

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 29, 2017

MEMO TO: Steven Stokes, Technical Director
FROM: Ramsey Arnold and Zachery Beauvais, Pantex Plant Resident Inspectors
SUBJECT: Pantex Plant Report for Week Ending September 29, 2017

DNFSB Staff Activity: T. Dwyer was on-site to support resident inspector activities. P. Foster observed the nuclear explosive safety master study on electrical equipment including testers.

Facility Lighting: Production technicians (PT) discovered a fallen bolt on the tempered glass lens of an overhead light in a nuclear explosive facility. The bolt, one of two installed on the fixture, is used to hold the ballast and other lighting components to the fixture body, preventing them from falling on the lens. Upon further examination, the bolt was shown to have stripped threads that allowed it to fall. Facilities personnel conducted immediate extent of condition walkdowns in a subset of nuclear explosive facilities and identified one additional facility with a fallen bolt. Based on the discoveries, CNS paused all explosive, nuclear, and nuclear explosive operations. The safety basis credits ceiling-mounted appurtenances, including lighting, as safety class passive design features with functional requirements to remain in-place following a design basis seismic event. Safety analysis engineering declared a potential inadequacy of the safety analysis (PISA) based on the discovery. Systems engineering developed and executed a test plan to assess the ability of the tempered glass lens to withstand any falling internal light components and not break, therefore preventing an impact to nuclear operations. The plan specified dropping the light internal components, artificially weighted to replicate maximum seismic impact forces, onto lenses. None of the tests showed damage to the lenses, allowing Pantex to conclude that light lenses can withstand the bounding impacts from internal components without breaking. Based on the test results and engineering evaluations, CNS submitted three evaluations of the safety of the situation (ESS) to NPO, as evaluations were completed, to resume operations. Systems engineering subsequently performed walkdowns of all nuclear facilities to verify that light fixtures did not have a fallen bolt. During these walkdowns, personnel identified several nuclear material facilities with light issues including cracked lenses, displaced gaskets similar to those found previously (see 2/10/17 report), and missing fixture latches. CNS will disposition these issues separately and declared a safety basis noncompliance on a subset of them.

Electrostatic Dissipative (ESD) Floor Covering: Systems engineering performed additional resistance testing of the ESD floor covering in a radiography bay that was impacted by recent flooding (see 8/18/17 and 9/15/17 reports) but have been unable to demonstrate that all areas of the facility are within the acceptable limits. System engineering evaluated the specific hazards for which the ESD floor covering is credited and determined that based on the design of special tooling used to transport units within the facility and locations of the out-of-tolerance points, ESD hazards are controlled, despite the out-of-tolerance measurements. NPO approved an ESS and CNS resumed nuclear explosive operations in the radiography bay.

Nuclear Explosive Operations (NEO): PTs entered immediate action procedures during a NEO when an electrical test resulted in an out-of-tolerance reading. On a separate program, PTs paused a NEO when they encountered an issue with a damaged cable. CNS convened anomalous unit determination meetings and determined both units were not anomalous. The latter unit was determined to represent a PISA as the configuration is not currently evaluated in the safety basis. Operations on both units are paused while CNS determines a path forward.