

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 1, 2021

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 October 1, 2021

Nuclear Explosive Safety (NES): Last week, a NES Study Group (NESSG) finalized its report related to a proposed disassembly operation for legacy units with cracked components on a certain weapon program (see 8/20/21 report). The NESSG report identified no findings, but did record 9 deliberation topics and 5 senior technical advisor comments. One of the deliberation topics determined that the proposed process should be applied only to one specific damaged unit, rather than be approved for general use on any future unit that may have this cracked component. Two other deliberation topics determined that there were potential drop scenarios without sufficient preventive controls in place; the resident inspectors also noted these scenarios during demonstrations and raised concerns to the NESSG. However, each of these three deliberation topics was addressed by the project team before the report was finalized. This week, the NESSG provided a briefing to NPO and NNSA headquarters management on the contents of the report.

Safety Basis: Earlier this year, the design agency for one weapon program released new information to Pantex related to the functionality of a safety component (see 9/10/21 and 9/17/21 reports). The design agency provided new weapon response rules to Pantex—no longer taking credit for the specific weapon safety component—resulting in increased weapon response consequence probabilities for various electrical, mechanical, and thermal hazards. In response, CNS developed a safety basis supplement, which evaluated the impact of these new weapon response rules. In summary, CNS determined that the increase in weapon response consequence probabilities—even for high-order consequence events—is adequately addressed with the existing control strategy. Of note, for seismic scenarios resulting in mechanical impact scenarios, CNS credits a design feature that establishes a qualitative level of protection for units based on their robustness when in a transportable configuration. In conjunction with documentation provided by the design agency, CNS determined that this design feature still could be credited as a control, despite the new information related to the weapon safety component, due to the sequence of events that would need to occur and other safety features that would have to fail to result in a significant consequence. Last month, NPO approved this safety basis supplement with no conditions of approval, noting the existing control strategy provides reasonable assurance of adequate protection to both workers and the public.

High Pressure Fire Loop (HPFL): Last week, impairment and restoration technicians performed preventive maintenance on a diesel fire pump and found that engine coolant did not meet the required minimum temperature, as specified in the technical safety requirements (TSR) for the HPFL. At the critique for this event, participants noted that degradation of the engine block heater led to this failed TSR surveillance requirement (see 9/24/21 report). Subsequently, upon installation of a new block heater to resolve the situation, CNS personnel identified that the associated thermostat was faulty and caused the block heater to remain constantly energized—versus cycling on and off as required to maintain engine coolant temperature. CNS facility operations personnel concluded that this faulty thermostat contributed to the shorter than expected life expectancy of the previous block heater.