

HANFORD ADVISORY BOARD

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

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June 8, 2012

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David Huizenga,
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Re: Safety Culture at the Waste treatment and Immobilization Plant

Dear Messrs. Samuelson and Huizenga,

Background:

As expressed in past advice, the safe and effective treatment of Hanford's tank waste through vitrification is a priority for the Hanford Advisory Board (HAB or Board). The cornerstone of vitrification is the Waste Treatment Plant (WTP). We all want the WTP to work safely and effectively.

This advice is in response to many reports, recommendations, investigations, action plans, and implementation plans related to the WTP that call in to question the WTP's ability to work safely and effectively. The Board read reports by the Defense Nuclear Facilities Safety Board (DNFSB), the U.S. Department of Energy's Office of Health, Safety and Security (DOE-HSS), and others who have looked into the role safety culture has played, and found a disconcerting link between the inability of employees to raise concerns and the existence of unresolved technical issues.

The first step to healing a problem is admitting there is a problem, and we commend DOE for taking the safety culture issues seriously. We're encouraged by the efforts both DOE-Headquarters (DOE-HQ) and DOE-Office of River Protection (DOE-ORP) have taken to acknowledge the safety culture concerns. DOE-ORP has developed a safety culture improvement plan that is an important first step towards meaningful reform. At a recent DNFSB hearing, David Huizenga, Senior Advisor for DOE-Environmental Management,

HAB Consensus Advice # 258

Subject: Safety Culture at the Waste Treatment & Immobilization Plant

Adopted: June 8, 2012

Page 1

said that DOE is "...on the road to recovery. We are admitting we have issues. We accept the fact that we have issues that need to be dealt with and take actions to address them."

Principles of Integrated Safety Management (ISM) should have been applied to risk identification and mitigation as defined in DOE Order 450.4. Application of ISM principles requires establishing a safety-based final design before proceeding with construction of the safety related components of WTP. The Board believes that two major errors were made in terms of compliance with ISM: 1) Failure to apply principles of ISM to facility design; 2) failure to adhere to principles of behavior based on the core values of a safety culture essential to the implementation of ISM.

DOE-ORP has accepted and incorporated the definition of safety culture as articulated in the Energy Facility Contractors Group Report into DOE-ORP's Improvement Plan (April 2012): "Safety culture is an organization's values and behaviors modeled by its leaders and internalized by its members, which serve to make safe performance of work the overriding priority to protect workers, the public, and the environment."

This advice offers suggestions for how to improve the safety culture and put the WTP back on track.

Advice:

- The Board advises DOE to augment current technical staff in order to better oversee contractor activities, and to guarantee that design and construction of all elements of the WTP are performed with a "safety first" posture. In addition, DOE should continue to utilize consultants and organizations, such as universities and national labs, that can provide technical advice when needed.
- The Board advises DOE that there needs to be an independent and authoritative entity to drive nuclear safety as the overriding priority at the WTP. The Board recognizes that this function could be accomplished by the DNFSB.
- The Board advises DOE to again assemble an independent and highly technically qualified review team to:
 - Conduct a full systems analysis of the project, and review design and process issues.
 - Identify and propose resolutions for technical issues and operating strategies to process all of the waste, including alternatives for pre-treatment (i.e. reconsider black cells, pulse jet mixers) and consider alternate glass forms, such as iron phosphate glass.

- Develop and implement a sound technical and programmatic basis for operation, including the critical path and essential physical and chemical properties of the waste.
- The Board advises DOE to require regularly scheduled, transparent, self-assessments of DOE and contractor project staff to evaluate safety and technical performance against best management practices and nuclear safety standards (10 CFR 830).
- The Board advises DOE to implement a revised definition of safety culture that recognizes the critical role of design in safety. The Board suggests a definition such as:

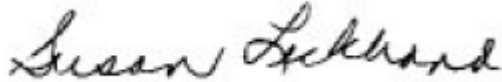
The integrated body of specific characteristics, personnel attitudes, values and behaviors of an organization (modeled by leaders and internalized by members) involving design, construction, operations, maintenance, inspection, and management policies and activities and other factors which together ensure that problems are aggressively sought out and that all concerns or issues raised are promptly addressed in a way that maximizes worker safety, public safety, and environmental protection.

- The Board advises DOE to institutionalize and enforce the following behaviors in its work to make safe performance of work the overriding priority, and to hold DOE and contractor managers and employees at all levels accountable for these behaviors:
 - Demonstrate that safety is preeminent in everything, including design, design approval, safety analysis, procedure writing, procurement, construction, product quality, operations, maintenance, demolition, and remediation.
 - Ensure that personal relationships with contractors, or other factors, do not result in a loss of oversight mentality by DOE staff.
 - Invite a critical analysis of work through an open, honest, and transparent process.
 - Identify and eliminate behaviors that undermine and prevent the reporting of concerns and issues.
 - Protect those who report concerns from retaliation.
 - Demonstrate that cost and schedule milestones do not artificially constrain and compromise safety. Milestones, while important in that they help drive progress, may be changed if necessary to ensure that no shortcuts to safety are made.

- Incentivize employees for raising safety concerns and issues when they are observed; communicate actions that demonstrate accountability.
- Ensure senior management demonstrates, through active listening and communication, that it respects and cares for the welfare of the employees. Validate senior management's attitude through an open, non-adversarial employee feedback process.
- The Board advises DOE to have DOE's Office of Health, Safety and Security (DOE-HSS) frequently assess safety culture using the above behaviors to identify areas for improvement and ensure that these behaviors are institutionalized.
- The Board advises that DOE establish and maintain a culture that welcomes worker input and responds in a manner that is protective of the employee and inspires trust.
- The Board advises DOE to meet with the Nuclear Regulatory Commission and the U.S. Naval Reactors Headquarters to learn how their safety cultures are created and safety is performed with an eye toward emulating aspects of those cultures within DOE operations, considering the most recent Defense Nuclear Facilities Safety Board (DNFSB) findings and recommendations to DOE.
- The Board advises DOE to ensure that the Employee Concerns Program (ECP) is independent and demonstrates its intolerance of reprisal from contractors or its own personnel (see HAB Advice 255 on ECP).
- The Board advises DOE to award contracts on a cost plus fixed fee basis for projects such as the WTP. If the contract is to be incentivized, awards should be made for long term projects which ensure safe construction and operations.
- The Board advises DOE to communicate behavioral expectations to contractor leadership and require the contractor to assess the leadership behavior of their management.
- The Board advises DOE to incorporate ISM safety risk assessment and mitigation analysis to examine the potential risks during future operations of the WTP. The analysis should examine, but not be limited to:
 - ORP's ability to effectively treat all of Hanford's tank waste;
 - The plan for resolving WTP technical issues;
 - The plan for predicting and mitigating equipment failure;
 - WTP maintenance risks (for example, entering black cells for repairs);

- The plan for managing potential operator error at the WTP.

Sincerely,



Susan Leckband, Chair
Hanford Advisory Board

This advice does not reflect complete Board consensus - Jerry Peltier, City of West Richland, dissented.

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

cc: Glenn Podonsky, Chief Health, Safety and Security Office, U.S. Department of Energy Headquarters
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