

A.J. Eggenberger, Chairman  
Joseph F. Bader  
John E. Mansfield

# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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September 26, 2006

The Honorable Linton Brooks  
Administrator  
National Nuclear Security Administration  
1000 Independence Avenue, SW  
Washington, DC 20585-1000

Dear Ambassador Brooks:

The Defense Nuclear Facilities Safety Board (Board) and its staff have been working with your staff to resolve the structural issues identified in the Board's January 4, 2005, letter to you regarding the preliminary design of the Pit Disassembly and Conversion Facility (PDCF). Since that time, the issues identified in the Board's letter have been addressed. A substantial effort by the Board's staff, National Nuclear Security Administration (NNSA) personnel, Westinghouse Savannah River Company (WSRC), Washington Group International (WGI) and its subcontractors led to resolution of potential settlement issues related to the unique soft zones at the Savannah River Site (SRS).

While the Board agrees that the soft zone related surface settlement profiles specified for PDCF in Calculation Number PDCF-7, *Soft Zone Settlements*, are acceptable for the design of PDCF, the Board believes the methodology and analytical approach used to derive these profiles have several shortcomings. For example:

- Knowledge of the current stress condition of the soft zone material beneath the facility is required to determine the settlement at depth. However, agreement could not be reached on a reliable and technically defensible characterization of this condition and a subsequent approach for estimating soft zone settlement at depth.
- The shape of the surface settlement profile is not based on a vigorous, technically robust analysis.

The Board's technical review and evaluation found that conservatism in certain areas compensates for these unresolved issues. As a result, the Board believes the design settlement profiles due to soft zones produced by the PDCF project are adequate.

In light of the difficulty of calculating technically defensible surface settlement profiles, the Board considers that a preferred alternative would be to design new facilities at SRS with the capability to accommodate the maximum postulated surface settlement profile. This approach would eliminate the need to calculate the magnitude of the settlements. If this alternative is not

considered feasible for all future projects at SRS, a more robust approach for determining settlement of the unique soils at SRS is needed. Since this issue is limited to conditions at SRS, the Board intends to pursue the matter with the SRS office directly.

Sincerely,

A handwritten signature in black ink, appearing to read "A. J. Eggenberger". The signature is fluid and cursive, with a large initial "A" and "E".

A. J. Eggenberger  
Chairman

- c: The Honorable Thomas P. D'Agostino
- The Honorable James A. Rispoli
- Mr. R. W. Arkin
- Mr. Jeffrey Allison
- Mr. Andre I. Cygelman
- Mr. Mark B. Whitaker, Jr.