

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 7, 2018

TO: Christopher J. Roscetti, Technical Director
FROM: Austin R. Powers, Cognizant Engineer
SUBJECT: Nevada National Security Site (NNSS) Report for August 2018

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

Device Assembly Facility (DAF) Glovebox. During August, Mission Support and Test Services, LLC (MSTS), experienced issues with an oxygen sensor for the DAF glovebox. The sensor is part of the safety significant glovebox oxygen analyzer system used by the glovebox operators to ensure the oxygen levels are below a threshold to prevent pyrophoric reactions from occurring. During the quarterly surveillance of the oxygen analyzer system, MSTS and Lawrence Livermore National Laboratory (LLNL) personnel noticed the sensor issue when there was a slow response to a step change when calibration gas was introduced to the sensor. MSTS personnel replaced the sensor and verified it as operational with a successful calibration.

A similar sensor failure occurred in September 2017 (see NNSS Monthly Report for November 2017). In both instances, the management and operating contractor replaced the sensor. To avoid future in-service failures, MSTS has submitted a change request that proposes preventive maintenance to replace the sensor on an annual basis. In addition, MSTS is pursuing use of a new sensor from a different manufacturer. MSTS already has procured a sensor configured to its requirements. The new unit can operate at higher oxygen levels, where the current unit only can read up to the limit listed in the technical safety requirements. MSTS plans to test the new sensor in a glovebox where the oxygen analyzer system is not credited as safety significant and used only for reference.

DAF Fire Suppression System (FSS) Improvement Project: As discussed in the NNSS Monthly Report for June 2018, MSTS planned to begin construction work in late August for the last remaining building to have its lead-in line addressed. During August, the project team using this building turned the building over to the MSTS Facility Management personnel. MSTS now anticipates beginning the lead-in line construction in September and returning the building to the project team in November.

Joint Actinide Shock Physics Experimental Research Facility (JASPER) Safety Basis: As discussed in the NNSS Monthly Report for July 2018, MSTS has completed the implementation verification review of the new approved JASPER safety basis. During August, LLNL completed the critical lift plans that were necessary for MSTS to be able to declare the new controls implemented and effective. In August, MSTS declared the controls effective and implemented the safety basis. The new safety basis authorizes new experiments with new target materials and new equipment such as larger diameter gas gun barrels. In September, LLNL personnel plan to conduct the first experiment using a new target material that is allowed in this safety basis.