

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 5, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Austin R. Powers, Cognizant Engineer
SUBJECT: Nevada National Security Site (NNSS) Report for February 2021

DNFSB Staff Activity: During February, the Board's staff conducted a teleconference review with personnel from Mission Support and Test Services, LLC (MSTS), the Nevada Field Office (NFO), and National Nuclear Security Administration (NNSA) headquarters. The review focused on NNSA guidance to NFO on using an alternative location for the co-located worker, as described in section 3.3.2 of Department of Energy Standard 3009-2014, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*, when analyzing explosion scenarios at the U1a Complex. The Board's staff conducted no onsite activities during February.

COVID-19 Impact: During February, NNSS remained in Phase 2 of its return to work plan. In this phase, NNSS continued to be in the "Normal Operation with Maximum Telework" work status. MSTS continues to maintain the required staffing at the NNSS defense nuclear facilities.

Device Assembly Facility (DAF) Safety Basis Update: In December, NFO approved a change notice to the DAF safety basis. In this change notice, MSTS added a new mission at DAF that allows the execution of experiments with radiological material mated to small quantities of high explosives. The amount of high explosives is significantly less than what is used for subcritical experiments at the U1a Complex. For this new mission, the experiment assembly will be built at DAF and sealed in a confinement vessel prior to execution. Similar to the confinement vessel used for subcritical experiments at the U1a Complex, the vessel to be used at DAF will be designed to American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 3, *Alternative Rules for Construction of High Pressure Vessels*. After experiment execution, the vessel will be vented and purged and the radiological material will be recovered. While the unmitigated risk is low for the hazard scenarios associated to experiment execution and post-experiment activities, given the expectation that the radiological material will not be aerosolized, MSTS identified four new credited controls. MSTS credited the safety significant confinement vessel system to confine the radiological material during and after the experiment. MSTS also credited three new specific administrative controls, which include the following safety functions: allowing the vessel to cool down after experiment execution and prior to venting; performing a building sweep to ensure no workers are present in the building during experiment execution; and key control for the firing system. NFO did not identify any conditions of approval, but did identify four issues that need to be addressed in the next annual update. The issues focus on revising the safety basis to provide clarification and consistency. MSTS plans to conduct readiness activities this summer.

DAF Implementation Verification Reviews (IVRs): In February, MSTS completed the IVR reports for the change notices to the DAF safety basis discussed in the NNSS Monthly Reports for September and November 2020. From the reviews, MSTS found two pre-implementation findings. The findings include incorporating an in-service inspection into the appropriate procedure and updating a procedure to provide clarity. MSTS verified that all of the other controls identified from the change notices were satisfactorily implemented.