

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 3, 2021

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

DNFSB Staff Activity: During August, the Board's staff conducted an onsite review of the safety design strategy (SDS) for the Enhanced Capabilities for Subcritical Experiments (ECSE) project (see NNSS Monthly Report for June 2021 for additional information on the ECSE SDS). The review included discussions with personnel from the national weapon laboratories, Mission Support and Test Services, LLC (MSTS), and the Nevada Field Office (NFO). The Board's review team also performed a walk down of the U1a Complex, including the ECSE drifts.

Device Assembly Facility (DAF) Soil-Structure Interaction (SSI) Analysis: As discussed in the NNSS Monthly Report for October 2019, MSTS hired a subcontractor to perform the SSI analysis for DAF. The purpose of the analysis is to analyze how the increased seismic hazard, originally identified in the 2007 site-specific probabilistic seismic hazard analysis, will impact the credited structure at DAF. This type of analysis is required per Department of Energy (DOE) Standard 1020-2016, *Natural Phenomena Hazards Analysis and Design Criteria for DOE Facilities*. Of note, the Board transmitted a letter to the Secretary of Energy on March 21, 2019, that highlighted its concern with the seismic hazard at DAF. The Board's staff has closely followed the progress of the analysis by attending periodic status meetings and reviewing the SSI analysis plan and DAF soil properties report. In August, the subcontractor for MSTS finalized the DAF SSI analysis report, which incorporates comments from an external peer review team. NFO plans to review the analysis and, if necessary, provide comments. MSTS plans to begin the process for hiring a subcontractor to evaluate how the increased seismic hazard impacts the other controls credited to withstand a seismic event (e.g., overhead components, fire suppression system, and staging racks).

National Criticality Experiments Research Center (NCERC) Safety Basis Update: In July, NFO approved a change notice to the NCERC safety basis. This change notice adds three new critical assembly modes to the NCERC technical safety requirements (TSR) document. The new modes allow NCERC to optimize the necessary safety controls based on operational states of the four critical assembly machines and hand stacking activities. The new modes also address causes from previous operational events that led to three separate TSR violations (e.g., moving radiological material into a building that was not transitioned into the appropriate operational mode). Since the addition of the new modes only impacted the TSR document, NFO concluded that this change did not introduce a new type of hazard scenario and did not impact the results of the existing hazard and accident analyses. NFO did not identify any conditions of approval for the change notice but did identify one issue that needs to be addressed in the next annual update. The issue focuses on incorporating an updated limiting condition for operation into the bases section of the TSR document.