

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 5, 2025

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

DNFSB Staff Activity: During the week of August 18, the DNFSB Board members and executive leadership team performed walkdowns at NNSS facilities and met with senior leadership from the Nevada Field Office (NFO), Mission Support and Test Services, LLC (MSTS), Lawrence Livermore National Laboratory, and Los Alamos National Laboratory to discuss nuclear safety topics of interest. NFO leadership provided updates on open safety concerns described in several Board letters submitted to the Secretary of Energy. MSTS and NFO leadership also discussed recent efforts to procure a new shipping container for subcritical experiments and characterize seismic faults at the Principal Underground Laboratory for Subcritical Experimentation (PULSE). Both issues are mentioned in the Board's July 24, 2025, letter. NFO and MSTS stated that funding to procure a new shipping container is ongoing but challenging, and that the potential use of the site-directed research and development funding process to characterize seismic faults has not been successful. On August 20, 2025, NFO submitted a formal plan to conduct an assessment on the development of safety basis documentation. Completing this assessment would fulfill an NFO commitment made to the Board in response to a reporting requirement in the DNFSB December 12, 2023, letter regarding a concern with the quality of safety basis submittals at NNSS.

Fire Protection Strategy at PULSE. As mentioned in the NNSS monthly report ending April 2025, the National Nuclear Security Administration (NNSA) directed MSTS to stop design work on the hybrid (water and nitrogen) fire extinguishing system (FES) and implement an alternate fire protection strategy. On July 31, 2025, MSTS submitted to NFO a permanent exemption request from the Department of Energy (DOE) Order 420.1C, Change 3, *Facility Safety*, requirement for an automatic fire suppression system for PULSE. In the request, MSTS highlighted safety concerns with the discharge of the hybrid FES under normal and abnormal conditions (e.g., oxygen-deficient atmospheres). MSTS also highlighted the lack of egress pathways from the new test beds, which inhibit the ability of workers to evacuate the underground safely in the event of a fire and/or potential exposure to nitrogen asphyxiation. The request identified existing and new controls to reduce the likelihood of a fire and minimize the growth or spread of the fire that would allow workers to safely access a hoist or refuge station. Some of the existing controls described in the request include continued reliance on the fire barriers, fire alarm and detection systems, and administrative controls (such as limits on combustible materials, fire watch, and restrictions on concurrent activities involving special nuclear material operations).

MSTS also identified new controls to support the new test beds, such as the use of fire-retardant coating for exposed steel containment plugs; use of fire-rated or fire-retardant coated cables; installation of heat and smoke detection systems; and installation of a localized clean agent system for the radiographic detection enclosure. To address the life safety concern, MSTS will also mine new additional egress routes from the new test beds to provide two escapeways for workers. On August 6, 2025, NFO submitted the exemption request to the DOE Office of Nuclear Safety for advice and review, as required by DOE Order 251.E, *Departmental Directives Program*. MSTS will incorporate the control strategy for the new test beds in the safety bases, pending approval of the exemption request from the NNSA Central Technical Authority and Cognizant Secretarial Officer.