

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 10, 2021

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** A. Gurevitch, M. Bradisse (acting), and C. Berg (acting), Resident Inspectors  
**SUBJECT:** Pantex Plant Activity Report for Week Ending September 10, 2021

**Staff Activity:** A resident inspector observed a meeting of a Nuclear Explosive Safety Study Group (NESSG) that convened to discuss emerging information related to a certain safety component for a particular weapon program. Discussions centered on the component's response to normal and abnormal environments and stimuli. The NESSG will continue to meet next week to assess the safety of certain operations at Pantex.

A resident inspector observed training sessions for a separate NESSG related to the expansion of operations (i.e., extending to additional programs) at Pantex's newest vacuum chamber facility.

A DNFSB staff team met with personnel from NPO, CNS, NNSA Office of Stockpile Sustainment, and NNSA Office of the Chief of Defense Nuclear Safety regarding proposed changes to DOE-NA-STD-3016, *Hazard Analysis Reports for Nuclear Explosive Operations*.

**Electrostatic Discharge (ESD) Event:** CNS continues to investigate mechanisms resulting in the ESD event in a nuclear explosive cell last week (see 9/3/21 report), and continues to pursue previously planned testing of high explosive mats and other engineered features. As a result of this testing, CNS facility engineering personnel identified potential ESD hazards related to tungsten aprons used to shield technicians from radiation while working on certain unit configurations. This evaluation determined that the apron can act as an isolated conductor and therefore was the likeliest source of the initial electrical charge. CNS is still planning to conduct additional testing to better understand how the apron became charged during operations, and describe the bounds of the potential hazard conditions.

CNS had previously stopped work on all weapon programs that use the same type of high explosive mats used in the cell in question. After identifying the potential hazards related to shielded aprons, CNS conservatively expanded the stop work to include operations on all programs that allow use of these aprons. CNS entered the Problem Identification and Evaluation (PIE) process to determine whether this situation represents a potential inadequacy of the safety analysis (PISA) and unreviewed safety question. CNS preemptively requested an extension on the typical three-day window allowed per the PIE process to determine whether a PISA exists.

During the critique, CNS personnel determined that this condition could potentially lead to unanalyzed application of energy to a nuclear explosive. Consequently, this event has been categorized as a discovery of a condition that results in an adverse effect on nuclear explosive safety. During a meeting between CNS and design agency personnel, the unit in question was further declared to be an Anomalous Unit, which informs the path forward to recovery. Lastly, CNS completed testing on the high explosive mats used in one of the programs for which work was stopped, concluded that they would dissipate electrical charge as expected, and subsequently released those operations to continue. The other programs included in the initial stop work remain stopped.