DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 22, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Miranda McCoy, Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending January 22, 2021

DNFSB Staff Activity: A staff review team conducted a teleconference with CNS and NPO to discuss lines of inquiry regarding recent structural issues at Pantex. Over the past year, Pantex has investigated a crack in a concrete beam in one nuclear explosive cell, concrete failure at the connection with a beam in a ramp, and concrete chipping at the wall-ceiling interface in nuclear explosive bays (see 11/6/20 and 6/26/20 reports).

Safety Basis: CNS declared a potential inadequacy of the safety analysis (PISA) following the discovery that an additional control may be necessary in the nuclear material safety analysis report (SAR). CNS later upgraded the PISA to an unreviewed safety question due to the potential for increase in hazard probability and consequence. While developing a documented safety analysis change package, CNS safety analysis engineering personnel noted that the facility structure was not identified as a control for both snow loading and saturated soil overburden loading in the nuclear material SAR. The staging SAR appropriately captured the facility structure as a design feature for both snow and saturated soil loading, and engineering calculations document the ability of the facility structure to not fail under these loading conditions. Due to the fact that safety analysis engineering personnel expect the facility structure control to adequately prevent the hazards—and that the facility structure is identified as a control in a separate SAR—CNS did not implement any operational restrictions.

Emergency Lighting: CNS facility operations personnel noted a failure of the emergency lighting in one nuclear explosive cell. The safety basis credits emergency lighting to prevent mishandling and drops of, as well as impacts into, nuclear explosives and nuclear material in nuclear explosive cells following a loss of normal power. At the time of the emergency lighting failure, the cell was in maintenance mode, and therefore no nuclear material or explosives were present in the facility. CNS personnel identified the cause of failure to be the associated voltage regulator. Voltage regulators have caused similar emergency lighting failures in the past and are subject to a replacement plan (see 10/2/20 report).

35-Account Material: CNS personnel discovered several items of 35-account material that had been stored at the incorrect temperature, as compared to the material storage requirements. The CNS 35-account warehouse manager discovered the items improperly stored in a refrigerator during a review of the applicable manual. Event investigation participants were able to trace the incorrect storage back to at least 2011, but did not have any data prior to that year. During the event critique, participants noted that they were actively in contact with the material vendors and had not identified any concerns with functionality of the materials. The resident inspector did not identify any nuclear safety concerns with the incorrect storage. Late last year, CNS discovered that electrostatic dissipative (ESD) gloves and conductive bags had not been appropriately tested to verify material resistivity requirements were met (see 10/23/20 report). NPO is currently conducting an assessment of CNS's 35-account material program, in particular, flowdown of 35-account material requirements into implementing documents.