

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 26, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Christopher Berg, Acting Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending March 26, 2021

Anomalous Unit Determinations: During disassembly operations, technicians identified damage (i.e., a slight bend) on a flange due to atypical interaction between special tooling and the unit. CNS determined the unit configuration was safe and stable and paused operations. Subsequently, CNS nuclear explosive safety (NES) requested that an anomalous unit determination be performed. In such determinations, the configuration is assessed to evaluate if the damage or condition (1) is identified as a credible deviation and/or addressed in an approved operating procedure, (2) results in an unanalyzed configuration or one not covered by a NES evaluation, or (3) is potentially adverse to NES. Upon review of the unit configuration, a CNS process engineer, design agency system engineer, and CNS NES representative determined that it did not meet the anomalous unit criteria. CNS engineering, in consultation with design agency personnel, is developing a nuclear explosive engineering procedure to continue operations.

On a different weapon program, technicians appropriately paused disassembly operations on one unit following the identification of a cracked component. Following an inspection of the component damage, CNS and design agency personnel conservatively determined that the configuration met the anomalous unit criteria.

Charge Generation Hazards: A NES study group completed its evaluation of proposed disassembly operations involving several new bonding controls to address internal charge generation hazards on one program (see 3/5/21 and 3/19/21 reports). The study group found that the NES standards in DOE Order 452.1 were met for the proposed operations, but documented two findings against NES requirements in DOE Order 452.2 and ten deliberation topics. The first finding involved ensuring that only authorized equipment would be used during operations; specifically, certain electrical bonding equipment needed better configuration control in the procedures. The second finding is associated with an appendix in the operating procedures for unplanned stops (e.g., lightning warnings), which allows operations to be stopped at various configurations—not necessarily at an approved stopping point—without a safe and stable determination. Among deliberation topics, the study group noted concerns from a readiness standpoint (e.g., procedures not being production ready and differing project team responses for handling emergent events). The project team is revising procedures to address these findings.

Fire Suppression System (FSS) Activation: The deluge FSS inadvertently activated in a non-nuclear facility, releasing water for a few minutes and resulting in the start of a high pressure fire loop (HPFL) diesel pump. The HPFL supplies water to this facility, as well as other non-nuclear and nuclear facilities. At the event investigation, participants discussed the recently modified technical safety requirements and whether a limiting condition for operation should have been entered due to loss of HPFL operability or unexplained diesel pump start. For example, the water loss rate due to the deluge activation exceeded the rate currently used in the analysis to demonstrate HPFL operability with a simultaneous leak. CNS plans to conduct an evaluation of HPFL operability given this higher water loss rate and identify the cause of the deluge activation.