



HANFORD ADVISORY BOARD

A Site Specific Advisory Board, Chartered under the Federal Advisory Committee Act

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US Environmental
Protection Agency
Washington State
Dept. of Ecology

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Alex Smith, Manager
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Dear Mr. Vance and Ms. Smith,

The latest revision of the River Protection Project System Plan (System Plan 8) for the Hanford tank waste treatment mission provides a basis for frank discussions of tank waste management trade-offs. The Department of Energy's Office of River Protection (ORP) and Washington State Department of Ecology (Ecology) are to be complimented for conducting a process to cooperatively develop the scenarios and enabling assumptions for the Plan. Furthermore, we approve of the decision to run the models based on an unconstrained final end date to give a more realistic expectation of the tank waste treatment mission.

The authors of System Plan 8 state that the analysis is not a decision or budgetary document and that significant additional analysis is required; the Hanford Advisory Board (Board/HAB) agrees that this is prudent.

The development process for System Plan 8 was a closed process between ORP and Ecology, and did not include participation or input from the public. Prior Board advice had recommended an open process. Board advice #238 dated November 5, 2010 requested the Agencies to engage the Board in early dialogue regarding system plan development.

On February 7, 2011, ORP responded to this advice by establishing a process where they met with the Board's Tank Waste Committee routinely each year to obtain Board input to the draft system plans. Subsequently, the process to obtain input from the Board in the system plan planning process has not been followed. The Board wishes to re-instate the process of early participation in the development of system plans as outlined by DOE in their February 7, 2011 response to Board advice #238 and in their August 25, 2011 response to Board advice #245.

The Board understands that ORP and Ecology have initiated negotiations relative to potential revisions to tank waste mission milestones. It is the expectation that these negotiations will result in significant changes to the TPA. The Board believes it is incumbent upon both ORP and Ecology – prior to a final agreement being reached – to discuss with the Board milestones for a successful tank waste treatment mission.

The Baseline Scenario in System Plan 8 makes clear that the delay in Waste Treatment Plant startup and other factors significantly extend the schedule and increase the cost of the tank waste treatment mission. This extension increases the likelihood of mission-influencing risks, such as failure of aging SSTs and DSTs due to corrosion over time and failure of aging site infrastructure that is critical to support retrieval and treatment. The Board recommends that these increased risks will be addressed as part of the milestone negotiations.

While the quantitative and technical aspects of tank waste management represented in the System Plan are important considerations in the negotiation of new milestones, public values and concerns are another essential input. Given the ever-increasing cost and timeline for treatment of Hanford's tank waste, engagement with the Board and broader public provides a dynamic opportunity to build understanding of the risks and trade-offs that are undoubtedly necessary to get realistic and achievable tank waste treatment milestones. Discussions also ensure that Agency decisions are responsive to public values and principles, fulfilling the Agencies' obligation to engage with the public on Hanford cleanup.

The Board wishes to clarify our goals for the tank waste management and treatment mission, consistent with the principles and values of the Tank Waste Task Force in 1993¹:

1. Prevent releases of tank contents to the environment to the maximum extent technically achievable;
2. Retain emergency capacity to respond to additional DST failures given longer mission duration;
3. Meet obligations for SST waste safe configuration, retrieval and tank closure;
4. Complete treatment of all tank waste to the maximum extent technically practicable;
5. Ensure that tank waste treatment activities protect public/worker health and safety; and
6. Choose treatment and disposition pathways for generated and residual wastes that provide long-term protection of human health and the environment.

Since the release of System Plan 8, the permit application for the Low Activity Waste Pretreatment System (LAWPS) was withdrawn by DOE as a precursor to a facility redesign, and a new proposal for Tank Side Cesium Removal (TSCR) has been introduced. These potential changes to the tank waste treatment system would affect all scenarios modeled in System Plan 8, and the use of a non-elutable (i.e., non-reusable) ion exchange resin for the TSCR technology could have significant effects on mission cost, schedule, and waste management options. As the agencies consider and evaluate the use of the TSCR process, the Board and public must be kept apprised of developments about this potential new waste stream including disposal options. The Board believes that decisions about future milestones should be based on the most up-to-date conceptualization of the tank waste system, and should consider the cradle-to-grave implications to disposal of potential new waste streams.

