

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 23, 2018

MEMO TO: Steven Stokes, Technical Director
FROM: Ramsey Arnold and Zachery Beauvais, Pantex Plant Resident Inspectors
SUBJECT: Pantex Plant Report for Week Ending February 23, 2018

High Pressure Fire Loop (HPFL): Pantex utilities personnel identified a leak in the HPFL when they determined that more make-up water had been consumed than would normally be expected and subsequently found standing water outside of a facility. Upon identification of the issue, fire protection engineering and facilities management personnel conferred to determine the actions needed to safely isolate the leak while entering the appropriate limiting conditions for operation (LCO). This included the need to perform an HPFL system evaluation to ensure all affected facilities have the required flow rate and pressure prior to closing any HPFL valves—an operational restriction in effect until a related justification for continued operations (JCO) is implemented (see 10/27/17 and 2/9/18). Last month, a separate leak was identified in the vicinity of the most recent leak and was previously isolated without impacting nuclear facilities. However, the two leaks and related valve closures left several nuclear facilities without an HPFL water supply, therefore, requiring CNS to enter the appropriate LCOs which included implementing a 24 hour fire watch in affected facilities. CNS is developing maintenance work orders to excavate the areas around the suspected valves and piping, identify the leak causes, and make the necessary repairs. In the interim, fire watches remain in effect.

Falling Man Hazard: Pantex identified additional errors between design agency weapon response rules and those utilized in the safety basis for a particular weapon program (see 2/9/18 report). Subsequently, CNS determined the issue represents a positive unreviewed safety question. When CNS first identified the use of incorrect weapon responses, it only related to the increase in frequencies for low order consequence events. However, through additional investigation, CNS found weapon response errors related to high order consequences that were incorrectly listed as having a screened weapon response. Applicable accident scenarios included falling man impacts to the unit, hand tool drops, and special tooling failure. While several specific administrative controls (SAC) and special tooling are already credited and would prevent some accident scenarios, no credited controls exist to prevent the falling man hazard. Pantex added operational restrictions to ensure that falling man awareness protocol is in effect. The protocol includes specific training to ensure the area of approach to a unit is clear of any objects that could lead to a tripping hazard, to ensure approaches to the unit by production technicians (PT) are minimized and only performed as needed to support the process, and to ensure PTs approach slowly and cautiously. When the falling man awareness protocol was put in place in 2014, in part, to address DNFSB concerns and NES evaluation findings, it was developed as a best practice (see 10/17/14 report). Since then, it has been credited with performing a safety class function as a compensatory measure in two weapon-specific JCOs still in effect (see 6/30/17 and 11/22/17 reports), along with the most recent inclusion as an operational restriction. The development of the protocol was not intended to meet DOE requirements and guidance for safety class control designation. For example, a human reliability assessment is recommended when developing SACs to ensure their dependability and SACs should be written so that it is verifiable through testing, examination, and assessment that it is performing its safety function. With these three instances, Pantex is crediting the falling man awareness protocol as an operational restriction or compensatory measure in lieu of developing engineered controls or process improvements to prevent the hazard.