

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 29, 2015

MEMO TO: Steven Stokes, Technical Director

FROM: Zachery Beauvais and Rory Rauch, Acting Pantex Site Representatives

SUBJECT: Pantex Plant Report for Week Ending May 29, 2015

Positive Unreviewed Safety Question (USQ): This week, CNS received the last of the design agency engineering authorizations needed to complete a USQ determination (USQD) that covers several different issues on one weapon program: weapon response validity concerns (see 3/6/15 report); an unanalyzed electrostatic discharge (ESD) scenario involving aerosol cans (which resulted from an extent of condition review from a previous Positive USQ, see 3/13/15 report); and the ESD scenario involving Army-Navy containers (see 5/8/15 report). The latter issue prompted NNSA to declare a Code Blue on May 5, 2015 (see 5/8/15 report). The USQD was positive and operations on the affected weapon program remain paused. CNS safety analysis engineering personnel are preparing a justification for continued operations.

Failed Electrical Test: On May 11, 2015, a single unit failed a radio frequency (RF) test conducted during a disassembly and inspection (D&I) operation. The subject test requires the tester to connect with two rigid cables that are routed through the unit. During a previous limited life component exchange (LLCE) operation on this unit, production technicians (PTs) performed the same RF test successfully. Unlike the LLCE process, the D&I process utilizes a cover plate designed to align the cable connectors with the tester ports. As such, the PTs use labels on the cover plate, not the connectors themselves, to determine how to connect the tester to the unit. The PTs paused work following the failed electrical test and, per procedure, contacted tester design personnel who evaluated the tester and found it to be functional. Upon inspection, the PTs and responsible engineers found that the cables had swapped positions inside the unit, which allowed the two cables to align through the cover plate with opposite tester ports. The responsible process engineers are preparing a temporary procedure to allow the PTs to complete the electrical testing on this unit and finish the D&I process, at which time the cables can be replaced and properly aligned during assembly. To prevent recurrence of this issue, the responsible process engineers plan to update the assembly and D&I procedures for this weapon program to include explicit instructions for the PTs to verify that the RF cables are routed properly through the unit and cover plate. CNS has been unable to determine the definitive cause of the misaligned cable because the cables could have been manipulated during a field alteration while the unit was in Department of Defense custody.

Anomalous Unit Update: Last month, NNSA, CNS, and design agency personnel declared a unit anomalous after PTs measured an out-of-tolerance reading on its detonator cable assembly (DCA, see 4/17/15 report). The responsible design agency plans to issue an engineering authorization that instructs CNS to test the DCA at different tolerance ranges. Prior to performing the electrical test using the new tolerance ranges, NNSA must complete a nuclear explosive safety change evaluation, which is currently scheduled for late July.

Operational Pause: The site reps observed the recovery operation for a unit with cracked high explosive (HE, see 5/22/15 report). During execution of the recovery procedure, the unit did not respond as anticipated—its configuration remained unexpectedly consistent with units without cracked HE—and the PTs, in consultation with the process engineer, conservatively decided to pause operations. PTs completed the operation the following day after the process engineer updated the procedure. Additionally, this week, another unit from the same program was discovered with cracked HE. The PTs executed a recovery procedure similar to that developed for the unit discussed above without incident.