DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 1, 2017

MEMO TO: Steven Stokes, Technical Director
FROM: Ramsey Arnold and Zachery Beauvais, Pantex Plant Resident Inspectors
SUBJECT: Pantex Plant Report for Week Ending December 1, 2017

Tooling Authorization: Tooling and safety analysis engineering (SAE) personnel determined that the requirements flowdown document (DRD) for a specific revision of a special tooling design had not undergone unreviewed safety question (USQ) review prior to releasing the tool to manufacturing. The specific special tooling design, a revision of a warhead disassembly fixture, has been in use by manufacturing since November 2016. CNS determined that the use of special tooling, without a reviewed and approved DRD, represented a safety basis non-compliance. As near-term compensatory measures, manufacturing has restricted usage of the specific tooling revision, production tooling will verify that all necessary support documents have been reviewed and approved prior to releasing new tooling, and SAE will perform an extent of condition review of other outstanding requests for changes to DRDs.

Special Nuclear Material Technology (SNMT) is in the process of qualifying a new leak detector design for use in purge and backfill operations. The new leak detector is commercially available equipment and is intended to replace a currently authorized model from the same manufacturer. As part of the qualification process, SNMT function tested the equipment in an operating nuclear materials bay that contained nuclear material at the time of the test. The new leak detector includes plastic and other combustible components. The Pantex safety basis requires fire protection engineering to perform a combustible loading disposition (CLD) for all facilities and operations and develop combustible material standoff distances based on the results. The CLD for the facility had not been updated to address the new leak detector, in violation of the safety basis. Manufacturing personnel have removed the leak detector from the area. Other violations of the combustible loading requirements have occurred over the past few years when non-obvious combustibles were introduced into operating areas (see 4/20/17 report).

Nuclear Explosive Electrical Testers: CNS program integration submitted an implementation plan to NPO detailing a timeline to replace legacy electrical testers with more modern alternatives. The plan was developed in response to a deliberation topic during a recent nuclear explosive safety study (NESS), where the NESS group noted that using newer testers would provide an enhancement to safety. Previous studies have included similar discussions. The implementation plan details actions across all active weapon programs, and anticipates completion by the end of fiscal year 2020.

Jib-Cranes: The resident inspectors attended a causal analysis meeting for a safety basis non-compliance related to the discovery of a loose jib-crane bumper—a small rubber pad. Jib-cranes installed in nuclear explosive cells are credited to remain in place following a design basis seismic event. Pantex system engineers identified the issue in October, during an extent of condition review of credited components that are installed using adhesives. The review was initiated after a metal ring fell from an overhead sound dampener (see 7/14/17 report). Based on the as-found configuration, system engineers were no longer able to demonstrate that the bumper could meet its credited function. The causal analysis team determined that the root cause of the non-compliance was end-of life failure of the adhesive. Jib-crane bumpers that were installed using adhesives have been replaced with bumpers that are attached with bolts and lock-nuts.