

Peter S. Winokur, Chairman
Jessie H. Roberson, Vice Chairman
John E. Mansfield
Joseph F. Bader

**DEFENSE NUCLEAR FACILITIES
SAFETY BOARD**

Washington, DC 20004-2901



July 18, 2012

The Honorable Daniel B. Poneman
Deputy Secretary of Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Deputy Secretary Poneman:

The National Nuclear Security Administration's (NNSA) Plutonium Facility at Los Alamos National Laboratory will continue to play a vital role as a production facility for the foreseeable future. The Defense Nuclear Facilities Safety Board (Board) remains concerned by the seismic integrity of the Plutonium Facility. The timely identification and remediation of any structural vulnerabilities will have profound implications for ensuring public health and safety. The Board believes that NNSA's current approach for assessing the Plutonium Facility's seismic behavior is not adequately defined, and is technically inadequate in several aspects. Timely action must be taken to fully understand if additional building modifications are required to eliminate or mitigate any remaining structural vulnerabilities in the design.

The 1970's-era design and construction of the Plutonium Facility lacks the structural ductility and redundancy that would be required by modern building codes in force today. This lack of ductility and redundancy makes the Plutonium Facility susceptible to catastrophic structural failure if subjected to the strong seismic ground motions identified in the most recent probabilistic seismic hazard analysis conducted by NNSA's contractor. The analysis identifies ground motions up to five times greater than the original design basis in the frequency band of interest for the Plutonium Facility.

NNSA and its contractor are currently performing a static nonlinear analysis intended to definitively characterize the Plutonium Facility's structural response to large earthquake ground motions. The Board is concerned that the ongoing static nonlinear analysis is proceeding without adequate definition and technical justification.

Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests a report including: (1) the identification and technical basis for each key assumption to be applied to the static nonlinear analysis model, with particular emphasis on the nonlinear elements and how the

characteristics and parameters for each were selected; (2) a detailed description of the approach to be taken in applying loads to the model to simulate the dynamic (degraded) behavior during an earthquake; and (3) the static nonlinear analysis acceptance criteria. The Board requests this report be provided within 30 days of receipt of this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter S. Winokur", with a long horizontal flourish extending to the right.

sw Peter S. Winokur, Ph.D.
Chairman

c: The Honorable Thomas P. D'Agostino
Mrs. Mari-Jo Campagnone