

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 1, 2017

**TO:** Steven A. Stokes, Technical Director

**FROM:** Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer

**SUBJECT:** Lawrence Livermore National Laboratory (LLNL) Report for November 2017

**Defense Nuclear Facilities Safety Board (Board) Staff Activity:** The Board's cognizant engineer provided one man-week of on-site oversight at LLNL during November 2017. The cognizant engineer's oversight included walkdowns of facilities in Buildings 331 and 332, observation of the contractor readiness assessment for the tritium grinder, surveillance of the installation of the new liquid nitrogen supply system for Building 332, including a walkdown of the temporary system that supplies nitrogen for the facility during construction, and observation of operations in Building 331 to fill tritium capsules for the National Ignition Facility.

**Building 331: Tritium Grinder Contractor Readiness Assessment (CRA).** Following the completion of significant upgrades to the tritium grinder, LLNL staff began a CRA on November 29, 2017. The CRA includes a review of grinder performance parameters, demonstrations of pre-start procedures, grinder loading, the grinding process, tritium recovery, debris removal, evacuation of the collection tank, and responses to off-normal operating conditions. The CRA also includes interviews with programmatic personnel, the Facility Safety Officer, the Facility Manager, and Environment, Safety, and Health technicians. The CRA is scheduled to be completed on December 4, 2017.

**Building 332: Nonlinear Dynamic Analysis of Building 332.** In 2016, the Probabilistic Seismic Hazard Analysis (PSHA) for the LLNL site was updated. Based on this PSHA update, the seismic hazard for the LLNL site is greater than reported by previous assessments due to new analysis methods. In response to the updated PSHA, LLNL recently awarded a contract to the San Francisco office of Simpson Gumpertz & Heger, Inc. (SGH), to complete a nonlinear dynamic analysis of Building 332 to evaluate the building's response to potentially greater seismic loads. LLNL also selected Degenkolb Engineers to serve as a peer review entity for these analyses. Both engineering firms, SGH and Degenkolb, are familiar with defense nuclear facilities, earthquake engineering, and the Building 332 facility. A kickoff meeting for this project was held during the week of November 6, 2017. SGH is currently finalizing its plan for the completion of these analyses.

**Building 334: Hardened Engineering Test Building.** On November 17, 2017, LLNL transmitted the *Revised 2017 Update of the Documented Safety Analyses and Technical Safety Requirements for the Hardened Engineering Test Building – Building 334 Incorporating the Review Comment Record* to the National Nuclear Security Administration Livermore Field Office (LFO). LFO Staff is reviewing this revision to complete the Review Comment Record process.