

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 4, 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 January 2022

Defense Nuclear Facilities Safety Board (Board) Staff Interactions: From January 31, 2022, to February 4, 2022, a Board's staff review team was on site at LLNL to observe the Federal Readiness Assessment (FRA) for the startup of the Recovery Glovebox Line (RGL) in Building 332.

Building 332 – Readiness to Proceed with the RGL FRA: On January 14, 2022, Lawrence Livermore National Security, LLC, (LLNS) notified the Livermore Field Office (LFO) that the RGL was ready for startup. LLNS based its readiness certification on the results of the Management Self-Assessment, Contractor Readiness Assessment (CRA), and subsequent actions taken by the Building 332 facility and program managers to resolve deficiencies and observations in the CRA. LLNS completed these subsequent actions in response to a pre-start finding in which the CRA team determined that the primary impediment to safe and efficient operations in the RGL was the quality of the technical procedures used to conduct RGL operations. As part of the corrective actions, LLNS revised the operating procedures and demonstrated the use of these procedures for members of the CRA team on December 20–21, 2021. In an addendum to the CRA report, the CRA team noted that the RGL staff demonstrated outstanding conduct of operations during these demonstrations and exhibited a disciplined approach to following the updated procedures. The CRA review team concluded that the quality of the procedures was significantly enhanced and now provided for safe and efficient operation of the RGL. In addition, the CRA team concluded that the RGL staff adequately demonstrated effective procedural compliance to these written procedures. On January 26, 2022, the LFO Manager approved a recommendation to commence the FRA for the RGL based on the results of the Line Management Review. The FRA for startup of the RGL began on January 31, 2022.

Evaluation of the Safety of the Situation (ESS) to Re-evaluate the Seismic Collapse and Fire Scenarios and Establish Compensatory Mitigating Factors at the Waste Storage Facilities (WSF): On January 25, 2022, LLNS submitted an ESS for the WSF to address a Potential Inadequacy of the Safety Analysis (PISA) associated with a seismic collapse and fire event, a new evaluation basis scenario added to the 2021 WSF Documented Safety Analysis (DSA). The WSF Facility Manager noted that the intended safety-class electrical power seismic shutoff switches designated for this scenario are still under design, resulting in mitigated consequences above the Evaluation Guideline (EG) of 25 rem. To maintain the facility in a safe condition until these seismic shutoff switches are available, LLNS will reduce facility inventory limits as a compensatory measure to reduce mitigated consequences below the EG. The Facility Manager will verify these limits as part of the review and approval process for accepting waste into the WSF.

Building 331 – Tritium Contamination Event: On January 5, 2022, a Building 331 Tritium Worker removed potentially contaminated sample bottles from a ventilated enclosure for subsequent analysis in a mass spectrometer. The worker was authorized to perform mass spectrometer activities but not ventilated enclosure activities. The worker performed all actions in an area posted as a Radiological Buffer Area (RBA) and Caution: Radioactive Material Area (RMA). Upon identification of the issue, a Health and Safety Technician moved the bottles back to the ventilated enclosure. No personnel contamination occurred due to this event, and localized contamination was remediated. LLNS is tracking this occurrence in their Issues Tracking System.