



The Secretary of Energy
Washington, DC 20585

November 8, 2012

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DNF SAFETY BOARD

The Honorable Peter S. Winokur
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, DC 20004-2901

Dear Mr. Chairman:

The purpose of this letter is to notify you of the status to the Department of Energy's (DOE) Recommendation 2010-2 Implementation Plan (IP), *Pulse Jet Mixing (PJM) at the Waste Treatment and Immobilization Plant (WTP)*.

On August 27, 2012, I provided you the status of the revision to the IP consistent with the August 21, 2012, quarterly briefing from the Senior Advisor for Environmental Management and the Site Manager, Office of River Protection, communicating that a revision was required.

As we discussed, this summer I assembled a group of independent subject matter experts to assess specific aspects of WTP. While the group's initial focus was particularly on the plant's designed capability to detect equipment failure and to repair failed equipment inside the WTP black cells, the review group identified several other issues that need additional analysis. Technical teams are being established to work collaboratively to resolve these issues. These teams will consist of DOE Federal and contractor employees and will draw on expertise from the National Laboratories, academia, and industry. These technical teams will revise the strategy for the verification of the design of the black cells, including the vessels containing the PJMs.

The current design verification philosophy needs to be changed due to the following:

- The current approach cannot simulate the chemical and physical properties of the various waste streams to verify and validate PJM performance, particularly for non-Newtonian fluids;
- The uncertainties associated with the properties of the tank waste itself must be addressed;
- The relatively low confidence that the design verification and analysis methods currently planned will provide the technical support that the PJMs will meet mixing requirements over the prescribed 40-year design life; and
- Concerns with the technical validity of using the current computational fluid dynamics model to validate performance and verify the ability to predict full-scale PJM performance.



My staff is currently working with the WTP contractor to develop a revised design verification strategy that will provide added confidence in the ability of the WTP black cell components and piping to operate reliably and safely over its 40-year design life.

At this time, DOE envisions that a full-scale test program will replace the current design verification strategy that relies on the use of computational fluid dynamics and scaling for the vessels subject to PJM. Given this significant change in approach, an updated IP will not be completed by the end of the calendar year as initially planned. As we gain a better understanding of the design verification strategy we will be in a position to develop a roadmap on a path forward. The Department will continue to keep you and your staff informed as the IP revision and the schedule for delivering the modified IP commitments are developed.

If you have any questions, please contact me or Mr. David Huizenga, Senior Advisor for Environmental Management, at (202) 586-7709.

Sincerely,

A handwritten signature in black ink, appearing to read "Steven Chu". The signature is written in a cursive, flowing style.

Steven Chu