

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 7, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer
SUBJECT: Lawrence Livermore National Laboratory (LLNL) Report for May 2024

Building 332 - High Efficiency Particulate Air (HEPA) Filters Evaluation of the Safety of the Situation (ESS) and Justification for Continued Operations (JCO): On May 9, 2024, Lawrence Livermore National Security, LLC (LLNS) submitted an ESS and JCO to the Livermore Field Office (LFO) responding to a Potential Inadequacy of Safety Analysis (PISA) based on new information regarding the lack of an evaluation addressing soot build-up on the Increments 1 and 3 Glovebox Exhaust System (GBES) and Room Ventilation System (RVS) final stage HEPA filters. LLNS noted that due to this new information, it is not fully known how the HEPA filters would be impacted by soot build up during a potential large fire. LLNS noted that an operational restriction, based on the existing compensatory measure regarding fusible plugs, will be expanded to both facility increments while LLNS investigates this issue more thoroughly. (See LLNL Monthly Report for March 2024). LLNS noted that the compensatory measure is intended to enhance the reliability of the fire suppression system, limit fire growth and intensity, and wash out soot well in advance of the final stage HEPA filter. LLNS also noted that the JCO establishes a compensatory measure for operations in Building 332, specifies a risk basis for the JCO, and provides a path forward for final resolution of the PISA. LLNS management proposed that the JCO remain in effect until the evaluation of impacts of soot buildup has been completed and accepted by LFO with the approved changes implemented, or for a period of one year from the approval of the JCO, whichever comes first.

One-time Approval for the Movements of Non-Department of Transportation (DOT) Packaging at Site 200: On May 23, 2024, LFO approved a request by LLNS to perform mission-related, on-site movements of radioactive materials with surrogate weapon components in a pressure vessel with an explosive actuator that is not authorized by the Site 200 Transportation Safety Basis Document (TSBD). LLNS noted that the movement activity will involve a stainless steel pressure vessel fabricated by Sandia National Laboratories containing an integrated explosive actuator valve. The pressure vessel, while designed to meet weapons requirements, does not meet all DOT requirements to be transferred on-site under Site 200 TSBD controls. LFO concluded that the hazards posed by the arrangement of the pressure vessel with the radioactive material are marginal and that the pressure vessel can be safely packaged and transported to complete the mission-related activities. LFO approved the limited movement activities for the transfer of the pressure vessel with radioactive material at Site 200 from June 1, 2024, to August 31, 2024.

Enhanced Oversight Approach for the LLNL Nuclear Facility Quality Assurance (QA) Program: On May 24, 2024, the LFO manager approved an enhanced oversight strategy for oversight of the LLNL nuclear facility QA program. Over the last several years, LFO personnel identified numerous concerns in the implementation of the LLNL institutional QA program and nuclear facilities' QA programs. LFO staff have also identified issues and concerns with procurement, installation, and verification and validation of Quality Level 1 and 2 items within the Superblock. LLNS management established expectations that these issues and concerns be documented in condition reports and communicated to LFO. In addition, LLNL developed a two-year plan (*LLNL Nuclear Quality Assurance Improvement Strategy*) for the revision to the DOE approved QA program document and LLNL institutional QA implementing procedures. LFO's enhanced oversight strategy will provide assurance to LFO Senior Management with respect to LLNL's commitment to improving Nuclear QA as well as insight into the timely identification, documentation, and correction of QA issues by LLNL staff.