DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 24, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending May 24, 2024

Special Tooling: This week, CNS completed a critique for cracked structural-load welds in multiple copies of tooling that led CNS to pause operations involving three different tools (see 5/17/24 report). CNS management agreed on the proposed follow-up actions, including dye-penetrant nondestructive evaluations (NDE) on every copy of the three tools. Additionally, CNS stated that a causal analysis for this event will be performed and could lead to further actions.

Previously, in response to Board Recommendation 2019-1, CNS had revised the special tooling program within the safety basis—as well as the special tooling design manual—to require that all code welds are visually inspected and all welds in the credited load path are verified through either load testing or enhanced NDE techniques beyond visual examination (see 8/12/22 report). CNS applies this weld verification requirement to both new and existing tooling, primarily through load testing. As stated in the Board letter to the NNSA Administrator on February 24, 2023, "it is not clear if the load testing approach is adequate for rare event loads (i.e., from seismic events and falling technician scenarios)." During the critique, the resident inspectors asked if the tools with cracked welds experienced any events outside of normal working loads, but CNS did not have this information and is still evaluating the cause of the degradation.

Conduct of Operations: This week, CNS conducted a critique for a conduct of operations event that occurred last week. During this event, CNS production technicians performed an electrical test on a nuclear explosive and recorded the resulting value, which was outside the acceptable range specified in the procedures. After the result was recorded, the technicians proceeded with operations as if the value was within the acceptable range. It is unclear whether the actual value was acceptable and incorrectly transcribed or if the value was outside the acceptable range as currently documented. CNS questioned the value during a subsequent quality hold point, nonconformed the nuclear explosive, and paused further operations pending additional evaluation. CNS plans to perform additional electrical testing to determine the actual value and whether it is within the acceptable range. A nuclear explosive safety (NES) evaluation for the proposed operations is expected to occur next week. Of note, CNS utilized the new enhanced reader-worker-checker process for this operation; however, the process is still in the early implementation phase. CNS management may modify the enhanced reader-worker-checker process to include verification of recorded values before proceeding with operations.

Contractor Readiness Assessment: This month, the resident inspectors attended demonstrations for a CNS contractor readiness assessment (CRA) related to material of concern in a facility with water under the electrostatic dissipative (ESD) flooring (see 12/8/23 and 1/26/24 reports). After completing the CRA and performing subsequent operations, including removal of the material of concern from the facility, CNS technicians discovered a new water intrusion under the ESD flooring. Currently, CNS plans to install new ESD tiles in this facility before returning it to an operational mode. During the NES evaluation for the new ESD tiles, CNS indicated that exposure to water should not result in degradation of the ESD properties.