DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 5, 2019

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

DNFSB Staff Activity: A. Powers was on site during the week of June 17th to conduct routine oversight. During the visit, A. Powers performed walkdowns at the various defense nuclear facilities, discussed the Radioactive Waste Management Complex safety basis, and discussed portable radiography operations at the National Criticality Experiments Research Center.

Device Assembly Facility (DAF) Downdraft Table Building: As discussed in the NNSS Monthly Report for November 2018, Mission Support and Test Services, LLC (MSTS), began an effort to restart the DAF downdraft table. Over the past several months, MSTS has been working to make all required systems (both safety and non-safety) capable of performing to their original design requirements. For example, MSTS replaced all of the high efficiency particulate air filters for the credited ventilation system. MSTS also made modifications to the downdraft table to improve airflow into the vents on the table. MSTS plans to update configuration management documents (e.g., design drawings) and perform all required in-service inspections and surveillance requirements for the vital safety systems prior to declaring the systems operable. According to the startup notification report, MSTS anticipates that contractor readiness activities will begin in February 2020 and federal readiness activities will begin in April 2020.

Joint Actinide Shock Physics Experimental Research (JASPER) Facility Events: As discussed in the NNSS Monthly Report for May 2019, JASPER experienced two events that resulted in damage to the launch tube. For the high velocity experiment incident, Lawrence Livermore National Laboratory (LLNL) personnel stated that they plan to use the ultrafast closure valve system for high velocity experiments using surrogate material (i.e., non-actinide material). This corrective action will prevent future damage to the launch tube by sealing the primary target chamber prior to the projectile impacting the target. For the petal valve incident, LLNL personnel stated the petal valve retainer was installed on the wrong side of the petal valve. This resulted in a large portion of the tips of the outbound petal valve shearing off and traveling down the launch tube causing damage. LLNL personnel stated that the operating procedure involved was followed, but the procedure did not provide specific guidance when installing the retainer. As a corrective action, LLNL personnel revised the procedure, which now includes a description on how to properly install the retainer. MSTS stated that the launch tube damaged by the petal valve will likely be honed or machined so that it can be used as a 40 mm launch tube.

Enhanced Capabilities for Subcritical Experiments (ECSE) Project. As discussed in the NNSS Monthly Report for February 2019, the ECSE project is a major modification to the U1a Complex that includes installing a new single axis multi-pulse radiography system, reactivity measurement system, and Zero Room. During June, MSTS determined a negative unreviewed safety question for the mining of the new drift for the ECSE project. In the determination, MSTS stated that this activity would not introduce new hazards or radioactive material to the facility and would not impact the U1a Complex safety basis. MSTS also began mining the drift for this project. Per the ECSE mining plan, MSTS installed ground monitoring equipment.