

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 25, 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 25, 2022

Staff Activity: Staff member D. Andersen attended a weapon familiarization course and conducted walkdowns of nuclear and nuclear explosive facilities. In one facility—currently in maintenance mode with no special nuclear material—the staff member identified an engineered electrical bond for the fire suppression system, in proximity to a wall penetration, that was not connected per requirements. CNS entered this observation into its event investigation process.

Readiness Assessment: Nuclear explosive disassembly operations on a certain weapon program have been paused since 2019 because of internal charge generation hazards (see 6/11/21 and 7/30/21 reports). In November 2021, NPO notified CNS of 5 pre-start and 2 post-start findings associated with the federal readiness assessment to resume these operations (see 11/12/21 report). Last week, NPO determined that these findings had been satisfactorily resolved by the contractor, and the NPO manager authorized the resumption of the disassembly operations.

Nuclear Explosive Safety (NES): A NES study group (NESSG) convened this week to perform a NES change evaluation (NCE) for a proposal to conduct new operations on a different weapon program containing conventional high explosive main charges. Specifically, the proposal would allow operations on one nuclear explosive in a nuclear explosive bay while a second nuclear weapon is also present in the facility in its handling gear. The NESSG did not complete deliberations this week and will reconvene next week to continue the NCE.

Safety Basis: Last week, CNS discovered a potential inadequacy in the safety analysis (PISA) when they identified that the total weight of the Linear Accelerator (LINAC), which is used to radiograph nuclear explosives, is 60% heavier than documented in the hazard scenario. Since the LINAC is mounted on a moveable gantry crane to optimize the radiography images, one of the postulated accident scenarios is that the LINAC could impact a nuclear explosive. A second postulated accident is such an impact could cause the nuclear explosive to topple onto the floor. To control these scenarios, CNS currently implements engineered rail stops for the gantry, and a specific administrative control that requires the technicians to keep the nuclear explosive a minimum distance away from the forwardmost LINAC position. CNS is reanalyzing the impact scenario to ensure that the safety basis adequately controls these scenarios due to the increased weight. This week, CNS declared that the PISA represents an unreviewed safety question.

High Pressure Fire Loop (HPFL): Earlier this month, the safety class HPFL experienced a major leak resulting in the activation of multiple diesel pumps to maintain pressure in the water line. Following leak isolation, CNS verified the leak rate was within the parameters required by the technical safety requirements using a calibrated flow meter, and subsequently exited the limiting conditions for operations for the HPFL and affected facilities (see 2/11/22 report). CNS continues to investigate potential causes of this leak. Of note, a CNS subcontractor recently replaced a nearby section of this pipe, with the leak occurring in the vicinity of the joint between the new and old sections. It is suspected that improper installation of this section led to the leak.