

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 6, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Zachery S. Beauvais and Miranda McCoy, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending September 6, 2019

DNFSB Staff Activity: C. Berg completed site-specific radiation worker training, reviewed federal readiness activities, and met with CNS safety analysis engineering and NPO personnel.

Weapons Operations: CNS management paused weapons operations site-wide this week.

Nuclear Explosive Safety (NES) Change Evaluation (NCE): A NES study group evaluated a proposed path forward for a unit with electrical readings that had been recorded as out of the allowable tolerance range. The production technicians performing the electrical test believe the electrical reading was within tolerance, but had been recorded incorrectly (see 8/30/19 report). In order to verify that the electrical reading was within tolerance but recorded incorrectly, CNS engineering proposed partially disassembling the unit to the state in which the original electrical test was performed and re-performing the test. The NES study group did not have any safety concerns regarding the re-performance of the electrical test, but did recommend that engineering personnel review the person-to-person coverage requirements and ensure that they were being applied appropriately for each procedural step. Additionally, the NES study group noted that some disassembly steps were unnecessary to facilitate the testing, but had been included regardless. This approach allows the process to remain within the current safety basis and follow currently approved procedures. Previous NES study groups and the resident inspectors noted the use of unnecessary steps in order to remain within the safety basis in prior NCEs (see 9/23/16 and 4/28/17 reports). The NCE report is currently being reviewed for transmittal.

Electrical Testing: Last month, NNSA, CNS and design agency personnel conducted a series of electrical tests at Pantex to obtain additional data to quantify the potential for internal charge generation on one weapon program (see 1/18/19 and 3/29/19 reports). The test series was performed over a two-week span on a trainer unit in a non-nuclear bay configured to closely resemble the actual production environment. This test series follows a similar round of testing performed by design agency personnel at Lawrence Livermore National Laboratory. Design agency personnel are currently analyzing the collected data. Weapons operations on this program remain paused until a control set can be developed for this hazard.

Material Properties: Engineers at the Kansas City National Security Campus recently identified subcontractor manufacturing anomalies that introduced the potential for additional voiding or air pockets in a material used for subcomponent compression strips on one weapon, presenting a potential quality concern. Separately, the Pantex safety basis assumes electrical properties for this component that are used in defined weapon response rules for electrostatic discharge hazards. The resident inspectors questioned whether CNS engineering personnel had evaluated the potential change to electrical properties due to the anomaly. CNS management concluded, based on discussions with appropriate design agency personnel, that the design agency evaluates potential safety impacts while performing their weapons quality evaluation and concluded that the manufacturing anomaly presents no change to electrical hazards.