

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 12, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending July 12, 2024

Rainwater Event: During a particularly heavy rainstorm event, CNS personnel discovered rainwater intrusion into several onsite facilities including some nuclear explosive and special nuclear material facilities. CNS noted that no weapon components came into contact with water and that the radiation safety team did not discover any radiological contamination after testing water samples within and around the facilities. However, CNS did discover water had entered a facility with electrostatic dissipative (ESD) flooring that subsequently failed its associated resistance testing. CNS prohibited all operations in this facility that require operable ESD flooring. CNS also attached “do not use” tags to special tooling that may have contacted water.

The resident inspectors joined PFO and CNS personnel on a walkdown of the drainage system near the affected facilities, noting large amounts of tall grass clippings had accumulated on a drainage grating that impeded the free flow of runoff water. CNS recorded in their issues management system their intention to clean culverts and gratings to improve drainage.

Flame Detectors: CNS performs routine surveillance tests to confirm proper alignment of flame detectors in nuclear explosive facilities to ensure operability of the associated safety class deluge fire suppression system. In order to verify proper alignment of the detectors, CNS installs torque seals across portions of the device that rotate in different planes. These seals are designed to break when the detector is moved from its required position. During a recent quarterly surveillance inspection, CNS special mechanic inspectors discovered either damaged or missing torque seals on three flame detectors in one nuclear explosive facility. Before starting the inspection, CNS established actions associated with the appropriate limiting condition for operations (LCO) for an inoperable deluge fire suppression system, including enacting a fire watch in the facility. Per the LCO, all flame detectors within the facility must remain properly located, aligned, and capable of detecting flames to remain operable. To relinquish the need of a fire watch per the LCO, CNS fire protection engineering established standoff distances between combustible material and any items of concern. CNS entered this occurrence into their issues management system and scheduled an investigation for next week.

Nuclear Explosive Safety (NES): This week, the resident inspectors observed a briefing for NNSA headquarters and PFO staff on a recent operational safety review (OSR) for a certain weapon program. The OSR scope included nuclear explosive cell and vacuum chamber operations. The NES study group identified zero findings but noted opportunities for enhancement such as: (1) using shielded cables with electrical testers during certain tests, (2) adding controls to ensure units are moved only to allowable locations, and (3) incorporating tooling to preclude observed unit impacts in the vacuum chamber facility when removing certain equipment. The NES study group also noted 23 deliberation topics, including an observation of production technicians rotating a vacuum fixture—suspending high explosive material over special nuclear material—that was only procedurally checked for proper vacuum on the previous day. CNS plans to change this procedure such that proper vacuum is verified before every use.