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 November 12, 2010

B53 Operations: Gravity and minor temperature cycling failed to separate the pit from a main charge high explosive (HE) component. The unit remained in a configuration with the HE component hanging from the pit, held by a net, for many days. As this is how the process is designed to work, B&W determined it was a safe and stable configuration. This week, PXSO approved the use of a modified HE holding plate to separate the pit from the HE component. To accomplish the separation, tooling engineers added two jackscrews with springs to the HE holding plate. The interface between the modified tool and the HE is polyoxymethylene and the HE has an Adiprene® protective cover. B&W designed the jackscrews to limit the maximum force applied to the HE component to well below the value at which the weapon response is screened by the design agency. Upon PXSO approval of the change to the safety analysis and B&W approval of the modified operating procedure, technicians will attempt to separate the pit from the HE component using the modified process. Tooling engineers began working to modify the tool to apply additional force.

Nuclear Explosive Safety: During B61 operations that were being observed by an Operational Safety Review team, a team member noticed a member of the fire department, with a radio on his belt, enter the bay to inspect the fire extinguishers. As the team member did not believe the radio was on the authorized equipment list, he notified the production section manager, who promptly asked the person from the fire department to leave the bay. He ensured the radio was off and left.

Initially, B&W did not think a critique was necessary as all of the facts were known. Six days later, B&W held a critique and determined that the event was a violation of a nuclear explosive safety rule. DOE O 452.2D, *Nuclear Explosive Safety*, lists several general nuclear explosive safety rules. The violated rule states that "authorized energy sources must be identified and documented. Unauthorized energy sources must not be available in a nuclear explosive area during nuclear explosive operations." B&W will assess whether any changes to the current set of controls is warranted at a causal analysis and mistake proofing meeting next week.

Emergency response (e.g., fire department and security) personnel are permitted to carry and use items such as radios in nuclear explosive facilities only during emergencies. As it is not used as part of the normal process and carrying it into a facility is prohibited, B&W never analyzed the hazard of the radio (e.g., electromagnetic radiation) so the actual safety significance of this incident is unknown.

W84 Operations: While technicians were removing a case component, the upper trunnions of the pneumatically powered workstand continued to move upward after the "up" button had been released. The technician immediately pushed the "down" button in an attempt to prevent the trunnions from continuing to move up. The trunnions then began to move up and down erratically. The technician then released the "down" button and the trunnions resumed moving up. Finally, another technician closed the valve to the air supply at the facility wall and suspended operations. The overall movement up had been about a couple of inches. In the short term, the process engineer modified the procedure to prohibit use of the pneumatic controls and to complete the disassembly raising and lowering the trunnions by hand. Upon completion, tooling engineers planned to disassemble, investigate the failure mode, trouble-shoot, and evaluate the workstand prior to reuse.

The crushing hazard posed by this and various similar scenarios has previously been analyzed and documented in the hazard analysis report. The design agency had determined that the forces imposed by these scenarios screen for all nuclear safety-related consequences.