

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 3, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Austin R. Powers, Cognizant Engineer
SUBJECT: Nevada National Security Site (NNSS) Report for December 2019

DNFSB Staff Activity: A. Powers was on site during the week of December 16th to conduct routine oversight. During the visit, A. Powers performed walkdowns at the various defense nuclear facilities, discussed the process for performing the 10-year seismic hazard assessment at NNSS, and discussed the status of updating safety basis documents.

Enhanced Capabilities for Subcritical Experiments (ECSE) Project: In late September, Mission Support and Test Services, LLC (MSTS), conducted pull tests (attached a hydraulic jack and applied a pull-out load) on the rockbolts installed in the new ECSE drift and found several of them failed. MSTS presumes that they encountered a sandy zone that prevents the bolts from holding their desired anchorage. MSTS has developed a new method for installing the rockbolts in the sandy zone. Specifically, MSTS is pumping in a liquid type resin in order to fill the void space between the rockbolt and ground mass and achieve better contact (previous method utilizes installing resin cartridges until the hole is full). MSTS stated that the rockbolts installed using the pumped liquid resin will perform the same function, or better, as bolts installed with resin cartridges. MSTS notes that the drift, after installing the rockbolts and shotcrete, has maintained its shape and the arch is stable. MSTS continues to measure the underground structural stability at the U1a Complex by using convergence monitoring. MSTS conducts convergence monitoring on a quarterly basis to pick up tiny movements in order to predict ground failure.

Device Assembly Facility (DAF) Moisture on High Explosives Event: During October, Los Alamos National Laboratory (LANL) personnel found moisture on high explosives during the unpackaging of explosive assemblies at DAF. The explosive assemblies were sent to DAF from LANL in support of an upcoming surrogate subcritical experiment. LANL personnel investigated the situation and found that the assemblies were exposed to cleaning chemicals. During the manufacturing process for the custom shipping fixture within the packaging assembly, LANL found voids in the fixture that allowed adsorption of the cleaning fluids. LANL performed evaluations for both chemical reactivity and sensitivity for the materials present in the event. The Los Alamos Explosive Review Committee reviewed the results of these evaluations and concluded that the explosive assemblies can be handled, moved, staged, packaged, transported, and stored according to their original hazard classification and storage compatibility group designations. Since completing these evaluations, LANL personnel repackaged the explosive assemblies and shipped them back to LANL.

Downdraft Table Restart Status: As discussed in the NNSS Monthly Report for November 2019, MSTS and Lawrence Livermore National Laboratory (LLNL) have initiated an effort to restart downdraft table operations in the DAF. LLNL personnel stated that the procedures and criticality safety evaluations for downdraft table operations have been developed. LLNL also stated that a management self-assessment was recently completed in December and they are expecting to receive the final report soon. LLNL and MSTS expect the contractor readiness assessment to be conducted in February.