

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 27, 2023

TO: Katherine R. Herrera, Acting Technical Director
FROM: C. Berg, Acting Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending January 27, 2023

Nuclear Explosive Safety (NES): Last year, a NES study group conducted an operational safety review for one weapon program (see 8/5/22 and 9/23/22 reports). Over multiple months, the group evaluated ongoing nuclear explosive operations at Pantex, including cell disassembly, bay assembly and disassembly, satellite, and onsite transportation activities. Due to facility issues and limited availability of specific processes, the study group was not able to evaluate cell assembly and certain vacuum chamber operations. This week, the acting resident inspector attended a briefing from the study group to NNSA management regarding the conclusions of this review. These results included two findings, one opportunity for enhancement, four senior technical advisor comments, and twenty-one deliberation topics (e.g., conduct of operations issues and software requirement implementation concerns for legacy electrical equipment).

- Finding One—the study group noted deficiencies in the process for responding to Category One electrical equipment issues during an electrical test of a nuclear explosive. CNS personnel did not completely execute the *Trouble Call* process as defined in the appropriate procedure and provided verbal instructions to the production technicians to perform specific actions on both the tester and nuclear explosive. These actions violated a NES rule requiring such operations to be performed in accordance with approved, written procedures. Additionally, the study group found multiple concerns with the *Trouble Call* procedure, such as its lower level-of-use, limited detail, and lack of implementation of reader-worker-checker practices.
- Finding Two—for certain Category One electrical equipment—i.e., a switchbox employed with an electrical resistance tester—the study group identified insufficient maintenance practices to meet NES requirements. CNS only performs electrical verification on the equipment during initial inspection but not on any periodic basis thereafter. CNS instead performs visual examination of the equipment every five years.
- Opportunity for Enhancement—a previous finding from a NES master study at Pantex led to the implementation of end-to-end self-checks on Category One electrical equipment—to further mitigate any misapplication of electrical energy—prior to connecting to a nuclear explosive. The study group found one electrical cable where it is currently not possible to perform this self-check.

CNS is actively working to address the two findings and the opportunity for enhancement. In addition, for those specific operations not evaluated during this review, Pantex will be required to schedule a separate operational safety review at a later time to assess these activities.

Safety Basis: CNS declared a potential inadequacy of the safety analysis (PISA) when identifying that the safety basis for an operation evaluated the wrong weapon configuration, resulting in an unanalyzed hazard (see 1/13/23 report). Late last week, CNS determined the PISA represented an unreviewed safety question but did not require any operational restrictions due to existing special tooling that adequately prevents the hazard scenario.