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# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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February 29, 2000

The Honorable Carolyn L. Huntoon  
Assistant Secretary for  
Environmental Management  
Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-0113

Dear Dr. Huntoon:

The Defense Nuclear Facilities Safety Board (Board) has been reviewing the progress of the Spent Nuclear Fuel Project (SNFP) at the Hanford Site. This project is directed at the safe removal of deteriorating spent nuclear fuel from the K-Basins. The Board's staff has monitored the fabrication and installation of the Integrated Water Treatment System (IWTS) in the K-Basins as part of this critical project. The purpose of the IWTS is to collect and filter the water used to wash and clean the spent fuel from the N-Reactor, thereby minimizing additional contamination of the basin water. During its review, the Board experienced a less than satisfactory response by the Department of Energy (DOE) Richland Operations Office (RL) to a safety matter under investigation; namely, pre-operational hydrostatic testing of the IWTS. This evidence of poor engineering merits your attention to avoid repetition.

The IWTS was fabricated to the requirements of the American Society of Mechanical Engineers (ASME) B31.1 Pressure Piping Code for Power Piping. That code requires a hydrostatic test of the system following completion of all fabrication, assembly, and erection. However, the code allows the owner to substitute an initial service leak test when hydrostatic testing is not practical. The SNFP, with DOE-RL's concurrence, elected to waive the hydrostatic testing of this system on the basis that such a test would be difficult and add 2-3 weeks to the schedule.

As discussed with DOE-RL, the Board did not believe that the time required to perform a hydrostatic test should have been considered a justification for deeming the test impractical. In response, the Board's staff was provided a completed white paper by the contractor providing additional technical justification for waiving the hydrostatic test. The justification noted that only 3 welds had not been hydrotested and that these 3 welds had received additional visual inspections. As the Board's staff continued its review of this matter, the contractor determined that 16 welds had not been hydrotested rather than the 3 claimed, and that not all of the

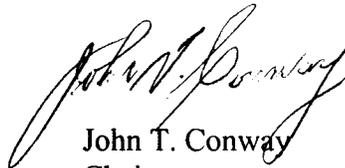
additional weld visual inspections had been made as claimed. In response to these findings, all 16 welds were hydrotested in two sections of the piping.

A final hydrostatic test of the fully assembled system at 1.5 times design pressure provides assurance that the welded and flanged piping connections are robust and leak-tight. This will not be done for the IWTS. However, given the piece-wise hydrotesting of all welds, the planned service leak test at operational pressure, and the relatively low bounding dose consequence of a worst case failure, the Board believes that the system integrity for safe operation will have been reasonably demonstrated.

The acceptability of the IWTS aside, the Board is disturbed about being given inaccurate and incomplete information. For the IWTS, there have been other instances of incorrect information provided to this Board, namely a September 20, 1999 response from DOE incorrectly asserting that all welds in the IWTS had been inspected to determine the condition of their inside surface. DOE needs timely and accurate information from their contractors to make safety related decisions, and the Board also needs reliable information from DOE to discharge its responsibilities regarding health and safety issues. The Board recognizes that often preliminary information may be submitted for review and discussion, and does not want to inhibit that essential dialogue. The Board strongly encourages DOE to take appropriate actions with DOE and contractor personnel to ensure timely and accurate information is provided to the Board and the Board's staff.

If you have any questions on this matter, please do not hesitate to call me.

Sincerely,



John T. Conway  
Chairman

c: The Honorable Ernest J. Moniz  
Mr. Mark B. Whitaker, Jr.  
Mr. Keith A. Klein