

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 24, 2023

**TO:** Timothy J. Dwyer, Acting Technical Director  
**FROM:** A. Holloway, C. Stott, and C. Berg (acting), Resident Inspectors  
**SUBJECT:** Pantex Plant Activity Report for Week Ending November 24, 2023

**Nuclear Explosive Operations:** Earlier this month, CNS paused assembly operations in a nuclear explosive bay and placed the unit into a safe and stable configuration after discovering that certain special tooling would not seat correctly. To resume operations, CNS Process Engineering published a nuclear explosive engineering procedure (NEEP) that included steps to allow production technicians to replace the special tooling and continue unit assembly activities. While executing the NEEP, CNS production technicians again paused operations because the procedure could not be performed as written (i.e., certain steps were not in the correct order). Of note, within the published NEEP, CNS Process Engineering copied a portion of the assembly nuclear explosive operating procedure, which contained the correct order for these steps, but transcribed them out of sequence such that the technicians could not physically follow the procedure as written. In response to this discovery, CNS Process Engineering published a second NEEP to permit continued assembly of the nuclear explosive.

**Safety Basis:** While reviewing the safety basis earlier this month, CNS Safety Analysis Engineering identified a discrepancy in the hazard analysis report for one weapon program concerning hoisting operations. Specifically, when lifting a certain weapon component, the nuclear explosive operating procedure provides the option to either perform a hand lift or use the hoist. However, CNS Safety Analysis Engineering determined that the special tooling utilized in conjunction with the hoisting option—while capable of supporting the weapon component—had not been explicitly credited within the safety basis to support the load. Consequently, CNS declared a potential inadequacy of the safety analysis (PISA).

In response to the PISA determination, CNS implemented one operational restriction prohibiting hoisting operations of the specific weapon component using this special tooling. As a result, CNS declared a stop work event and, using existing site processes, lined through the hoisting option within the nuclear explosive operating procedure, allowing operations to continue with only the hand-lift option. Last week, CNS Safety Analysis Engineering determined that the PISA did not represent an unreviewed safety question.

**Configuration Management:** Earlier this month, CNS personnel discovered that software uploaded to the applicable design agency's configuration management database did not match the software loaded on two coordinate measuring machines (CMM) within a special nuclear material facility. CNS Development Engineering personnel determined that the updated software on the CMMs was not appropriately loaded into the approved database. CNS intends to change their software maintenance plan to incorporate a *hash function*, which is designed to provide a verification method ensuring all system software file revisions are exact replicas of approved software. CNS also discussed the need to specify in their software revision procedure whether all files should be replaced for a software update or only the affected files. Finally, before returning the CMMs to service, CNS also plans to perform testing of the equipment with the corrected software to verify that it works as designed.