

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 12, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: C. Berg, Acting Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending August 12, 2022

Staff Activity: D. Andersen, J. Anderson, and R. Jackson were on-site to conduct a review of the Pantex welding program, including an evaluation of new special tooling weld verification requirements implemented in response to Board Recommendation 2019-1. In addition, the resident inspector observed and assessed multiple nuclear explosive safety (NES) evaluations for a weapon program. Topics from the NES evaluations included (1) assembly, disassembly, and transportation operations for nuclear explosives with an alteration to mitigate certain safety component responses during accident scenarios (see 9/17/21 report) and (2) operations on a nuclear explosive whose configuration differed from the expected condition (see 7/29/22 report).

Special Tooling: In response to Board Recommendation 2019-1, CNS 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 nondestructive examination techniques beyond visual examination (see 4/9/21, 7/2/21, and 9/24/21 reports). This weld verification requirement applies to both new and existing tooling. CNS identified over 600 copies of existing special tooling that needed to be brought into compliance with the requirement. At this time, CNS has conducted load testing—or implemented a hold on the tooling until such testing is accomplished—on all but six copies. During this testing, the applied load will be the maximum value supported by the tooling during operations increased by a defined safety factor. To date, CNS has noted no tooling issues or failures during this testing.

Facility Equipment Installation: While placing conduit as part of thermometer-hygrometer equipment installation activities in a nuclear explosive cell, craft workers used an installation method not allowed per the technical design package (TDP). Specifically, the TDP drawing provided four options when routing the conduit around obstructions. However, in this case, none of the allowed options would have been feasible. As a result, the craft workers inappropriately combined two of these options when performing the installation. Of note, this work includes mounting the equipment onto the safety class facility structure; since this is categorized as a critical modification to the structure, the work package was designated as *specific use*—requiring a higher level of formality when executing the project.

While performing post-job walkdowns of the equipment installation in the cell, CNS engineering personnel identified this discrepancy. Rather than remove the incorrectly installed conduit, the engineers determined the installation method still met seismic requirements and decided to revise the TDP drawings to match the field conditions. In addition, at the event investigation and critique, NPO and CNS participants discussed whether the work package should have provided such flexibility with the installation method given its *specific use* designation. CNS personnel noted that this flexibility provides the craft workers with approved options to overcome obstructions during conduit installation without the need to pause work. CNS plans to evaluate the appropriateness of this practice during an upcoming causal analysis.