

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 4, 2021

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

**Building 332 - Natural Phenomena Hazards (NPH) Seismic Safety Assessment Status:** On April 28, 2021, Lawrence Livermore National Security, LLC (LLNS) staff briefed Livermore Field Office (LFO) staff on the status of the seismic safety assessment of Building 332 (see LLNL Monthly Report for December 2020). LLNS staff described the remaining tasks in the seismic safety assessment including preparation of a preliminary seismic mitigation plan, seismic assessment of safety-related equipment, and completion of the final seismic mitigation plan. LLNS staff noted that the safety-related equipment seismic assessments will be completed in phased assessment subcontracts with the final seismic mitigation plan to be completed in 2023.

### **Implementation Verification Review (IVR) of Recovery Glovebox Laboratory (RGL)**

**Operations:** On May 3, 2021, LLNS issued the IVR Report for operation of the RGL. LLNS completed this IVR in accordance with the guidance contained in Department of Energy Guide 423.1-1B, *Implementation Guide for Use in Developing Technical Safety Requirements, Appendix C, Implementation Verification Reviews*. The IVR assessed the adequacy of the implementation of Building 332 Technical Safety Requirements (TSR) amendments supporting RGL operations. The review included specific administrative controls, design features, and equipment-important-to-safety (EITS) as described in the amended Building 332 TSR document. The review also included training associated with changes stemming from the RGL operations amendment. The IVR identified two TSR implementation deficiencies and five observations. The TSR implementation deficiencies included lack of requirements in the operational safety plan directing the frequency of in-service inspections and lack of original purchase paperwork, quality assurance documentation, or characterization information for the resin used in the RGL ion exchange column. Except for the two implementation deficiencies, which were subsequently resolved by LLNS prior to declaring implementation, the IVR team found that the amended TSRs supporting RGL operations had been effectively implemented.

**Building 332 Documented Safety Analysis (DSA) and TSR Page Changes:** On May 12, 2021, LLNS submitted page changes for the Building 332 DSA and TSR addressing requirements imposed by LFO in its November 20, 2020, approval of the annual update. The page changes included restoration of the designation of room ventilation system components as safety significant, retaining room ventilation system primary exhaust points as defense-in-depth/EITS, and designating roof support structures as safety class. In addition, LLNS committed to evaluating the purity of ion exchange resins to be used for RGL operations and to determine if any level of impurities negatively affects the outcome of accident analyses. The LLNS response also addressed the Limiting Conditions for Operation and Surveillance Requirements for the hydrogen gas control system in Building 332.

**Fiscal Year 2021 Third Quarter Startup Notification Report (SNR):** On May 4, 2021, LFO approved the Third Quarter Fiscal Year 2021 SNR. LFO approved the startup activity for the Hazard Category 2 (HC-2) Recovery Line Gloveboxes, the HC-2 Hydrogen Gas System, and the HC-2 Centralized Waste Processing Line.