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 December 9, 2011

DNFSB Staff Activity: R. Rosen observed the third week of the nuclear explosive safety (NES) study for the B83 tooling upgrade project.

NES Study: As reported last week, based on two draft findings from a recent NES study, B&W declared a potential inadequacy of the safety analysis and temporarily restricted certain disassembly operations. B&W has since determined that an unreviewed safety question does not exist and lifted the operational restriction. In summary, the theoretical impact energy imparted to the nuclear explosive due to an inadvertent drop of the tooling and component combined (one piece of the tooling and the component are analyzed separately in the hazard analysis report), while greater than the value analyzed in the hazard analysis report, can utilize the same weapon response rules. Therefore, the probability and consequences of the accident scenario do not change, and the existing control set does not need to change. B&W plans to incorporate a more accurate description and analysis of the accident scenario in the next annual update.

Fire Barrier Adequacy: The documented safety analysis credits several facility structures, including the doors, as providing a 2-hour fire barrier capable of preventing an external fire from spreading into nuclear facilities. As reported last month (see 11/4/11 report), fire protection engineers discovered a discrepant as-found condition involving suspect penetration seals involving some of these credited fire barriers. This caused B&W to declare a potential inadequacy of the safety analysis and a positive unreviewed safety question. B&W's system engineering division modeled several fires to determine what, if any, additional combustible controls would be required to ensure that the intent of the design features would not be compromised. As a result, B&W established additional restrictions on the location of combustibles near the doors. B&W submitted a justification for continued operations to PXSO which identified no additional compensatory measures (controlling combustibles and establishing standoff distances as analyzed by a qualified fire protection engineer is already a technical safety requirement). If approved, B&W plans to update the documented safety analysis to modify the credit taken for penetration seals and to update the combustible controls for the nuclear facilities affected by this issue.

Nuclear Explosive Operations: During a headspace sampling operation of a nuclear explosive using a power-free gas sampler, a compression fitting for a pressurized air hose connection failed. The production section manager was in the bay when this occurred and conservatively decided to put the nuclear explosive in a safe and stable configuration, instead of backing out of the procedure, which would have taken longer. The technicians disconnected the sampler from the nuclear explosive. As the sampler uses a compressed gas cylinder as part of its design, the technicians installed the protective valve cap on the cylinder and removed the cylinder from the bay. These actions were consistent with the pertinent key element of the compressed gas cylinder program, which is a technical safety requirement-level safety management program.