

John T. Conway, Chairman  
A.J. Eggenberger, Vice Chairman  
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## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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April 4, 2003

The Honorable Jessie Hill Roberson  
Assistant Secretary for Environmental Management  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-0113


Dear Ms. Roberson:

The Hanford Spent Nuclear Fuel Project (SNFP) is preparing to place K-Basin sludge in interim storage at the 221-T building (T Plant), where it will be maintained in a retrievable condition pending final treatment and disposal. As part of the documented safety analysis (DSA) for this activity, the contractor performed a seismic evaluation—*Seismic Evaluation of the T Plant 221-T Building for Interim Storage of K-Basin Sludge, 200 West Area, Hanford Site, HNF-6033, Rev. 1*—to determine potential earthquake effects on the T Plant structure. Although the analysis did not conform to the methodology prescribed in the Department of Energy (DOE) Standard, DOE-STD-1020-94, *Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities*, or its 2002 revision, the alternative methodology used in HNF-6033, and a limited independent analysis conducted by the Defense Nuclear Facilities Safety Board's (Board) staff, showed that the building's ultimate seismic capacity demonstrates an acceptable margin to failure for an existing Performance Category-2 facility. As such, the Board believes the building is satisfactory for sludge storage in order to reduce the risk of leaving the sludge in the K-Basins.

However, portions of the T Plant structure do not meet minimum reinforcement requirements of the American Concrete Institute (ACI), ACI 318, *Building Code Requirements for Structural Concrete*, and given that the building was constructed more than 50 years ago, the Board is concerned about the structure's suitability for any mission other than sludge storage. The Board understands that the SNFP is considering processing sludge and other remote-handled transuranic waste at T Plant, a new mission that may increase the quantity of materials at risk and invalidate the existing evaluation criteria.

In view of the issues outlined above, the Board would like to be informed of the K-Basin sludge disposition plans, and of any proposed changes to the building's mission.

Sincerely,

  
John T. Conway  
Chairman

c: Mr. Keith A. Klein  
Mr. Mark B. Whitaker, Jr.