

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 14, 2017

MEMO TO: Steven Stokes, Technical Director
FROM: Ramsey Arnold and Zachery Beauvais
SUBJECT: Pantex Plant Report for Week Ending April 14, 2017

Immediate Action Procedures (IAP): Production technicians (PT), upon consultation with their section manager, entered into IAP when they noticed an unexpected, black-coloring of a particular cable connection and an acrid smell during nuclear explosive disassembly operations. Radiation safety technicians (RST) who responded to the IAP first surveyed the PTs, and then surveyed the facility and unit, finding no source of contamination. Based on the configuration of the unit following the last completed disassembly step of disconnecting the cable, personnel including safety analysis engineering (SAE), process engineering, and nuclear explosive safety (NES) declared the unit to be in a safe and stable configuration. Following subsequent investigation into the occurrence, weapon program management convened an anomalous unit determination meeting. The unit was unanimously determined to not be anomalous based on the fact that the unexpected condition did not present a configuration that is potentially adverse to NES. From review of component drawings, an assembled team of subject matter experts determined that while this was the first instance of the black-colored cable connection, this was acceptable from the design. Additionally, during assembly of these units, adhesives are utilized that could lead to the noticeable smell during the disassembly process once components become unconfined. Pantex plans to develop a nuclear explosive engineering procedure to disposition the unit. Additionally, the design agency plans to further investigate the cables and surrounding components once disassembly is completed.

Safety Basis Compliance: During the unreviewed safety question determination performed following a recent potential inadequacy of the safety analysis related to hazards presented during radiation measurement activities with neutron detectors (see 3/31/17 report), SAE personnel determined that current use of a neutron detector does not comply with a specific administrative control (SAC) prohibiting hand carrying supplemental equipment during operations on a weapon program. The SAC was implemented to prevent mechanical impact hazards from supplemental equipment following an extensive update of the weapon response in 2013 (see 2/28/14 report). The control was verified to be implemented in several nuclear explosive operating procedures (NEOP), but was not incorporated into the radiation safety department manuals and procedures. RSTs routinely use this equipment to survey nuclear explosives during the assembly and disassembly processes, and prior to offsite shipment. All such operations on the affected program have been in violation of the SAC since its implementation. Use of the neutron detector remains paused.

Additionally, SAE personnel discovered a disconnect in the implementation of a control specifying the use of dielectric plastic covers to prevent hazards related to lightning induced electromagnetic pulse (LIEMP) effects. Specifically, not all LIEMP cover designs implemented in NEOPs were listed in a table referenced in the safety basis, preventing verbatim compliance with a SAC directing their use. CNS has not identified any applicable transportation operations that were performed without LIEMP covers installed. Use of multiple LIEMP cover designs was implemented following the same weapon response update referenced above. This discovery was conservatively categorized as a technical safety requirement violation, although consideration is being given to re-categorization.