

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 27, 2017

**MEMO TO:** Steven Stokes, Technical Director  
**FROM:** Ramsey Arnold and Zachery Beauvais, Pantex Plant Resident Inspectors  
**SUBJECT:** Pantex Plant Report for Week Ending October 27, 2017

**High Pressure Fire Loop (HPFL):** The HPFL is configured to normally provide two-way water supply to each facility. Pantex is in the process of repairing HPFL degradations in multiple locations to address leaks, broken valves, improperly installed high density polyethylene piping, and facility lead-in breaks that have occurred over the past several years. Along with previously isolated breaks and leaks, a valve repair that began two weeks ago required the HPFL to be put into a configuration which created additional one-way feeds. Last week, fire protection engineering (FPE) identified that the HPFL had more one-way feeds than previously assumed, leading to the potential that the HPFL cannot meet the required on-demand pressure and flowrates at specific buildings if any fire pumps are inoperable. Based on evaluation of the new information, CNS declared a potential inadequacy of the safety analysis (PISA), and subsequently determined the issue represents a positive unreviewed safety question (USQ). CNS initially put an operational restriction in place to enter into three fire protection-related limiting conditions for operation (LCO) if any of the three HPFL pump/tank configurations become inoperable. The LCOs include placing operations in affected facilities into a safe and stable configuration and implementing a fire watch or minimizing combustibles as determined by FPE. Pantex currently has a standing order, developed to address a technical safety requirement (TSR) violation that occurred when a facility was inadvertently isolated during maintenance work (see 6/10/16 report), that requires FPE to evaluate the HPFL for one-way feeds prior to manipulating valves for maintenance. However, the standing order does not require evaluation of whether sufficient water can be delivered to all facilities—that is, the current process assumes that as long as there is a one-way path from a pump to a facility, sufficient water demands can be met. The resident inspectors discussed with CNS and NPO personnel whether the operational restrictions would ensure sufficient water delivery to facilities regardless of whether additional HPFL valve closures occurred. Pantex determined that this could not be assured and added an additional operational restriction to require verification that water demand can be met prior to authorizing additional valve closures. CNS is currently developing a justification for continued operations to address process gaps.

**Specific Administrative Controls (SAC):** CNS process engineers identified a discrepancy with the implementation of a SAC requiring second technician verification when installing special tooling fixtures onto assembly stand trunnions. The discrepancy, categorized as a TSR violation, was discovered during an extent of condition review underway to address a recent NNSA readiness assessment finding on a separate weapon program (see 9/8/17 report). A step in an Appendix of the procedure, used for high explosive charge removal in certain configurations, directs production technicians to install a pit lifting fixture on the assembly stand trunnions. The procedure did not specify that a second technician must verify the proper installation of the tooling. The discrepant step was introduced to the procedure as part of a special tooling upgrade completed in 2016 (see 10/14/16 report). CNS initiated an immediate extent of impact evaluation to determine if SACs requiring second technician verification or other forms of dual verification are properly implemented for nuclear explosive operations on other weapon programs. The review is still underway. CNS plans to hold a fact-finding meeting to identify the timeline of events that allowed the procedure to be implemented with the issue.