

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 10, 2023

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** C. Berg, Acting Resident Inspector  
**SUBJECT:** Pantex Plant Activity Report for Week Ending March 10, 2023

**Staff Activity:** The acting resident inspector attended the continuation of the W80-4 nuclear explosive safety (NES) preliminary design review at the Pantex Plant (see 2/3/23 report). During these meetings, the NES review team and project team discussed various safety topics, including experimental testing and the resulting data obtained to qualify an explosive formulation as an *insensitive high explosive*. The acting resident inspector noted during this review that aspects of the W80-4 design may require the application of additional safety controls at Pantex during assembly and disassembly operations.

**Operating Procedures:** Pantex processes require that final verifications of assembled nuclear explosives be performed and documented on Inspection Record Cards (IRC). Last month, CNS Process Engineering developed a nuclear explosive engineering procedure that did not include a step related to documenting the final unit verification on the IRC. During an evaluation of the card, CNS Quality personnel identified the discrepancy and conducted an extent of condition review for any similarly affected units. From this review, CNS found a nuclear explosive engineering procedure used to repair two units last year that also did not include this step and consequently the IRCs were not acceptable.

In response to this discovery, CNS appropriately dispositioned the three nuclear explosives. For the most recent unit, CNS Process Engineering developed a nuclear explosive engineering procedure to correctly mark the IRC. Additionally, CNS Process Engineering is conducting a broader extent of condition review across the nuclear explosive operating procedures to ensure steps related to IRC documentation of final unit verifications are not missing.

**Safety Basis:** This week, NPO approved—with one directed change and one comment—a revision to the Nuclear Material Safety Analysis Report related to safety control modernization. Specifically, the revision implements aspects of the Pantex Safety Basis Vision, such as revising specific administrative controls and design features to be in alignment with DOE Standard 3009-2014 and DOE Standard 1186-2016 expectations. One significant change resulting from this effort is that ceiling-mounted appurtenances in nuclear material facilities will no longer be credited to withstand a design basis seismic event. Nevertheless, due to an ongoing planned improvement, NPO expects these appurtenances to still be qualified to withstand such an event.

**NPO Oversight:** Last month, NPO completed its assessment of the contractor's expedited unreviewed safety question (USQ) determination process. CNS developed the process in 2020 to expedite implementation of compensatory measures—through an appropriate mechanism (e.g., justification for continued operations)—when it is clear that a potential inadequacy of the safety analysis represents a USQ. The assessment focused on compliance with DOE directives and site procedures, quality and timeliness of documentation, and adequacy of the selected compensatory measures. Overall, for the limited times CNS employed this expedited process, NPO found no concerns with its implementation at Pantex.