DEFENSE NUCLEAR FACILITIES SAFETY BOARD

MEMO TO: Timothy J. Dwyer, Technical Director
FROM: Timothy Hunt and Rory Rauch, Pantex Site Representatives
DATE: 17 October 2008
SUBJECT: Pantex Plant Weekly Report

B83 Tooling: A recent evaluation of B83 operations concluded that tooling upgrades would significantly enhance process efficiency and safety. The upgrades—which will apply to both disassembly and assembly operations—are still in the conceptual phase, but the current changes will nearly eliminate hoist lifts of energetic components (there are eleven lifts), eliminate the use of hydraulic tooling, and ensure that all tooling is compatible with a static dissipative flooring in anticipation of the possibility that this engineered feature could be used to protect against electrostatic discharge hazards. The tooling upgrades will also reduce the B83 operational footprint from two to one nuclear explosive bay. Another primary goal of this upgrade effort is to eliminate downtime during lightning warnings. To that end, the project team plans to eliminate all AC-powered equipment (e.g., replace vacuum bay operations with a portable, pneumatically-driven, and battery-powered leak test/manifold/pressurization cart) and design and fabricate approved Faraday cage transportation configurations. The project has an estimated completion date of September 2010.

Procedures and Training Assessment: In September, PXSO performed an assessment of the procedures and training safety management programs. The assessment identified two deficiencies and two weaknesses. The deficiencies related to controls being implemented differently than described in the documented safety analysis (DSA). For example, the DSA for one program requires that the production technicians (PTs) receive specific training and step-by-step procedures to address minimal high explosive cracking without a recovery procedure. However, the applicable operating procedure directs the PTs to stop work, notify process engineering, and develop a recovery procedure, if necessary. Overall, the assessment team concluded that procedures adequately implement technical safety requirement-level administrative controls (ACs) and key elements; training on ACs and key elements has been performed consistent with the description in the DSA; and the level of knowledge of management, operations, and operations support personnel is adequate to properly implement ACs and key elements.

Special Tooling: During the final steps of tooling fabrication, a lifting fixture failed its vacuum load test when the adiprene seal dislodged from its holding clamp. Similar lifting fixtures were immediately removed from the line until a root cause could be determined. Engineering has concluded that a recent change in the curing agent used during the adiprene manufacturing process has increased the shrink rate of the seal and, in turn, caused an out of tolerance condition. Engineering has increased the specification for the thickness of the seal mold to compensate for this difference. Several tools are being revised in response to this discovery.

Human Performance Errors: As a result of numerous recent material move and other nuclear operations issues, PXSO has impetrated B&W Pantex to evaluate the extent to which human performance factors contributed to these events. Many of the personnel performance errors have been due to inattention to detail, complacency, false assumptions, and inaccurate perception of risk. PXSO has specifically requested an assessment of whether previously determined corrective actions have placed appropriate emphasis on personal accountability and attention to detail.

Operations Systems Replacement Project: Last week, PXSO endorsed CD-0 documents prepared by B&W Pantex that describe a proposed path forward to replace the software which controls material inventory and movement (e.g., Move Right System), tooling, and procedure verification. The current software was installed in 1989 and has become obsolete. The five year upgrade project is estimated to cost around $37 million.