

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 17, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Zachery S. Beauvais and Miranda McCoy, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending May 17, 2019

DNFSB Staff Activity: M. McCoy reported for duty as a Pantex Resident Inspector on May 13, 2019. D. Andersen inspected construction activities related to fire suppression system upgrades.

Special Tooling: Following CNS tooling and safety analysis engineers' identification of weight discrepancies for a general use cart (see 5/3/19 report), CNS initiated an extent of condition review, which identified other pieces of tooling with similar weight discrepancies. The weights evaluated in tooling analyses protect assumptions related to impact energies and the potential for tooling toppling. Discrepancies in weight or weight distribution may invalidate these assumptions. This week, safety analysis engineering declared a second potential inadequacy of the safety analysis regarding the tooling identified through the extent of condition review. Impacted tools include combustible storage cabinets, tool boxes, and carts previously used to store electrical testers. In response, plant management paused operations on all impacted weapons programs and implemented operational restrictions. The operational restrictions ensure the removal of items in specific cabinets prior to approaching nuclear explosives and restrict the use of a cabinet. Additionally, CNS engineering modified the design of one cart by riveting a steel plate to prevent the cart's doors from opening, thereby precluding the placement of objects, which contribute to weight discrepancies, inside the cart. CNS has addressed a number of issues related to the weights of carts and testers over the past 18 months, including a tester module with a higher than assumed center of gravity and non-bounding weights in a preparation cart tooling analysis (see 4/12/18, 7/6/18, and 8/9/18 reports).

Fire Suppression System Construction: While performing an inspection on recently installed post-indicator valves (PIV), CNS maintenance personnel identified installation and manufacturing deficiencies that prevented the valves from being properly manipulated. The PIVs are used to isolate individual sections of the high pressure fire loop (HPFL), including isolating individual facilities from the HPFL. The PIVs include a lower section that is manufactured offsite by construction subcontractors. The design of the lower section includes a post extension from the valve stem that runs through a hole cut in a steel top plate. CNS maintenance personnel identified that the hole cut in this top plate deviated significantly from the round shape specified in the design. This deviation caused the steel top plate to interfere with the rotation of the post extension, preventing maintenance personnel from successfully operating the valve. CNS directed the construction subcontractor to perform an extent of condition review. An initial review of other PIVs discovered similar and additional issues on a total of six PIVs. The affected PIVs were installed as part of ongoing projects to replace the HPFL lead-ins to two nuclear explosive bays and install a HPFL distribution manifold. None of the affected sections of fire piping were in-service. CNS has previously identified quality assurance issues with work performed by this subcontractor, including an incorrectly assembled fire hydrant and a check valve installed with debris on this same construction project (see 1/25/19 and 5/26/17 reports). CNS supplier quality has removed this subcontractor from their qualified suppliers list and has identified an action plan for the subcontractor to regain their qualification.