

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 22, 2023

TO: Katherine R. Herrera, Acting Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending December 22, 2023

Staff Activity: This week, the resident inspectors walked down several nuclear explosive bays and cells for multiple programs, discussing recent off-normal units and potential procedural enhancements with production staff.

Anomalous Unit: Last month, CNS and the design agency determined that a nuclear explosive met the criteria to be considered an anomalous unit due to an unusual noise within the unit during its rotation (see 11/17/23 report). After receiving the Nuclear Explosive Safety (NES) Change Evaluation report assessing proposed operations on this anomalous unit, which did not identify any findings, deliberation topics, or minority opinions, NPO concluded that “the NES standards and criteria continue to be satisfied for these operations at Pantex.” The proposed operations include disassembly activities to investigate and potentially correct the cause of the noise. After the design laboratories sent a Special Instruction Engineering Release to provide additional handling instructions for the unit and confirm that existing weapon response is bounding for the nuclear explosive, NPO also approved a safety basis supplement, which established compensatory measures—such as existing special tooling and the personnel evacuation specific administrative control—to ensure the safety of these operations.

This week, the resident inspectors observed the execution of these operations by CNS production technicians. The resident inspectors noted no concerns regarding operational safety or procedural adherence. CNS discovered the noise within the unit originated from an electrical connector cover that was left within the nuclear explosive. CNS did not find any obvious damage due to the connector cover, but further examination is expected to occur.

NES Master Study: This week, NNSA released the final report from the recently completed Approved Equipment Program (AEP) Volume II NES Master Study. This particular study focused on the requirements and procedures in place at Pantex for the special tooling and qualified and approved container programs. While the NES Study Group (NESSG) “concluded that the Pantex Tooling and container programs are adequately characterized and controlled such that they can be relied upon for evaluation and use in specific nuclear explosive operations,” the NESSG did identify three deficiencies within the final report. The NESSG characterized one deficiency as a finding related to prototype tooling. While provisions are taken to identify and separate prototype tooling from production tooling, “there is no process in place for segregating the pieces/components of prototype tools in fabrication, repair, or maintenance from production tools in the same status.” The NESSG found that this did not meet the intent of the requirements for prototype tooling in DOE Order 452.2. The NESSG characterized the other two deficiencies as opportunities for enhancement related to the lack of configuration management for *non-tooling* and gaps in the configuration management system for approved containers. Of note, *non-tooling* may be used as a special tooling subcomponent; however, it falls outside of configuration management and NES change control processes, causing a condition that, “if allowed to persist, could weaken positive measures relied upon for NES.”