DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 7, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer
SUBJECT: Lawrence Livermore National Laboratory (LLNL) Report for December 2021

Defense Nuclear Facilities Safety Board (Board) Staff Interactions: On December 1, 2021, a Board's staff team conducted a teleconference with Lawrence Livermore National Security, LLC, (LLNS) and Livermore Field Office (LFO) management and staff members to receive an update on facility assessment and retrofit plans for the Plutonium Facility (Building 332) at LLNL. LLNS staff presented results from a recently completed seismic hazard analysis. The Board's staff is conducting an ongoing review of these analyses and will review the retrofit plans being developed for Building 332 by LLNS and its subcontractors.

Building 332 – Recovery Glovebox Line (RGL) Contractor Readiness Assessment (CRA): On November 29, 2021, LLNS issued its CRA report for the RGL in Building 332 (see LLNL Monthly Report for November 2021). The RGL replaces many existing material processing workstations and adds new capabilities for handling and processing plutonium and plutonium-bearing materials. The CRA team assessed functional areas including criticality safety, radiation protection, quality assurance, training, safety basis implementation, safety systems, startup plan, operational drill program, chemical handling, and conduct of operations. The CRA team noted that RGL personnel have an excellent understanding of the chemical processes, hazards, and associated controls. The CRA report concluded that RGL staff scientists and fissile material handlers demonstrated a strong commitment to safety and compliance with environmental requirements. The CRA team identified six pre-start findings, one post-start finding, and made several observations. The CRA team determined that the primary impediment to safe and efficient operations was the quality of the technical procedures used to conduct RGL operations. The CRA team concluded that upon successful closure of the pre-start findings and the re-evaluation of the technical procedures, the RGL can safely commence nuclear operations. The Federal Readiness Assessment for startup of the RGL is scheduled for January 2022.

Evaluation of the Safety of the Situation (ESS) to Address New Information Regarding the Aircraft Crash Scenario at the Waste Storage Facilities (WSF): On December 9, 2021, LFO approved the ESS for the WSF based on the LLNS evaluation of new information associated with the airborne release fraction selected for determining a segment of the source term for aircraft crash scenarios at the WSF. The LLNS analyses calculated nominal dose increases that do not change the consequence or control selection for the WSF. In addition, the four highest material-at-risk drums used in the previous calculation and accident analysis have been shipped off-site and are no longer stored at LLNL. LLNS noted that these analyses are reflected in the December 2021 WSF Documented Safety Analyses/Technical Safety Requirements updates.

Technical Safety Requirements Page Changes Associated with the Transportation Safety Document (TSD): On December 20, 2021, LLNS requested approval of page changes to the Technical Safety Requirements of the TSD. LLNS noted that these changes relate to the procedures for the transfer of radioactive material between Superblock facilities and responding to emergencies and protective actions. LLNS stated that these page changes reflect updates that are part of the overall conversion of Environment, Safety, and Health Manual documents into institutional documents as part of the Standards Based Management System.