater closure strategy elements contained therein, and adjust it as necessary.
4. Consistent with recommendation 4C, the groundwater closure strategy should distinguish between informing and engaging (often the two are conflated). The former is communications; the latter is geared to securing support for DOE’s policy goals, though the latter necessitates effective communications. Without such stakeholder support, EM might not have regulatory concurrence for the remedy.
5. EM should evaluate on a case-by-case basis the need for funds for local communities near sites with complex groundwater plumes to hire a technical advisor.
6. To increase stakeholder, Tribal, and regulator confidence in and acceptance of the groundwater closure strategy, DOE-EM should:
   1. Explain the broader and more collaborative approach to solving technology challenges. The ALTEMIS structure with participation of three national laboratories provides demonstration of this.
   2. Strengthen the alignment with the DOE-Office of Legacy Management (LM) to ensure messages, goals, and initiatives are consistent or at least compatible.

**EMAB Draft Recommendations Q&A**

Dr. Fitzgerald opened the floor for questions from Ms. Candice Robertson and Mr. Dae Chung.

Ms. Robertson asked for clarification on the elimination or clarification of the term “closure,” and if there was a preference for one or the other?

Mr. Kelsey responded that the answer was different member to member. He continued to stress the importance of preciseness in groundwater strategy and that without being precise, you risk confusing groundwater strategy with the rest of the decontamination and decommissioning (D&D) program.

Mr. Bordenick followed up by stating that the word closure can be misconstrued considering these plumes will exist for a long time and will never be fully “closed.”

Ms. Robertson then asked for a deeper explanation of the use of a Gantt Chart and how that would look.

Mr. Bordenick responded that, similar to the Gantt Chart for tanks at SRS, a physical representation could allow people to make valuable decisions based on seeing the “big picture.” He continued to clarify that it does not need to be a Gantt Chart but rather an illustration to show the different variables involved.

Mr. Dae Chung provided remarks about the risk informed approach regarding contaminants and ranking the risks in order to achieve end state/closure. Mr. Chung also mentioned the potential to rank challenging contaminants, irrespective of hydrology and geology, as an end state vision is developed.

Mr. Frazer Lockhart followed up on Mr. Bordenick’s comments to elaborate that this, at its core, is about communication. The Gantt Chart at SRS that covered tanks served the purpose of communication so well and that the illustration could serve to benefit discussions with regulators and stakeholders.

Ms. Roberton mentioned that ranking contaminants are out of scope for this EMAB charge and then asked if the EMAB had any thoughts on the applicability of Hanford’s groundwater approach for other sites.

Mr. Bordenick stated that DOE should consider the approach where applicable.

Mr. Abelson added his perspective from New Mexico, noting that in Los Alamos it is not a function of volume treated, whether water or contaminants, but rather a function of creating the hydraulic barrier and also reducing the levels to within state standards. He continued by asking “what does success mean?” and noted that it is very site specific.

Ms. Roberston asked for more information on contract incentives and if the EMAB has any perspective on incentivizing existing contracts.

Mr. Lockhart took the lead on answering this question and noted that the reasoning behind this recommendation was the consideration that technology development can have some surprises, particularly in the early and mid-stages. Sometimes these surprises are good and accelerate the timeline while others can provide a bit of a setback. When looking at incentivizing, EM, and its Office of Technology, should look at what they are wanting to incentivize so they don’t end up with the wrong outcome. Especially considering that technology activities can sometimes be outside the contractor’s scope and timeline. This disconnect of expectations can cause frustration for everyone involved.

Dr. Fitzgerald followed up and agreed with Mr. Lockhart. She added perspective that these projects at the sites are going to be going on for years and it would be good to know that as they progress, we will continue to see progress in technology development.

Ms. Robertson asked if it is worthwhile to leverage what already exists to incentivize feds or if it would create a disparity between feds and contractors.

Mr. Bordenick responded by saying that maximizing existing leverages is a very valuable thing.

Ms. Robertson asked if the EMAB had any opinions on if TRAC should have more detailed information. She also asked if the time and resources needed to add more information would be worth it.

Mr. Kelsey responded that in his personal view, TRAC does not need more detailed information but rather expanded to all sites, as there is only information on two sites in the current TRAC system.

Ms. Robertson thanked Mr. Abelson and his team for their work on Charge Question 4 and then asked Mr. Chung for additional comments.

Mr. Chung added comments regarding the federally owned lifecycle baseline, and how it is being updated across the complex. This update has emphasized technology needs throughout the project lifecycle, not necessarily tied to a contract period. This tool will be used to ensure there are no discontinuities regarding incentives.

Ms. Robertson thanked the EMAB and passed it to Dr. Fitzgerald to close out the meeting.

Dr. Fitzgerald, prior to bringing the draft recommendation to a vote, made note of the following comments left in the Zoom meeting chat:

“In Japan they do not use "end-state" or closure for same reasons outlined by Bruce [Bordenick].” -Ana Han

“Are there plans to include PFAS in the testing of groundwater wells (not just the drinking water wells, but all groundwater wells). Is this an example of using existing contracts to pivot or ‘incentivize’?” -Sara Lovtang

**EMAB Recommendation Voting and Final Comments**

Dr. Fitzgerald made a motion to approve the subcommittee’s report and submit to EM. Ms. Diahann Howard seconded the motion. The present EMAB members voted unanimously to pass the recommendation.

Ms. Snyder thanked the attendees for their time and adjourned the meeting.