DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 29, 2019

TO: Christopher J. Roscetti, Technical Director
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SUBJECT: Pantex Plant Activity Report for Week Ending March 29, 2019

DNFSB Nuclear Explosive Safety (NES) Oversight: J. Anderson provided oversight of a NES evaluation for the B61-12. NNSA continued their NES evaluation for the W88 Alt 370 and held an initial training for an upcoming master study of Pantex support activities.

Electrostatic Discharge Hazards: Through an ongoing extent-of-condition review of hazard scenarios that are dispositioned by low probability arguments (see 9/28/18 report), CNS previously identified a scenario involving internal charge generation that lacked adequate controls (see 1/18/19 report). The scenario involves charge generated during the removal of a cable shield component insulting a detonator cable assembly (DCA). CNS engineers and design agency representatives developed a modified disassembly process to implement controls to mitigate the potential charge generation. The design agencies preformed additional testing to better characterize the potential magnitude of charge generated during removal of dielectric components internal to the unit and developed applicable weapon response rules that can be applied to the new process steps. The design agencies released the new weapon response rules this week. The weapon response concludes that the cable shield can be safely removed if CNS both electrically isolates it from the DCAs and mechanically bonds the cable shield to allow it to dissipate any accumulated charge. CNS safety analysis engineers are preparing a justification for continued operations (JCO) to seek NPO authorization to conduct the operations with the additional controls. NNSA is preparing to conduct a NES change evaluation of the proposed operational changes as well.

While developing the modified process, design agency personnel identified three additional steps requiring the removal of dielectric components where the assumed voltage distribution may no longer bound the potential hazards. CNS safety analysis engineers initially entered the new information in their problem identification and evaluation system but determined that the information lacked sufficient maturity to evaluate it as a potential inadequacy of the safety analysis (PISA). Upon release of the new weapon response information discussed above, CNS determined the information to be mature and subsequently declared a PISA and unreviewed safety question. Operations on this weapon program remain paused.

Safety Basis: Over the past two weeks, NPO has approved multiple changes to the Pantex safety basis including a change package to incorporate controls for freestanding equipment on one weapon program (see 6/1/18 and 10/26/18 reports) and a JCO to address the ability of existing facilities to withstand snow loads (see 12/21/17, 11/9/18 and 12/19/18 reports). Regarding the snow-loading JCO, CNS initiated an extent-of-condition evaluation for all nuclear facilities following the initial identification of a PISA in 2017. The recent JCO preventively extends compensatory measures to all areas within the Zone 12 and Zone 4 material access areas, as CNS expects to identify additional areas where calculations are not bounding. The compensatory measures are based on an evaluation of historic snowfall data and are required when snow accumulation can reach half of historic maximum values.