

Joyce L. Connery, Chair  
Thomas A. Summers, Vice Chair  
Jessie H. Roberson

**DEFENSE NUCLEAR FACILITIES  
SAFETY BOARD**

Washington, DC 20004-2901



August 15, 2023

The Honorable Jennifer M. Granholm  
Secretary of Energy  
US Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-1000

Dear Secretary Granholm:

The Defense Nuclear Facilities Safety Board (Board) has been engaged with the Department of Energy (DOE) on seismic safety of the Plutonium Facility (PF-4) at Los Alamos National Laboratory (LANL) since laboratory personnel first identified elevated seismic hazards in 2009.

A LANL project team recently completed a probabilistic risk analysis and concluded that the seismic safety risk of PF-4 is acceptable until LANL updates the site-specific probabilistic seismic hazard analysis in 2025. The Board finds that the conclusions of the LANL project team were technically defensible and that the accompanying peer review process was robust. However, DOE would benefit from improving documentation of the effort. Currently, there is no single integrated report that comprehensively documents the probabilistic risk analysis effort and overall conclusions. Improving the formality of documentation would enhance transparency and facilitate better understanding and dissemination of the analysis.

The Board considers LANL's approach in assessing the seismic risk for PF-4 as a best practice that DOE should consider applying at other defense nuclear facilities. LANL personnel followed a risk-informed approach like the one that the Nuclear Regulatory Commission adopted for the commercial nuclear industry. The risk analysis provided information on the likelihood of PF-4 failing to perform its credited safety function, considering all potential earthquake scenarios at the LANL site. This was a commendable effort, representing a comprehensive application of such an approach for a defense nuclear facility.

On a related note, in a letter dated June 10, 2021, the Board issued its Technical Report-47, *Seismic Hazards Assessments*, which identified concerns regarding other aspects of DOE's approach to seismic safety. One concern was ensuring that DOE sites properly apply the unreviewed safety question process following updates to the probabilistic seismic hazard

analysis. The Board acknowledges that on May 4, 2023, DOE issued an operating experience level 3 document to all its sites that clarifies and reinforces that an increase in seismic hazard that is not bounded by the approved safety analysis should follow the unreviewed safety question process as advised by the Board.

Sincerely,

A handwritten signature in cursive script that reads "Joyce L. Connery". The signature is written in black ink and is centered on the page.

Joyce L. Connery  
Chair

c: Mr. Joe Olencz