

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 23, 2024

TO: Katherine R. Herrera, Acting Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending February 23, 2024

Facility Appurtenances: Last week, during a preoperational check of the overhead hoist in a nuclear explosive bay, CNS production technicians noted that a plastic chain coupler had broken into several pieces that fell to the facility floor. This coupler, which does not support the load during hoisting activities, connects the bridge motor gearbox to the final drive assembly for maneuvering the overhead hoist. Per the Pantex Technical Safety Requirements, appurtenances within nuclear explosive facilities are required to remain in place during design basis seismic events to prevent impacting a nuclear explosive. Consequently, CNS safety analysis engineering declared a potential inadequacy of the safety analysis. Also, CNS implemented an operational restriction prohibiting hoist operations in facilities with this same chain coupler arrangement unless a barrier is installed around the coupler that would prevent broken pieces from falling.

Previously, CNS implemented a coupler replacement frequency of two years after three failures of this coupler design in other facilities within a six-year period. Last month, during an inspection of the most recently failed coupler, CNS did not identify degradation or excessive wear. CNS facility engineering has created work orders for installation of clamshell-type barriers in the affected facilities to permit resumption of hoisting activities. The resident inspectors note that CNS corrective actions do not prevent coupler failure resulting in a movement limitation for the facility crane assembly. For the facility with the broken coupler, CNS is assessing options to manually position the hoist to a desired location.

Emergency Exercise: Last week, Pantex conducted a functional emergency exercise involving a microburst—a localized column of sinking air within a thunderstorm—affecting the transportation of tritium reservoirs via a forklift. Strong winds from the microburst resulted in the deformation of a security roll-up door along the transportation route, which struck the forklift and caused it to topple onto its side. The scenario consequences included the forklift catching fire, the tritium being released, and the forklift driver sustaining minor injury. In this exercise, CNS added realism by requiring response actions to use actual weather conditions (e.g., wind speed and direction) after the simulated microburst. Specific topics evaluated by Pantex during the emergency exercise include (1) appropriate categorization and classification of the operational emergency by the plant shift superintendent, as well as implementation of correct site protective actions; (2) development of plume models for consequence assessment; (3) activation and standup of the emergency operations center; (4) response by the fire department and radiation safety department; and (5) development of a preliminary recovery plan.

Fire Protection: This week, CNS emergency services dispatch center reported a water flow alarm concurrent with a diesel fire pump start. These occurrences may indicate the presence of a leak that exceeds the ability of jockey pumps to maintain system pressure in the safety-class high pressure fire loop (HPFL). After entering the appropriate limiting condition for operation (LCO) for an unexplained diesel fire pump start, CNS identified and isolated a leak in the HPFL lead-in piping for a non-nuclear facility and subsequently exited the LCO.