

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 18, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: A. Gurevitch, M. Bradisse (acting), and C. Berg (acting), Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending February 18, 2022

Staff Activity: Staff members D. Andersen and J. Parham and the resident inspectors conducted additional walkdowns and discussions as part of a review of legacy conditions of approval (COA) and planned improvements (see 12/17/21 report). The resident inspectors also observed deliberations associated with an ongoing nuclear explosive safety study (see 1/14/22 report).

Nuclear Explosive Safety: Two weeks ago, a unit from a warhead program failed an electrical test. The project team suspected that the failure was due to a poor electrical connection, rather than a failure of any weapon component; consequently, the team requested a nuclear explosive safety change evaluation (NCE) and developed a nuclear explosive engineering procedure to remove the test equipment, clean and inspect the components and cables, and re-perform the electrical test. Last week, a nuclear explosive safety study group (NESSG) convened to perform the NCE. The NESSG agreed that the test failure was likely caused by a connection issue, and did not consider the proposed operations to present any nuclear explosive safety concerns.

Recommendation 2019-1: Last month, NPO approved safety basis change packages submitted by CNS to close 5 COAs and 10 planned improvements. The majority of these legacy COAs and planned improvements have been open for over a decade. Topics addressed by CNS in the change packages included oil pool fire credibility in a specific facility, crane failure modes and requirements, weapon response for gas cylinder impact scenarios, and lightning-induced equipment fragmentation and container burnthrough. NPO approved these change packages—with no conditions of approval and three technical review comments—but echoed CNS's position that one of the planned improvements will need to remain open until weapon response is received from the design agencies. In addition, Pantex is working to address a few other legacy planned improvements.

NNSA committed to disposition six legacy COAs in its implementation plan for Recommendation 2019-1. With approval of the above change packages, Pantex must address only one final COA to meet the commitment established within NNSA's implementation plan. The remaining legacy COA involves structural modification to two nuclear explosive cells, which is targeted to begin later this fiscal year.

Safety Basis: Last week, CNS safety analysis engineering declared a potential inadequacy in the safety analysis related to vehicle accidents. While reviewing an engineering calculation, SAE personnel discovered that accidents involving certain armored vehicles were not fully analyzed for four facilities. As an operational restriction, CNS placed dragon's teeth vehicle barriers in specific locations to prevent vehicle impacts to two of the facilities. For the third facility, safety analysis engineering determined that existing controls already addressed the hazard. CNS also determined that the structure of the fourth facility is capable of withstanding the impact in question, and therefore does not require any further controls.