

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 17, 2024

**TO:** Timothy J. Dwyer, Technical Director  
**FROM:** A. Holloway and C. Stott, Resident Inspectors  
**SUBJECT:** Pantex Plant Activity Report for Week Ending May 17, 2024

**Special Tooling:** This week, CNS paused all operations involving the use of three different tools after discovering degraded welds in multiple copies. CNS Tooling and Machine Design discovered cracks in welds directly in the structural load path of the tool. These three tools have similar designs and weldments. CNS credits these tools in their safety analyses to support nuclear explosives of a certain weapon program during normal assembly and disassembly operations as well as to not fail during falling technician and seismic events. If this weld were to degrade, the tool could lose its structural integrity. CNS declared a potential inadequacy of the safety analysis and implemented an additional operational restriction to prohibit further operations in a particular nuclear explosive facility that had been utilizing this special tooling. CNS categorized this event as a performance degradation of safety class equipment.

CNS initially discovered visible weld cracks in two different copies of the affected tooling in September 2023, but did not initiate tracking in their issues management database. Instead, CNS tooling personnel tracked the issue within their own processes while CNS operations personnel continued to rely on these tools during nuclear explosive assembly and disassembly operations. Before taking action, CNS Tooling and Machine Design decided that they needed to gather more data by performing dye-penetrant nondestructive evaluations on every copy of all three tools. Upon initiation of the testing in May 2024, CNS discovered two additional copies of tooling with weld cracks and subsequently paused operations involving this tooling. During the event investigation, CNS proposed continuing the dye-penetrant testing of all the tool copies, removing affected copies, and pursuing a longer-term tooling design change. CNS did not propose any changes to the procurement process, quality assurance process, or aging analysis for these tools.

**Nuclear Explosive Operations:** Since early last month, the NNSA Kansas City Field Office has released two nonconforming material reports (NMR) for issues with certain cables that are manufactured at the Kansas City National Security Campus (KCNSC) for one weapon program. The two NMRs indicate that the issues may affect a large portion of the population for several KCNSC products, including those used in Pantex operations. Pantex is shipping the cables back to KCNSC for evaluation and potential reacceptance. NNSA plans to only use cables that have been screened of these issues. The design agencies, NNSA, and KCNSC are working to develop a path forward to resolve these issues in future manufacturing lots. Additionally, one design agency has initiated a significant finding investigation to assess further actions.

**Structural:** Last week, CNS restricted access to a nuclear explosive cell after discovering a small piece of concrete had fallen from the wall above the equipment door. CNS previously placed this cell in maintenance mode for a planned electrical outage, so no material of concern was in the facility. Due to the proximity of the dislodged concrete to a high pressure fire loop penetration seal, CNS Facility Engineering performed an evaluation and noted no concerns. CNS has since removed the access restriction to the facility and returned it to operational mode.