

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 23, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending August 23, 2024

Nuclear Explosive Operations: This week, CNS resumed nuclear explosive operations for a certain weapon program that had been paused since October 2023 after a design agency sent formal notification that they could no longer support the program's mechanical insult weapon response rules (see 10/20/23 report). Earlier this year, the applicable design agencies transmitted updated weapon response rules to Pantex, which utilized lower mechanical insult thresholds for certain components. In June 2024, CNS developed a justification for continued operations (JCO) based on these new rules, establishing additional compensatory measures—or applying existing safety basis controls—to address certain hazard scenarios. Compensatory measures included crediting existing special tooling to maintain positive control and structural integrity during normal and rare event loading scenarios. Additionally, CNS established various specific administrative controls related to handling process equipment and materials (e.g., designating certain locations for the equipment, requiring two technicians for equipment lifts, and limiting the height of equipment lifts above the nuclear explosive). PFO approved the JCO, noting one concern requiring action within a year. For certain unit hoisting operations, PFO directed CNS to develop an engineered control to prevent drops versus the current administrative control.

Component Reacceptance: Recently, CNS nonconformed a nuclear explosive during assembly operations after a CNS process engineer discovered that a certain component was installed without the completion of the required reacceptance activities. During the event investigation process, CNS noted the following issues: (1) a process engineer assigned an incorrect designation to this particular component (i.e., noted part as Mark Quality despite not fully completing reacceptance activities); (2) a quality engineer missed the discrepancy during their follow up review; and (3) production technicians did not notice the improper designation before using the component in the applicable assembly operations. CNS also highlighted that the quality engineer deviated from a portion of the review process by completing both the peer review and the independent review of the component documentation. As an outcome to the investigation process, CNS developed actions to brief all production technicians assigned to this weapon program on the event. Additionally, CNS plans to retrain these particular technicians on properly identifying component acceptance markings before commencing assembly operations. As for engineering-related actions, CNS plans to brief the quality engineers on this event and compile a lessons learned bulletin.

Conduct of Operations: This week, during assembly operations, CNS production technicians discovered that a washer for a certain cable connection was not installed on the unit as directed by a previously completed nuclear explosive operating procedure. The technicians discovered the discrepancy after installation of several subsequent components and completion of multiple quality hold points. Upon discovery, CNS paused assembly operations on the unit. After receiving direction from the applicable design agency, CNS developed a procedure to continue the assembly process to achieve a transportable configuration and allow staging of the unit. Currently, CNS is developing a path forward with the design agency for unit repair.