

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 7, 2025

**TO:** Acting Technical Director  
**FROM:** Lawrence Livermore National Laboratory (LLNL) Cognizant Engineer  
**SUBJECT:** LLNL Report for February 2025

**Defense Nuclear Facilities Safety Board (Board) Staff Interactions:** From February 10 to 13, 2025, the Board's cognizant engineer visited LLNL to observe a security exercise in the Super Block. In addition, the cognizant engineer completed walkdowns of the Tritium Facility (Building 331), Plutonium Facility (Building 332), and the Waste Storage Facilities, and met with Lawrence Livermore National Security, LLC, (LLNS) and Livermore Field Office (LFO) managers and staff. The cognizant engineer also met with the Executive Director and staff members of Tri-Valley CAREs.

**Building 332 – Seismic Evaluation and Retrofit Quarterly Update:** On February 28, 2025, LLNS provided a quarterly update to LFO on the seismic evaluation and retrofit project for Building 332. DOE Order 420.1C, *Facility Safety*, requires LLNL to assess nuclear facilities for natural phenomena hazards every ten years. LLNS contracted Simpson, Gumpertz & Heger, Inc. (SGH) in 2020 to complete a building structure assessment for Building 332 and to provide in-structure response spectra (ISRS) for evaluating the building and its Safety Class structures, systems, and components (SSCs). LLNS believes the ISRS provided by SGH are overly conservative. Subsequently, LLNS contracted Carl J Costantino and Associates (CJCA) to provide updated ISRS for Building 332 to evaluate excess conservatism. LLNS plans to use these updated seismic responses to design retrofit modifications to the Building 332 structure and Safety Class SSCs within the building. During the update, LLNS provided additional analyses for Increment 1 of Building 332 and the plenum equipment building (PEB). LLNS noted that the SGH evaluation of Building 332 and the PEB incorporated significant conservatisms amplifying structural responses beyond expected levels. The CJCA results provide a more realistic estimate of the seismic response, reducing the seismic response by up to 68 percent in some cases, and will serve as a baseline estimate of seismic demand to support future assessments that will inform potential design optimization and retrofits. LLNS noted that the results of the analysis for the PEB roof suggest that roof replacement may not be necessary. LLNS plans to extend the contract with CJCA to complete a 30 percent conceptual design of the retrofits required to address the seismic issues in Building 332. LLNS noted that seismic retrofit work on Building 332 will begin in Fiscal Year 2028, depending on funding.

**Building 331 – Tritium Facility Documented Safety Analyses (DSA) and Technical Safety Requirements (TSRs) Annual Update:** On February 28, 2025, LLNS submitted the annual update to the Building 331 DSA and TSRs, as required by 10 CFR Part 830 *Nuclear Safety Management*. The annual update addressed all Unreviewed Safety Question Determinations (USQDs) from December 13, 2023, through January 3, 2025. LLNS noted that these USQDs resulted in no changes to the Building 331 DSA and TSRs. LLNS provided this update in accordance with 10 CFR Part 830.202(c)(2), which does not require Department of Energy approval if the annual update has no significant changes.