

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 8, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending March 8, 2024

Anomalous Unit: Last month, CNS production technicians discovered deformation and cracking on a weapon component in a nuclear explosive cell. Given the uniqueness of this discovered condition and the unknowns regarding its cause, CNS and the respective design agency determined that the nuclear explosive met the criteria to be considered an anomalous unit (see 2/9/24 report). Additionally, CNS safety analysis engineering declared a potential inadequacy of the safety analysis (PISA) related to the deformation and established an operational restriction prohibiting further operations on the unit (see 2/16/24 report). In response, CNS process engineering developed a nuclear explosive engineering procedure (NEEP) proposing to stage the nuclear explosive.

This week, NPO transmitted the results of the nuclear explosive safety (NES) change evaluation for these proposed staging operations (see 3/1/24 report), which identified zero findings and seven deliberation topics. Overall, NPO and the NES study group did not identify any deficiencies with the proposed operations but noted a concern related to formal NES-related reviews of design agency engineering authorizations. NPO will coordinate with NNSA headquarters to action this deliberation topic to the design agencies.

Following receipt of documentation from the design agency regarding unit staging safety, CNS determined that the PISA did not represent an unreviewed safety question and removed the operational restriction. CNS executed the NEEP to place the unit within an enhanced transportation cart and stage it—in a multi-unit environment—until a disassembly process is developed. While executing the NEEP, the technicians identified discoloration in the deformed area but continued the operation. The resident inspectors question the decision to continue the NEEP and whether the existing path forward is appropriate given the as-found condition.

Readiness Assessment: CNS commenced the contractor readiness assessment (CRA) for multi-application transportation attachment device (MTAD) operations on a weapon program. Previously, NPO approved a safety basis change package that provided CNS with additional flexibility to conduct MTAD operations in locations currently not designated for such activities (see 4/7/23 report). This week, CNS demonstrated these nuclear explosive operations for the CRA and federal readiness assessment (FRA) teams at these unique locations. Given the limited availability of the equipment to demonstrate these operations, NPO conducted its readiness assessment observations concurrently with the CRA demonstrations.

The resident inspectors observed the demonstrations, acknowledging the added realism from the selected environments and noticed some opportunities for improvement (e.g., limited lighting in certain locations and potential degradation of some of the equipment). As part of these demonstrations, CNS also conducted an emergency drill simulating an abnormal response of the unit during these operations and assessed resulting personnel actions. The CRA will continue next week with the FRA formally commencing upon closure of any CRA findings.