

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 6, 2018

TO: Steven A. Stokes, Technical Director
FROM: Austin R. Powers, Cognizant Engineer
SUBJECT: Nevada National Security Site (NNSS) Report for March 2018

DNFSB Staff Activity: The Board's staff did not conduct any on-site activities at NNSS during March.

Device Assembly Facility (DAF) Fire Suppression System (FSS) Improvement Project:

Mission Support and Test Services, LLC (MSTS), has continued to make improvements to the safety class FSS in DAF. MSTS declared the 22nd of these buildings (out of 25) operable during March. MSTS also has finished all construction activity for three additional buildings that were originally outside the initial scope for the DAF Lead-in Line Project. MSTS has abandoned the one lead-in line that feeds the single riser which provides the water to the FSS in each of these buildings and tied the riser to the inside firewater loop. MSTS declared these three buildings operable during March. Lastly, MSTS has postponed construction activities for addressing the FSS lead-in lines for the 23rd of these buildings due to the availability of the 24th of these buildings. No operations are occurring in the 23rd of the 25 buildings.

DAF Lightning Bonding Upgrades: MSTS is currently upgrading the lightning bonding in three buildings at the DAF. These buildings require adequate lightning protection given the high explosives operations that occur. MSTS is upgrading the lightning bonding to help meet the criteria of having a Faraday-like shield around explosive operations per Department of Energy Standard 1212-2012, *Explosives Safety*. A Faraday-like shield is formed by a continuous conductive matrix that is properly bonded and grounded. The DAF's building structure was designed with reinforcing bars in the concrete walls, ceiling, and floor that are electrically continuous and meet specific spacing requirements. However, when metallic equipment (e.g., electrical conduit, fire water piping) penetrates the facility structure, it must be adequately bonded to the reinforcing bars to prevent an inadvertent path for electromagnetic impulses, such as lightning. MSTS has begun making upgrades to two of the buildings by installing 5 inch bonding straps where needed to support this requirement. MSTS has stated that the third building is ready but is still awaiting the engineering drawings for the upgrades. Those upgrades are expected to take longer given that there is larger equipment in the way.

DAF High Efficiency Particulate Air (HEPA) Filter Ventilation System (HFVS): As mentioned in the NNSS Monthly Report for October 2017, a potential inadequacy in the safety analysis was declared in January 2017 related to the practice of testing airflow over a range rather than a specified value per American Society of Mechanical Engineers (ASME) requirements during the HFVS annual leak test in-service inspection for several buildings in DAF. MSTS is in the process of re-baselining the airflow rates and determining the appropriate configuration of the HFVS when performing these tests. Afterwards, MSTS will develop a white paper that will provide a technical basis to support a potential deviation from the ASME guidance. MSTS will use the recommendations from the white paper to support changes made to the DAF safety basis.