DEFENSE NUCLEAR FACILITIES SAFETY BOARD

MEMO TO: Timothy Dwyer, Technical Director
FROM: Matthew Duncan and Rory Rauch, Pantex Site Representatives
SUBJECT: Pantex Plant Report for Week Ending March 4, 2011

DNFSB Staff Activity: J. Shackelford was onsite to observe the NNSA Office of the Chief of Defense Nuclear Safety biennial review.

Nuclear Explosive Safety (NES) Rule (NESR) Violation: B&W declared a NESR violation this week after a process engineer discovered that technicians had performed electrical tests that were not authorized by the current W80 NES study on several W80 units. The W80 NES study report contains a specific NESR that requires B&W to electrically verify that a strong-link is in the safe position prior to performing disassembly, maintenance, or certain tester operations. The specific NESR states that this verification shall be made only once.

An initial evaluation of this event indicates that this violation stems from a specific electrical test procedure that W80 process engineers developed and implemented approximately one year ago. This procedure allows technicians to perform a particular operation while the unit remains in its handling gear (this is a contingency in the event that this specific operation becomes necessary when no facilities are available to complete a full W80 disassembly operation). While developing the procedure, the responsible process engineers failed to implement a mechanism to prevent technicians from re-performing the strong-link verification prior to ultimate disassembly of the unit. During the extent-of-condition review, process engineering personnel discovered that this problem also exists on the B83 program, which is not currently operating. B&W management has paused W80 operations. Prior to resuming operations, W80 process engineers plan to implement procedure changes to preclude future violations of the subject NESR.

B53 Operations: Technicians have waited approximately one week for the pit and a main charge high explosive (HE) component to separate on the latest B53 dismantlement unit. This problem occurred during the first dismantlement unit (see 12/3/10 report) and tooling engineers redesigned the tooling interface for this step in the operation in an effort to expedite the separation on future units. Specifically, B&W has implemented a design of the HE holding plate that utilizes four jackscrews, which maximizes the total downward force and localized pressure on the main charge HE component while remaining within weapon response screening limits. For this particular operation, when the symmetric application of forces from the jackscrews on the HE holding plate failed to achieve separation in a timely manner, the responsible process engineer wrote a temporary procedure that directed the technicians to apply the forces from the jackscrews asymmetrically (cycling through asymmetric combinations in 30 minute intervals) in an attempt to dislodge the two components. This methodology has been unsuccessful thus far.

Gas Sample Anomaly: Two weeks ago, gas lab analysis of a gas sample (taken using a power-free gas sampler, PGS) from the headspace of a W78 unit detected an unexpected constituent. Last week, Los Alamos National Laboratory (LANL) formally instructed B&W to re-perform the gas sampling operation using a different copy of the PGS and the phoenix cart. Both samples confirmed the constituent is present in the amount found in the original analysis. Neither LANL nor B&W personnel have been able to definitively identify the source of the constituent. B&W is awaiting instructions from LANL on how to proceed. Though not finalized, the instructions will likely involve additional testing (e.g., durometer testing) on parts and components as they are removed from the unit. While process engineering is preparing the procedures to perform these additional tests, technicians will stage the unit in question and continue W78 operations on other units.