

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 3, 2023

TO: Christopher J. Roscetti, Technical Director
FROM: Sonia G. Thangavelu, Cognizant Engineer
SUBJECT: Nevada National Security Site (NNSS) Report for February 2023

DNFSB Staff Activity: During the week of February 21, Vice Chair T.A. Summers, J. Plaue, and S. Thangavelu were on site at NNSS. They performed walkdowns of the Joint Actinide Shock Physics Experimental Research Facility, P-Tunnel, U1a Complex, Device Assembly Facility (DAF), and National Criticality Experiments Research Center. The Vice Chair had discussions with senior Mission Support and Test Services, LLC (MSTS) and Nevada Field Office (NFO) personnel on the status of ongoing and planned mission/operations, experiment execution schedules, and emerging safety concerns at NNSS facilities.

Evaluation of the Safety of the Situation (ESS) for the Fire Suppression System (FSS) Water Tank at DAF. As discussed in the NNSS Monthly Report for January 2023, MSTS personnel entered the potential inadequacy in the safety analysis process and determined the corrosion of the FSS water tank is worse than described in the safety basis. This resulted in a positive unreviewed safety question determination for the tank. In February, NFO approved the applicable ESS. In the ESS, MSTS identified three compensatory measures to be implemented until the firewater tank is repaired or replaced with a new tank. The first two compensatory measures are to visually inspect the firewater tank for water leaks once a week and to verify the static water pressure when active operations occur at DAF. The third compensatory measure is to evaluate the firewater tank for any leaks on a quarterly basis, changing to monthly if an active leak is identified. The inspection frequency can be increased to every 14 days if the leak rate exceeds 50 gallons per minute or if there is a significant change in the amount of water in the tank. The ESS further states the safety basis should be updated to incorporate the compensatory measures into the safety analysis for the FSS tank. The ESS also states alternate water sources should be identified and authorized for use in a Justification of Continued Operations (JCO) document. The JCO will define authorized operations, surveillance requirements, and operational restrictions until tank repairs and/or replacement is complete. MSTS personnel are currently developing the JCO document for submittal to NFO for approval.

Limited Procurement and Construction Activities of the Z-Pinch Experimental Underground System (ZEUS) Test Bed at U1a Complex. The ZEUS testbed project at the U1a Complex provides a capability to execute experiments using a neutron diagnostic instrument to collect data. MSTS submitted a letter to NFO requesting approval to perform limited procurement and construction activities to extend and mine new drifts for the ZEUS test bed project prior to approval of the Preliminary Documented Safety Analysis (PDSA). NFO issued a safety review letter in response to MSTS request. The safety review letter states the procurement request will allow early procurement and upgrade/construction of safety shield walls, rock bolts, and credited Zero Room structural drifts for the new proposed test bed location. NFO concluded the construction activities prior to PDSA approval are not detrimental to public health and safety and are in the best interests of the Department of Energy. NFO approved the MSTS request.