

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 3, 2023

TO: Timothy J. Dwyer, Acting Technical Director
FROM: Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer
SUBJECT: Lawrence Livermore National Laboratory (LLNL) Report for October 2023

Building 334 - Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR)

Annual Update: On October 2, 2023, the National Nuclear Security Administration Livermore Field Office (LFO) approved the Building 334 DSA and TSRs after reviewing the annual update submitted by Lawrence Livermore National Security, LLC, (LLNS) and the applicable unreviewed safety question determinations. LFO agreed that there were no significant changes to the Building 334 Safety Basis and that the safety basis is acceptable for continued use. LFO directed LLNS to add the annual update submittal and the LFO approval to the Building 334 Safety Basis within 90 days.

LLNL Transportation Safety Document (TSD) and TSRs: On October 6, 2023, LFO approved the page changes to the TSD and TSRs submitted by LLNS on August 28, 2023. LFO noted that the approved page changes for the TSD TSRs replace the LLNL Environmental, Safety and Health Manual Document 20.6, *Criticality Safety*, with the new institutional document reference RID-2387, *Criticality Safety*. LFO verified that the page changes accurately reflect the change to the referenced criticality safety documents. LFO directed LLNS to add the approval letter and page changes to the safety basis for Packaging and Transportation Safety effective when RID-2387 is implemented.

Building 332 Increment 3 Room Ventilation System (RVS): On October 17, 2023, LLNS requested an extension of the Limiting Condition for Operation (LCO) to allow remaining in Maintenance Mode for an additional 30 days to November 16, 2023, while restoring the operable status of the Building 332 Increment 3 RVS. (See LLNL Monthly Report for August 2023.) On October 18, 2023, LFO approved this request noting that the exhaust portions of Increment 3 RVS are functioning and are maintaining negative pressure compared to the building exterior, and that the Increment 3 glovebox exhaust system is still fully operable. LFO noted that entering Repair Mode, as required by the next LCO action, would require de-inventorying the impacted rooms into the vaults, which would not provide any additional protection to the public and collocated worker, and would, in fact, add extra risk in the process. LFO concluded that the duration of the extension is appropriate and still maintains appropriate levels of safety provided by the system. LFO approved a new completion date of November 24, 2023, 45 days from entering the LCO.

Evaluation of the Safety of the Situation (ESS) Documents Rejected by LFO: On October 25, 2023, LFO rejected the ESS submitted by LLNS related to the suspect material certification of Madruga Ironworks components used in Building 332. LFO noted the ESS did not evaluate all failure mechanisms resulting from unknown quality of the suspect Madruga components, including procured part welds, that are credited in DSA. LFO directed LLNS to provide a Justification for Continued Operation (JCO) within 60 days with compensatory measures to confirm operability following a seismic event of Madruga components credited as safety significant. On October 26, 2023, LFO rejected another ESS submitted by LLNS related to Building 332 fire suppression system fusible plug activation temperature. LFO determined that the safety assessment was incomplete and did not address the LCO Statement 3.10.1.G requirement to determine whether the fusible plug is satisfactory and did not adequately incorporate the fusible plugs identified as defense-in-depth equipment important to safety in the DSA. LFO directed LLNS to resubmit a revised ESS or JCO evaluating the applicable specifications for the fusible plugs within 60 days.