

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 10, 2016

MEMO TO: Steven Stokes, Technical Director
FROM: Ramsey Arnold and Zachery Beauvais, Pantex Site Representatives
SUBJECT: Pantex Plant Report for Week Ending June 10, 2016

DNFSB Staff Activity: J. Mercier observed the ongoing B61 Nuclear Explosive Safety Study.

Technical Safety Requirement (TSR) Violation: While performing an annual inspection and functional test on post indicator valves (PIV) installed on the high pressure fire loop (HPFL), impairment and restoration (I&R) technicians isolated sections of the HPFL affecting the fire suppression coverage of a nuclear explosive cell and a nuclear material facility. This action isolated the fire suppression system water supply rendering the fire suppression system inoperable for the several minutes required to complete the function test. The work package and maintenance procedure listed all PIVs installed on the HPFL but did not explicitly note those PIVs that, if operated, would cause a loss of fire suppression coverage. Fire protection engineering (FPE) prepared a list of such PIVs as part of an analysis to temporarily exempt them from the maintenance requirement, but this list was not included as part of the work package and may not have reflected real time status of the HPFL. The I&R supervisor attempted to verify the system alignment with the CNS facility representative but had not done so until after SMIs manipulated the PIVs.

Container Repackaging: Upon receiving a shipment of loaded containers from Pantex, personnel at the Y-12 National Security Complex (Y-12) noted that 16 of the 24 bolts restraining the lid of the container were loose, including a subset of bolts that were significantly unthreaded. The container involved was one of several that were repackaged per a temporary procedure required to replace potentially unqualified 35-account tape as part of the corrective actions for recent issues with tape testing (see 4/29/2016 report). All other containers repackaged per this procedure were verified to have been received without issue. Both the temporary and normal packaging procedures require all bolts on these containers to be tightened to a specified torque so as to preclude loosening during transit. Although unable to explicitly determine whether the torque steps were performed, improper completion of the step likely allowed the bolts to loosen. The affected container is included in the qualified container program at Pantex, which designates the containers as safety class passive design features. The presence of loosened bolts invalidates the designation. CNS personnel at Y-12 are determining how to further process the container.

Fire Alarm Receiving System (FARS): Last month, a redundant server for the FARS unexpectedly went out of service. The FARS receives and processes signals from the fire alarm control panels and serves a safety class function as part of the water level monitoring system for the HPFL supply tanks. It includes both a main and redundant server to support this function. While the system temporarily lost redundancy, the FARS system did not go offline. The automated fault system alerted the Emergency Services Dispatch Center of the outage. FPEs and electronics technicians determined that the fault was caused by extensive swelling of a lithium battery installed within the server. The batteries had been in continual service for approximately ten years and no preventative maintenance was required. This was not a previously known degradation mechanism for the FARS. Batteries on both FARS servers were replaced. FPE is developing preventive maintenance procedures for the servers and CNS is planning to upgrade the servers in the near future, with design evaluation currently underway.