

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 3, 2023

TO: Christopher J. Roscetti, Technical Director
FROM: C. Berg, Acting Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending March 3, 2023

Staff Activity: K. Heffner, D. Andersen, J. Anderson, C. Berg, Z. Demeke, R. Eul, S. Seprish, and F. Sutherland conducted a review on the implementation of aging management programs and requirements at Pantex for safety systems, design features, and supporting infrastructure. This review will support a larger DOE complex-wide evaluation on aging management. The specific equipment assessed by the staff team included the high pressure fire loop, electrostatic dissipative floor coverings, blast door interlocks, and electrical distribution system.

Electrical Equipment: Last month, production technicians encountered a failed electrical test on a nuclear explosive, and, when attempting to retest the unit two weeks later, the technicians obtained a similar result. CNS Weapon Tester Engineering, CNS Process Engineering, and design agency personnel—as well as the manufacturer of the component undergoing testing—discussed the potential causes of the failed tests and subsequently determined that the drawing for the electrical test identified an incorrect cable connection. Specifically, the drawing reversed the connection points for the electrical test cable and this discrepancy was carried forward into the nuclear explosive operating procedure. Prior review of this drawing by both Pantex and design agency personnel did not identify the error.

In immediate response to this discovery, CNS declared a Stop Work Event to prohibit usage of the electrical tester on the weapon program and restricted the associated nuclear explosive operating procedure from further production use. CNS lifted these restrictions following a revision to the drawing and procedure by CNS Weapon Tester Engineering and Process Engineering, respectively, to address the discrepancy. Additionally, CNS conducted an extent of condition review to ascertain all units at Pantex that were processed using the inaccurate procedure, allowing an appropriate path forward to be determined with the relevant stakeholders.

Special Tooling: CNS identified that Maintenance Area Mechanics in January 2023 had repaired special tooling within an explosive-only facility using a *maintenance work order*. However, per Pantex processes, special tooling maintenance is conducted via a *special tooling work order*, ensuring appropriate organizations are involved to verify that the tooling continues to meet its requirements (e.g., torque specifications) following the maintenance activity. In this case, the special tooling was attached to process equipment—which is maintained outside of this tooling process—leading to some additional complexity. At the event investigation, CNS participants noted that the tooling was employed for production use following this repair. Given the potential impact to product quality, CNS nonconformed the product and assessed whether a maintenance work order had been utilized previously on the special tooling. Additionally, CNS plans to brief Facility Management and Infrastructure personnel on the limitations associated with maintenance work packages, as well as execute an appropriate work order to verify the special tooling continues to meet its requirements. Finally, to preclude future development and use of incorrect work orders for special tooling, CNS will establish a suite of corrective actions during an upcoming causal analysis.