

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 2, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: C. Berg, Acting Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending December 2, 2022

Operations: While conducting nuclear explosive disassembly operations, production technicians encountered a stuck component on one unit that could not be removed using the currently approved process. As a result, the technicians paused operations and placed the unit in a safe and stable configuration. CNS is actively developing a nuclear explosive engineering procedure to remove the component and continue disassembly activities. At the current time, there should be no required changes to the safety basis. However, a nuclear explosive safety (NES) study group will review the proposed operations during an upcoming NES evaluation.

Electrostatic Dissipative (ESD) Flooring: The ESD flooring within nuclear explosive bays and cells—in combination with other controls—ensure that various electrostatic discharge scenarios are prevented during operations. Within the technical safety requirements, the ESD flooring is captured as a design feature with an annual in-service inspection (ISI) requirement to verify flooring resistance measurements to ground are below a prescribed value. In August 2022, while performing the annual ISI for one bay, electricians found that multiple locations of the flooring failed to meet the acceptable resistance range. The completed work order documentation clearly indicated one out-of-tolerance measurement but not the other instances. Upon review of this paperwork, CNS Facility Management noted that the ESD flooring had passed its ISI.

Last month, while reviewing ESD flooring resistance measurement data as part of tracking and trending efforts, Facility Engineering discovered that the flooring had in fact failed the ISI, and Facility Management then designated it as out-of-service. At the event investigation, participants identified that the flooring had previously passed the ISI in September 2021 and operations conducted in the facility since then did not require a static dissipative environment. Therefore, CNS categorized the incident as a performance degradation of a safety class system when not required to be operable. As corrective actions, CNS will brief all Maintenance and Facility Management personnel on expectations associated with recording these types of failures on work order documentation and reviewing completed work packages, respectively.

Special Tooling: While fabricating a special tooling part, CNS Production Tooling personnel found that the aluminum did not behave as expected during machining. CNS had procured the aluminum as an NQA-1 item from a vendor on the Pantex Quality Approved Supplier List. CNS Supplier Quality had also performed receipt inspection and acceptance of this material, including review of the certified material test reports provided by the vendor that indicated it was 6061-T6 aluminum. However, following this observation, Production Tooling further investigated the material and found it displayed a lower-than-anticipated hardness (i.e., T4 as opposed to T6). As a result, Production Tooling applied a Do Not Use tag on the suspect material and conducted an extent-of-condition review for any special tooling fabricated with it. CNS identified nine special tooling copies during this review and prevented their use on the production line. In response to the event, CNS plans to meet with the vendor to discuss the issue, as well as test the aluminum yield strength to determine whether it may be suitable for continued use.