

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 23, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Christopher Berg, Acting Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending April 23, 2021

DNFSB Staff Activity: D. Andersen provided resident inspector augmentation and performed infrastructure-related walkdowns across Zone 12, including an examination of repairs to nuclear explosive bays with concrete chipping at the wall-ceiling interface (see 11/13/20 report), cracking in a reinforced concrete beam in one nuclear explosive cell (see 11/6/20 report), and repairs to a steel-beam-to-reinforced-concrete-wall connection in a ramp (see 6/26/20 report). In addition, the staff member observed ongoing construction for high pressure fire loop lead-in replacements—such as the start of concrete floor demolition for two nuclear explosive cells—as well as discussed and observed special nuclear material staging and surveillance activities.

Nuclear Explosive Operations: During disassembly operations on one weapon program, CNS personnel identified damage (i.e., a small crack) on an electrical connector. CNS determined the unit configuration was safe and stable and paused operations. Subsequently, design agency and CNS personnel met to discuss the damage and any impacts to nuclear explosive safety (NES). Based on these discussions, CNS process engineering, design agency system engineering, and CNS NES representatives decided that the unit configuration did not meet the anomalous unit criteria (see 3/26/21 report). CNS is generating a nuclear explosive engineering procedure to allow further inspection of the connector, and the applicable design agency is developing an Information Engineering Release to document any changes in weapon response for the unit.

Additionally, CNS issued a stop work event this week—pausing various processes, including those in the vacuum chambers—upon discovery that gas standards used in these operations or to calibrate associated equipment may not meet quality requirements. Specifically, testing of the gas mixtures may not be traceable to an accredited laboratory. To resume operations, CNS developed a technical justification permitting the continued use of these gas standards.

Conduct of Maintenance: As part of facility upgrades to address seismic hazards, infrastructure craft workers executed repairs that included the installation of clamps on fire sprinkler piping within multiple nuclear explosive bays. Due to the piping configurations, the clamps specified in the work documentation would not fit. CNS project and design engineering personnel evaluated the situation and revised the technical design packages to allow the use of larger clamps, which required the associated work orders to be revised. CNS maintenance management directed the craft workers to continue with authorized work in these facilities until the revised work package was planned and approved. However, during the performance of their duties, the craft workers installed the larger clamps, as well as a support bracket, which were not authorized in the current work orders. At the event investigation, participants discussed various factors associated with the incident, including the following: (1) unclear communication to the craft workers on what constituted authorized work; (2) disciplined operations and a recent briefing on the topic; (3) schedule pressure to complete these activities; and (4) similarities with previous events. CNS identified this event as a recurring noncompliance and plans to conduct a causal analysis to develop actions to prevent future occurrences.