

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 6, 2019

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer  
**SUBJECT:** Lawrence Livermore National Laboratory (LLNL) Report for November 2019

**Response to the Operating Experience Level 2 (OE-2): Over-Pressurized Drum Event Involving Reactive Materials and Flammable Gases in Radioactive Waste:** On November 4, 2019, the Livermore Field Office (LFO) provided a response to the National Nuclear Security Administration (NNSA) Deputy Associate Administrator for Safety regarding the extent of condition at LLNL for conditions similar to those that caused the over-pressurization of Idaho drums due to reactive materials and flammable gases, as required in the OE-2. Lawrence Livermore National Security, LLC (LLNS) completed the extent of condition review, the scope of which included newly generated waste activities and waste previously generated onsite that is being stored or repackaged. The review considered all radioactive and mixed waste including waste drums with uncertain or unknown constituents that could pose pyrophoric or reactive conditions similar to those encountered at Idaho. LLNS concluded that there are no similar materials to the waste that underwent the unexpected gas generation and that LLNL has a very low probability of the same or a similar event.

**November 2019 Annual Update of the Plutonium Facility, Building 332, Documented Safety Analyses (DSA) and Technical Safety Requirements (TSRs):** On November 8, 2019, LLNS transmitted the November 2019 annual update of the Building 332 DSA and TSRs to the LFO. LLNS noted that this annual update includes all Unreviewed Safety Question Determinations from April 1, 2016, through June 1, 2019. In addition, LLNS noted that all Conditions of Approval (COAs) required to be addressed in the previous annual update (dated November 18, 2018) have been incorporated. These COAs are related to High Z target fabrication and assembly, plutonium-238 solubility class, and the safety function of gloveboxes for an evaluation basis earthquake event.

**Fiscal Year 2020 First Quarter Startup Notification Report (SNR):** On November 13, 2019, the LFO approved changes to the SNR for the Hazard Category 2 (HC-2) Transuranic Package Transporter Model 2 loading activity, which has a projected startup/restart date of March 18, 2020. In their correspondence, the LFO expressed concerns regarding some projected startup activities due to a continued lack of adequate coordination and planning by Weapons and Complex Integration to support the dates for readiness activities provided in the SNR. The LFO expressed concerns about the potential impact of these issues on the completion of programmatic work. The LFO also noted that the proposed HC-2 Recovery Line Glovebox Activity is not presently covered in the SNR as an activity for which approval is requested since this activity is currently in a pre-decisional state.

**Periodic Issue Report (PIR):** On November 22, 2019, LFO transmitted the PIR to LLNS. The LFO identified two deficiencies and made one observation. The deficiencies included: the failure complete an apparent causal analysis report after violations identified by the California Department of Toxic Substances Control (DTSC) during an inspection at Building 612 on April 23–25, 2019; and failure to appropriately control combustible materials, such as packing material and boxes, in the High Explosives Applications Facility loading dock while staging high explosives. The observation addressed LLNS's failure to perform an extent of condition report for the final occurrence report, "DTSC Issued Two Violations for B612 Retention Berm Area," issued on May 6, 2019. The LFO transmitted these deficiencies and observations to LLNS for entry into their Issues Tracking System.