

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 4, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Austin R. Powers, Cognizant Engineer
SUBJECT: Nevada National Security Site (NNSS) Report for November 2020

DNFSB Staff Activity: During November, A. Powers, D. Andersen, and R. Jackson called into a meeting on the Device Assembly Facility (DAF) soil-structure interaction analysis. The staff conducted no onsite activities at NNSS during November.

COVID-19 Impact: During November, 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. The increase in confirmed COVID-19 cases in Nevada has not impacted the ability of Mission Support and Test Services, LLC (MSTS), to maintain required staffing at the NNSS defense nuclear facilities.

U1a Complex Experiment: During November, Los Alamos National Laboratory (LANL) personnel safely conducted an experiment at the U1a Complex. This was the facility’s first experiment with special nuclear material since the February 2019 experiment that released contamination into the Zero Room (see NNSS Monthly Report for February 2019). As a result of the February 2019 contamination event, LANL and MSTS identified several controls to be used to limit the spread of potential contamination. For the November experiment, LANL used the following controls: placed plastic shrouds/curtains at potential contamination locations on and near the confinement vessel; used a localized ventilation above the confinement vessel; and, where possible, moved equipment away from the confinement vessel. In addition, the confinement vessel included the modifications discussed in the NNSS Monthly Report for February 2020 (e.g., new o-ring arrangement for the vessel ports). LANL and MSTS have entombed the confinement vessel at the U1a Complex.

DAF and National Criticality Experiments Research Center (NCERC) Safety Basis

Updates: In November, the Nevada Field Office (NFO) approved two change notices to the DAF safety basis and one change notice to the NCERC safety basis addendum. For one DAF change notice, MSTS increased the amount of plutonium-equivalent material that can be used for a Joint Actinide Shock Physics Experimental Research (JASPER) target. Lawrence Livermore National Laboratory personnel use the glovebox at DAF to construct the target assembly for JASPER. This change was consistent with a similar change in the JASPER safety basis earlier this year (see NNSS Monthly Report for April 2020). For the other DAF change notice, MSTS added a highly enriched uranium (HEU) material-at-risk (MAR) limit for the glovebox. By making this change, MSTS addressed a technical safety requirements violation and enabled operations with HEU. Also, in these two change notices, MSTS addressed a potential inadequacy of the safety analysis related to the use of lower MAR values in several hazard analysis scenarios. MSTS reevaluated these scenarios with the larger MAR values and found that the existing control set resulted in an acceptable mitigated risk for workers and the public. Lastly, for the NCERC change notice, MSTS incorporated several changes to clarify the in-service inspection criteria and correct ventilation system verbiage. NFO did not identify any conditions of approval or issues that needed to be addressed in the next annual update.