

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 17, 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 17, 2023

Facility Appurtenances: Last week, CNS identified three pipe hangers with missing fasteners supporting a pipe in the ramp (see 11/10/23 report). CNS repaired the pipe hangers by installing new fasteners and a second nut on each side to help prevent recurrence, as well as removed the blockades from the ramp to again allow material moves. This week, the resident inspectors performed an extent of condition review and discovered missing and loose fasteners on a similar second condensate pipe in the same ramp. In a separate ramp, the resident inspectors also found missing and loose fastener nuts on a different condensate line. As a result, CNS personnel blocked the affected ramps from material moves until repairs can be completed.

Conduct of Operations: Last week, CNS became aware of a nuclear explosive recently assembled in which two components appeared to be incorrectly installed. As discussed in the event investigation, the operating procedure states to install a compression pad, spacer, cover plate, and threaded ring with its beveled edge down. CNS determined the production technicians installed the threaded ring upside down, such that the beveled edge was facing up, and the spacer also inverted such that some of its cutouts were partially occluded. However, the applicable design agency never designated a spacer installation orientation requirement. CNS plans to update the operating procedure to ensure proper component installations as well as provide additional training to technicians to reinforce proper component orientation during installation.

Anomalous Unit: Last week, while rotating a nuclear explosive within a nuclear explosive bay, CNS production technicians heard a noise. As the CNS Production Section Manager (PSM) and the production technicians could not ascertain the source of the noise, the nuclear explosive was again rotated, and the individuals confirmed that the noise originated from within the unit versus the supporting special tooling. Consequently, the PSM and production technicians initiated immediate action procedures and vacated the facility. Additionally, given the unknown state of the nuclear explosive, during a subsequent anomalous unit determination, a CNS process engineer, design agency system engineer, and CNS nuclear explosive safety (NES) representative found that it did meet the anomalous unit criteria (see 3/26/21 report).

At the investigation, CNS noted that this occurrence represents a gap in the execution of earlier assembly operations. Furthermore, CNS determined that the additional unit rotation outside of procedural direction constituted an event where the potential for NES consequences was substantially increased due to the unauthorized introduction of mechanical energy. Additionally, NPO and CNS discussed the potential violation of a NES rule requiring operations to be performed in accordance with approved, written procedures. In response to the event, CNS developed actions to provide conduct of operations and conservative decision-making training for associated technicians and PSMs. CNS will also conduct a causal analysis to develop a suite of corrective actions to help prevent recurrence. Finally, CNS Process Engineering is developing a recovery process to allow minor disassembly of the unit to diagnose the cause of the noise. A NES change evaluation will be convened to assess this recovery process.