

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 27, 2023

TO: Timothy J. Dwyer, Acting Technical Director
FROM: A. Holloway, C. Stott, and C. Berg (acting), Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending October 27, 2023

Staff Activity: The resident inspector staff attended the 87th Biannual DOE/NNSA Explosives Safety Committee Meeting in Amarillo, Texas, as well as training courses covering Electrical Test Equipment and Pantex Facility Safety Systems.

High Pressure Fire Loop (HPFL) Lead-In Pipe Rupture: Last week, CNS entered a limiting condition for operations (LCO) for an unexplained diesel fire pump start due to water pressure decrease in the HPFL system. Shortly after entering the LCO, a CNS Production Section Manager noticed water flowing out of a nuclear explosive bay and into the adjoining ramp. The Pantex Fire Department determined the HPFL rupture occurred in the lead-in pipe for this bay, shut the associated isolation valve, and verified that water ceased flowing from the facility. Subsequently, CNS confirmed operability of the HPFL system by performing a system leakage rate test and the Pantex Fire Department reset the diesel fire pump. The Pantex Fire Department and CNS Facility Representatives barricaded the affected ramp to prevent all traffic, including material moves, near the lead-in rupture. Currently, CNS does not plan to remove the barricades until CNS Facility Engineers conduct structural inspections and either complete all needed repairs or implement compensatory measures to ensure safe travel in the affected area.

Prior to this rupture, CNS completed lead-in replacements for most nuclear explosive facilities due to known corrosion concerns with the underground HPFL ductile iron piping. CNS is using a corrosion resistant high density polyethylene material for the replacement piping. Pantex planned to execute this infrastructure improvement for the affected facility in fiscal year 2026.

In-Service Inspection (ISI): In June 2023, CNS submitted a proposed change package that removed ISIs from the federally-approved safety basis and established the Initial Testing and In-Service Surveillance Safety Management Program (i.e., the ITISS program). As noted in NPO's approval letter released this month, "[t]he identification and documentation of ISIs associated with the safety-related structure, system, or components (SSCs) will be handled by the [ITISS] program...." The contractor procedure implementing this program, i.e., E-PROC-3056, requires SSCs to be evaluated for degradation and necessary ISIs established in standalone contractor-managed documents. In its approval letter, due to "lack of maturity of the Pantex ITISS program," NPO prohibited CNS from implementing the safety basis changes until E-PROC-3056 is approved. Furthermore, NPO will review and approve any future changes to E-PROC-3056.

Safety Basis: Earlier this month, CNS Safety Analysis Engineering declared a potential inadequacy of the safety analysis (PISA) upon formal notification from one design agency that they could no longer support the mechanical insult weapon response rules provided for one weapon program (see 10/20/23 report). Due to the increase in both the probability and consequence of postulated accident scenarios, CNS determined that the PISA represented an unreviewed safety question. In response, CNS continues to prohibit all nuclear explosive operations on this weapon program, excluding transportation and staging.