DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 11, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: A. Gurevitch, M. Bradisse (acting), and C. Berg (acting), Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending February 11, 2022

Operations: This week, CNS successfully executed a nuclear explosive engineering procedure to disassemble a specific unit with a cracked component (see 1/7/22 report). Of note, this will allow new units to be processed in this facility for the first time since April 2021, when the identification of the cracked component caused the operational pause.

High Pressure Fire Loop (HPFL): Last Thursday, the safety class HPFL—which services the nuclear and nuclear explosive facilities in Zone 12—experienced a major leak resulting in the activation of multiple diesel pumps to maintain pressure in the water line. Current projections indicate several hundred thousand gallons of water was released. CNS facility representatives declared the HPFL inoperable, and entered the associated limiting conditions for operations (LCO) for the HPFL and affected facilities, which requires the establishment of fire watches and placement of all ongoing operations in a safe and stable configuration.

The fire department responded and visually identified the leak region in Zone 12 outside the material access area. Within 90 minutes of the diesel pump starts, the fire department isolated the leak. After isolating the leak, CNS personnel verified churn parameters for the involved diesel pumps per the technical safety requirements (TSR). Upon finding the churn parameters within the TSR specifications and reestablishing adequate water tank supply, CNS declared the HPFL met operability requirements and exited the LCOs. However, several hours later, CNS personnel determined that the overall HPFL system leak rate was greater than the value allowed in the TSRs and declared the system inoperable. CNS re-entered the appropriate HPFL and facility LCOs. Personnel walked down the leak site, ensured all previously identified isolation valves were fully closed, and closed one additional isolation valve. After determining that the leak rate was within the parameters required in the TSRs, CNS re-exited the LCOs for the HPFL and affected facilities. At the critique, the resident inspectors and other participants discussed the variety of requirements for entering and exiting LCOs. CNS categorized this incident as a performance degradation of a safety class system when required to be operable.

Safety Basis: Last week, CNS safety analysis engineering (SAE) declared a potential inadequacy in the safety analysis (PISA) related to use of certain 35-account material on one weapon program. While reviewing a safety basis change package, SAE found that the 35-account material did not meet all required electrostatic dissipative properties necessary for use on this program. As a compensatory measure, the 35-account material in question is not authorized for use on a certain weapon configuration.

As part of this same PISA declaration, CNS SAE noted that one tool had a discrepant as-found weight when compared to the value recorded in the safety basis (i.e., the actual weight was higher). Consequently, it is unclear whether the weapon response for impact scenarios is still bounded by the existing analyses. As an operational restriction, CNS has implemented a control requiring two technicians to install and/or remove this tool.