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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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March 5, 2009

Dr. Inés R. Triay
Acting Assistant Secretary for Environmental Management
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0113

Dear Dr. Triay:

The Defense Nuclear Facilities Safety Board (Board) has closely followed conceptual design activities and associated safety basis development for the Tank 48 Fluidized Bed Steam Reforming (FBSR) project at the Savannah River Site. To date, the Board finds that the proposed technology appears appropriate to safely treat the Tank 48 waste. Furthermore, project personnel recently improved the implementation of safety in design. However, the project continues to be delayed, which adversely impacts high-level waste cleanup at the site and poses safety risks to workers and the environment.

The Board recognizes that treating the waste in Tank 48 and returning the tank to service is critical to operations in the high-level waste (HLW) system. Further delay in this project will exacerbate the tank waste management program, potentially leading to a greater number of undesirable waste transfers, increased worker risk, the need to store waste in older non-compliant tanks, and delays in tank closure goals.

The Board has reviewed the documentation supporting Critical Decision-1 (CD-1), approved March 13, 2008, which established a cost range and selected FBSR as the preferred alternative for treatment of waste in Tank 48. Additionally, the Board reviewed new structural analyses issued July 2008, a new Safety Design Strategy issued August 2008, and the results of the contractor's Corporate Program Review of October 2008. Based on these reviews and on meetings with project personnel, the Board's staff prepared a Project Summary, which is enclosed. Specific areas of concern include:

- **Implementation of DOE Order 413.3A.** The Board notes that the Department of Energy (DOE) did not conduct a Technical Independent Project Review (TIPR) as required by DOE Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*, prior to the approval of CD-1. The TIPR is intended to be conducted independent of line management to determine whether the safety documentation is sufficiently conservative to continue to the next phase of the project. Given the relatively low risk of the FBSR project and the extent of other independent reviews, the Board does not believe DOE must retroactively perform a TIPR. However, the Board strongly suggests that as the project proceeds, DOE meet

the requirements of DOE Order 413.3A as well as the guidance of DOE Standard 1189, *Integration of Safety into the Design Process*.

- **Active Confinement Ventilation.** The contractor maintains that no safety-class or safety-significant controls are needed in the FBSR project, but the design includes a confinement ventilation system (non-safety related). Project personnel plan to conduct a ventilation system evaluation in accordance with the Implementation Plan for the Board's Recommendation 2004-2, *Active Confinement Systems*. For new Hazard Category 2 nuclear activities such as the FBSR project, the evaluation criteria for the ventilation system must be equivalent to those applied to safety-significant equipment (at a minimum). The Board remains very interested in this evaluation and urges DOE to ensure the contractor performs a thorough and effective evaluation.
- **Project Delays.** The Board's Recommendation 2001-1, *High Level Waste Management at the Savannah River Site*, May 2001, suggested that DOE recover the In-Tank Precipitation Tanks (Tanks 48, 49, and 50) for use in the HLW system. Contractor analysts began studying options for the treatment of Tank 48 waste in 2002. However, after 6 years of study, numerous independent reviews, and successful pilot-scale testing, the project continues to make slow progress. The most recent Implementation Plan for Recommendation 2001-1 commits to the recovery of Tank 48 by January 2010, but more recent planning documents suggest that date could slip to 2012 or later.

Although CD-1 was approved in March 2008, DOE is unsure of the selection of FBSR as the preferred alternative. DOE plans to reconsider the alternatives and issue a "business decision" in June 2009 to make the final selection of the preferred alternative. These continued delays contribute to added risk to the workers as noted above. The Board urges DOE to accelerate the recovery of Tank 48.

These concerns, supported by the enclosed report, are provided for your information and use.

Sincerely,



A. J. Eggenberger
Chairman

Enclosure

c: Mr. Jeffery M. Allison
Mr. Mark B. Whitaker, Jr.