

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 12, 2019

TO: Christopher J. Roscetti, Technical Director
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SUBJECT: Pantex Plant Activity Report for Week Ending July 12, 2019

Nuclear Explosive Operations: During recent nuclear explosive operations conducted in a cell, production technicians (PT) encountered resistance while attempting to remove a case component. Based on the potential for the stuck case component to pinch and potentially damage a sensitive cable, CNS program management convened an anomalous unit determination panel. The panel observed a similar configuration, mocked-up on an inert training unit, in the weapons training bay. Based on these observations, the panel concluded that it was unlikely that the cable was damaged or pinched and concluded that the unit was not anomalous. CNS engineers and representatives of the responsible design agency are developing a process to continue disassembling the unit.

Special Tooling: Pantex nuclear explosive operating procedures direct the use of task exhaust to remove flammable vapors generated during various operations involving solvents and flammable liquids. One design of the task exhaust installed in nuclear explosive bays uses a piece of special tooling referred to as the task exhaust stand. The task exhaust stand is a credited design feature on two weapon programs with a functional requirement to be inherently conductive or static dissipative. The task exhaust stand is designed to be extended from its base configuration to allow a wide range of motion. During an inspection of one copy of the task exhaust stand, CNS technicians were able to verify conductivity in the base configuration but received an out-of-tolerance resistance measurement when it was extended, indicating that it may not be able to meet its functional requirement. Following confirmatory measurements made on a separate copy, CNS management paused operations on all programs where the tool is credited. CNS engineering is processing a procedural change to implement dry times in place of the task exhaust for a subset of the paused operations and is exploring a potential physical modification.

Legacy Safety Basis Issues: CNS safety analysis engineers (SAE) identified various hazard scenarios encountered during assembly and disassembly operations on one warhead program that were not adequately defined. These scenarios include topple hazards posed by the use of a specific electrical tester and impact hazards during the installation or removal of special tooling. SAE discovered the issues during an ongoing safety basis extent of condition review to identify hazard scenarios that are dispositioned by low-probability arguments and where the safety basis does not identify credited controls (see 9/28/18 report). The identified hazards fell outside of a set of hazards previously approved by NPO, thus SAE determined the issues represented a potential inadequacy of the safety analysis. This is the second instance of a PISA identified through this extent of condition review (see 1/18/19 report). CNS management has paused the impacted operations on this program.

Compensatory Measures: After implementing compensatory measures, CNS management lifted a pause on operations for a weapons program where safety basis analysts had previously identified mischaracterized electrical properties of equipment during a hazard analysis walkdown (see 4/26/19 and 6/28/19 reports).