The Board offers the following advice:

Advice: Board & Public Input

- The Board advises that before the completion of current milestone negotiations, ORP and Ecology engage the Board and the broader public in discussion of goals, values, and principles related to tank waste treatment to provide input to their negotiations. This

¹ The broad, overarching values from the Tank Waste Task Force Final Report were: Protect the environment; Protect public/worker health and safety; "Get on with the cleanup" to achieve substantive progress in a timely manner; Use a systems design approach that keeps endpoints in mind as intermediate decisions are made; and Establish management practices that ensure accountability, efficiency, and allocation of funds to high priority items. Issue-specific values expand on the broader values in the final report. Use the most practicable, timely, available technology, while leaving room for future innovations. <https://pdw.hanford.gov/arpir/pdf.cfm?accession=D196059549>

would offer Agencies the opportunity to solicit input on areas of the negotiation where DOE and Ecology may be having difficulty reaching resolution. This may prove beneficial for achieving stakeholder acceptance of the negotiated path forward.

- The Board advises that ORP honor the commitments made to the Board in the ORP responses to Advice #238 and #245 dated February 7, 2011 and August 25, 2011 by meeting with the Board to seek Board recommendations for planning assumptions and scenarios prior to the next revision of the System Plan.

Advice: Accounting for Risks Associated with Equipment/Facility Vulnerability

- The Board advises that due to the growing risk associated with the tank farms and aging infrastructure, the milestone negotiations between DOE-ORP and Ecology should evaluate the risk of system component failures as a supplement to the existing System Plan 8 analysis. Any preferred scenario for the waste treatment mission should be “stress tested” to quantitatively simulate the mission impacts, system vulnerabilities, and response capabilities if significant system component failures occur. Examples of significant system component failures include:
 - a. The likelihood that the existing double-shell tanks will not survive many decades beyond their design lives, as is assumed under the System Plan 8 scenarios;
 - b. Potential single-point failures of facilities crucial to the tank waste treatment mission. Both the 242-A Evaporator (constructed in the mid-1970’s) and the cross-site transfer line (currently not operational) are assumed to be available when needed under System Plan 8 scenarios;
 - c. Potential inability to use the assumed liquid-based methods of SST waste retrieval due to advanced carbon steel degradation in the SSTs when they are finally retrieved; and
 - d. Failure of other aging site infrastructure critical to the tank waste treatment mission, as previously mentioned in Board Advice #294.

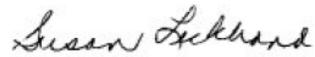
Advice: Definition of Risk Framework

- The Board advises the Agencies to engage the HAB in formal discussions regarding how risks have been and will be defined, managed, and/or mitigated. The Board believes all risks should be addressed, including project technical risks, public and worker health & safety; as well as environmental risks.

Advice: Incorporating Developments since System Plan 8 Release

- As ORP considers using Tank Side Cesium Removal (TSCR) for removal of cesium-137 from the Low Activity Waste stream, the Board advises the TPA Agencies to fully evaluate, prior to completion of milestone negotiations, the potential cost, schedule, and feasibility of implementing TSCR, including the use of a non-elutable ion-exchange resin on the overall tank waste treatment mission. The Board advises the TPA Agencies to refer to the Board’s June 17, 2016 cesium white paper (<https://www.hanford.gov/page.cfm/hab/OutgoingBoardCorrespondence>) related to cesium removal using non-elutable ion exchange media, as part of this decision-making process.

Sincerely,



Susan Leckband, Chair
Hanford Advisory Board

This advice represents HAB consensus for this specific topic. It should not be taken out of context to extrapolate Board agreement on other subject matters.

cc: Jim Owendoff, Principal Deputy Assistant Secretary for Environmental Management,
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David Einan, U.S. Environmental Protection Agency
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