

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 7, 2017

**MEMO TO:** Steven Stokes, Technical Director  
**FROM:** Ramsey Arnold and Zachery Beauvais, Pantex Plant Resident Inspectors  
**SUBJECT:** Pantex Plant Report for Week Ending July 7, 2017

**Training:** CNS training department management recently discovered that the training records for fifty-six Pantex employees had been submitted as complete, without the personnel having completed the necessary training activities. During the fact-finding meeting held for this event, CNS determined that a training coordinator had deliberately submitted records inaccurately indicating that required performance demonstrations for use of various equipment, including forklifts, scissor-lifts, and tow motors, had been completed. The discrepancies predominantly impacted personnel from the maintenance organization, but also impacted personnel from operations and supply chain management. The performance demonstrations were conducted following discovery of the issue. CNS held a critique and a preliminary causal analysis meeting.

**High Pressure Fire Loop (HPFL):** Last week, the resident inspectors attended a meeting held to identify the causes and develop corrective actions to prevent recurrence of recent quality issues identified during the installation of electrofusion couplings on high density polyethylene (HDPE) piping, as part of an ongoing HPFL lead-in replacement project (see 5/26/17 report). Meeting participants traced the cause of the installation issues to include double-heating the HDPE joint, in violation of the procedure and outside of manufacturer recommendations, and deviation from procedure guidance. Other identified performance problems, such as use of an unapproved method for determining pipe roundness, were discussed but ultimately dispositioned by the team as not contributing to the overall cause of the noncompliant coupling. The team concluded that modifications already made to the installation procedures would address most of the causes and identified one additional action to specify the qualifications and technical knowledge requirements for CNS personnel who can sign-off on the completion of installation steps. The causal analysis team chose not to address the more global reach of the problems discovered during this project, and limited the scope of the identified corrective actions to this specific project. CNS plans to perform an extent-of-condition review at a later date. The results of the causal analysis are subject to further management review and approval. CNS recently completed a separate causal analysis of three electrofusion coupling failures in HDPE piping, previously in-service on the HPFL. That analysis concluded the failures were ultimately caused by improper installation due to a lack of skilled installers, a lack of proper pipe preparation and limited oversight of the installations by individuals knowledgeable of the system design. Following these separate issues and concerns with the HPFL reliability identified during a recent NPO assessment (see 2/24/17 report), CNS initiated a “deep dive” investigation into all aspects of the installation of the HPFL systems and any risks that could potentially inhibit the system from performing its safety class design functions. CNS has experienced a series of problems during the installation of new safety related equipment, including the installation of discrepant concrete in two nuclear explosive cells (see 6/3/16 report), installation of fire riser components not rated for the intended application (see 8/12/16 report), and concerns with the lightning protection strategy for the modular vacuum chamber facility (see 6/30/17). While the causes of these problems are numerous and diverse, the resident inspectors note that thorough contractor and federal oversight of the design and installation of new safety structures, systems, and components (SSC) could help to ensure that new safety-related SSCs are able to reliably perform their intended function.