DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 2, 2025

TO: Technical Director
FROM: Nevada National Security Site (NNSS) Cognizant Engineer
SUBJECT: NNSS Report for April 2025

DNFSB Staff Activity: The National Nuclear Security Administration (NNSA) submitted a letter with an enclosure to DNFSB in response to reporting requirements stated in DNFSB's August 13, 2024, letter on actions NNSA has taken to address lithium battery hazards at Department of Energy (DOE) defense nuclear facilities, including the credited lithium-ion uninterrupted power supply (UPS) system installed at the Device Assembly Facility (DAF). On March 31, 2025, Mission Support and Test Services, LLC (MSTS) declared a positive unreviewed safety question (USQ) determination following the potential inadequacy in the safety analysis for an unanalyzed hazard involving the UPS system during a facility-wide blackout condition at DAF (see NNSS monthly report for January 2025). On April 28, 2025, the Nevada Field Office (NFO) briefed the DNFSB on its response.

Third Quarter Start-up Notification Report (SNR): On April 3, 2025, MSTS submitted the third quarter SNR to NFO for approval as required by DOE Order 425.1D, *Verification of Readiness to Start Up or Restart Nuclear Facilities*. In the report, MSTS removed the coordinate measuring machine (CMM), since readiness activities are complete and start-up authorization to commence CMM operations has been received. The enhanced staging project contractor and federal readiness assessment schedules included in the report have been further delayed due to continued procurement and maintenance issues with the acquired backup forklift and drum inverter equipment. The 6-foot vessel contractor readiness assessment schedule was changed following NFO's approval of the change notice to the Principal Underground Laboratory for Subcritical Experimentation (PULSE) safety bases (see NNSS monthly report for March 2025).

Fire Protection Strategy at PULSE: The strategy that the U1a Complex Enhancements Project (UCEP) and Z-Pinch Experimental Underground System (ZEUS) projects at PULSE have pursued for fire protection since 2023 has been the design, construction, and procurement of a hybrid mist (water and nitrogen) fire extinguishing system (FES) as a new credited control to prevent and mitigate high-hazard accident scenarios involving subcritical experiment (SCE) operations. On April 7, 2025, the NNSA Administrator issued a memo directing the UCEP and ZEUS federal project directors to immediately stop these efforts and implement an alternate fire protection strategy in PULSE. The memo concluded high technical risks and safety hazards coupled with cost and schedule concerns to complete the FES design as the basis to halt design work. In response to the memo, the federal project directors issued a memo to MSTS communicating the Administrator's direction, and further directed MSTS to develop and submit an exemption to DOE Order 420.1C, *Facility Safety* requirements, for NNSA approval; revise the safety bases to reflect change in the PULSE fire protection strategy; and provide new baseline change controls to the alternate strategy.

Operational Awareness Activity (OAA) Report for Device Response Methodology (DRM) Process: Per NFO Order 450.X5, *Subcritical Experiment Program,* the nuclear weapon laboratories are required to provide a DRM summary report to NFO for review, and the DRM results are evaluated through the USQ process to ensure that the introduction of a proposed SCE into NNSS facilities does not introduce new hazards or undermine existing safety controls defined in the safety bases. On April 9, 2025, NFO transmitted a formal letter and OAA report to the Los Alamos National Laboratory (LANL) field office. NFO reviewed two DRM documents for two previously executed SCEs to verify whether LANL successfully implemented the Order requirements. NFO stated LANL fulfilled the requirements but identified a finding and two opportunities for improvement. NFO concluded that process weaknesses exist in LANL's DRM documentation; however, no safety issues were identified.