

Waste Treatment Plant (WTP) Safety Culture

Background:

A chain of events involving the design and construction of the Hanford Waste Treatment Plant (WTP) have occurred in the past two years that raise serious concerns for the Hanford Advisory Board (HAB). These relate to the technical adequacy of the design; construction decisions; the safety culture and protection of workers, the public and the environment; and other broader issues involving occupational safety and Integrated Safety Management Systems (ISMS).

The Defense Nuclear Facilities Safety Board (DNFSB) issued three recommendations in 2010 and 2011 related to technical issues and safety culture at the Waste Treatment Plant. DNFSB Recommendations 2010-1 and 2010-2 focused on technical issues and Recommendation 2011-1 focused on events involving key personnel and safety culture. The DNFSB made a series of specific detailed recommendations in regard to each.

In the fall of 2011, in response to the DNFSB recommendations, DOE and its contractors conducted a number of self assessments. The most recent "Independent Safety and Quality Culture Assessment" (ISQCA) selected and funded by the major contractor, Bechtel, had many similar findings to those of the DNFSB, though its conclusions were considerably different as far as safety culture and suppression of technical dissent.

In a December 5, 2011 memo to Department Heads, Secretary of Energy Stephen Chu and Deputy Secretary Daniel Poneman reaffirmed the Department's commitment to safety culture through standards, directives and expectations and managing risk and safety using ISMS.

As these issues continue to play out, it has become clear to the HAB that the term "safety culture" is being interpreted to mean many different things. It has come to encompass occupational safety; operational safety of the WTP; whether the WTP will work as designed; and whether technical dissent can be raised without fear of reprisal. Without trying to find agreement on the correct term or terms, all of these issues are of concern to the HAB.

Hanford Advisory Board Advice:

- The HAB advises DOE to fully accept the recommendations of the DNFSB and to work as quickly as possible to resolve the issues they identify.
- The HAB advises DOE to revise the Safety Basis Order, the ISMS, DOE Policies and the definition of "safety culture" to fully incorporate active investigation of designs and processes to identify risks and so far as possible, eliminate the potential for a catastrophic failure of the WTP. Where it is not possible to eliminate serious hazards, steps should be taken to mitigate against their occurrence, recognizing that mitigation is a poor substitute for elimination. At all stages of design and operation, DOE should foster and encourage all staff to critically analyze the design, the procedures and all

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aspects of the work looking for ways that the design and processes may go wrong and to suggest how they might be improved.

- The HAB advises DOE to create and foster a system both within DOE and the contractor organization that actively seeks dissenting views, concerns and issues, and which proactively challenges the system design to find weaknesses so that these may be resolved early in the process.
- The HAB advises DOE to demonstrate to the HAB, the public and the workers that DOE and senior contractor management are effectively engaged in continually improving the safety culture and that measurable improvements in the safety culture are a direct result of senior management involvement. The HAB advises DOE to take a new approach to engage site management routinely at all levels to change the safety culture issues that continue to emerge. The HAB advises that steps need to be taken beyond monthly meetings to ensure positive actions to resolve issues.
- The HAB advises DOE to be proactive in showing the public how the DOE is working with its contractors to foster a safe work environment for occupational safety and a strong nuclear safety culture to prevent catastrophes that encourages dissenting professional opinions and a questioning attitude without fear of recrimination or reprisal, and that welcomes input from regulators and interested parties. This process should clearly and transparently show how the issues were investigated, what the results were and close the loop with the originator of the concern.
- The HAB advises DOE to use and encourage open and transparent processes to engage the public, both about concerns related to the design and operation of the facility and about the long term protection of human health and the environment both from operations and from all WTP wastes that will be disposed at Hanford (including vitrified and secondary wastes).
- The HAB advises DOE to work with its construction and operations contractors and their subcontractors at the WTP site to promote and support a reliable safety culture for non-represented staff equivalent to that for the represented Crafts.
- The HAB advises that managers be trained in how to accept input and critique from subordinates and other contributors at all times; be made aware how their style and manner may be interpreted; and how this can become part of a solution. They should be instructed as to the desirability of a collegial atmosphere amongst professionals, where ideas, thoughts and observations may be freely expressed and exchanged without belittlement or denigration of any kind, at any time or for any reason.
- The HAB advises that safety and reporting of concerns be incentivized at least as robustly as achieving cost and schedule goals. The HAB advises DOE to be careful in

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crafting cost and schedule incentives to ensure that no aspects of safety or safety culture are jeopardized.

- The HAB advises that attention be focused on personnel who suppress the reporting of safety concerns and dissenting opinions and that DOE take firm and visible corrective action to stop such behavior.
- The HAB advises that the Employee Concerns program(s) of both DOE and the contractors be independently reviewed (not by an existing Hanford contractor or DOE) to ensure the program(s) effectively address employee concerns in a timely and reliable manner and protects those using the program. The Employee Concerns programs need to establish credibility amongst the workforce and users of the program.
- The HAB advises that DOE complete full-scale mixing tests as expeditiously as possible to provide confidence in the plant design.
- The HAB advises that DOE meet periodically with the HAB to brief us on these issues and the actions taken to ensure their timely resolution and continued measurable progress in improving the WTP safety culture.