

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 14, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: C. Berg, Acting Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending October 14, 2022

Technical Safety Requirement (TSR) Violation: The high pressure fire loop (HPFL) at Pantex ensures an adequate supply of water for the fire suppression systems within numerous nuclear and non-nuclear facilities. Post indicator valves (PIV) allow authorized personnel to isolate facilities and associated underground piping from the HPFL water supply for various reasons (e.g., facility lead-in replacement or leak isolation). PIVs have an administrative lock applied to control the configuration—i.e., the open or closed position—of the valve. These locks ensure valve positions are not inadvertently changed and remain in a state assessed by CNS fire protection engineering (FPE) to provide sufficient water to all applicable facilities. The HPFL TSRs establish a surveillance requirement to verify that certain PIV positions are in the approved configuration on a periodic frequency, as well as following any valve manipulation. Of note, the TSRs specify that the surveillance requirement is applicable to manipulated valves “to assure they are returned to their approved operating configuration and are locked....”

Last week, FPE identified a sectional PIV in Zone 12 without a lock. A review of the associated work orders indicates that impairment & restoration crafts personnel removed the lock in September 2022 to perform preventive maintenance, which required manipulation of the valve. Despite work order records indicating the lock had been reapplied, CNS determined the incident resulted in a failure to perform the surveillance requirement and declared a TSR violation. Furthermore, in response to the discovery, the CNS facility representative conservatively categorized the incident as a performance degradation of a safety class system when required to be operable and entered the appropriate HPFL limiting condition for operation (LCO). After CNS confirmed the valve to be in the appropriate open position—and FPE personnel verified system operability, even with the valve in the closed position, using approved hydraulic analysis software—the facility representative exited the LCO. CNS re-performed the PIV inspection and applied the lock. As a corrective action, CNS plans to refine processes associated with lock key control given its importance for configuration management. CNS safety analysis engineering (SAE) personnel also indicated to the resident inspector that the administrative locks were not intended to be linked to the surveillance requirement and planned to update the TSRs accordingly during an upcoming revision.

Safety Basis: Last month, NPO approved a justification for continued operations (JCO) related to an electrostatic discharge (ESD) scenario during hoisting operations (see 7/1/22 report). SAE previously identified that the selected control—i.e., the ESD control program—would not adequately address the hazard and declared a potential inadequacy of the safety analysis. To prevent the scenario, the JCO established a compensatory measure of a six-foot standoff between hoisted units and certain nuclear explosive configurations with an exposed component.

Additionally, this week, CNS requested to archive the JCO related to radiation-shielding aprons (see 11/12/21 and 11/19/21 reports), given all aprons used on these weapon programs will be routinely tested to ensure they are non-conductive and will not present an ESD hazard.