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 July 22, 2011

W76 Anomaly: This week, PXSO approved a justification for continued operations (JCO) for the proposed recovery operation for the W76 unit with the separated detonator cable assembly (DCA, see 7/1/11 report). The JCO identifies a compensatory measure that requires the technicians to install a protective electrical cover on the DCA before continuing with the remainder of the disassembly. B&W and PXSO believe this compensatory measure will be effective because the current W76 Hazard Analysis Report and supporting weapon response demonstrates that the cover will protect against the maximum postulated electrostatic discharge hazard for a similar configuration earlier in the process. The B&W nuclear explosive safety (NES) department has determined that a NES change evaluation (NCE) will be required before the proposed recovery operation can commence. The NCE is scheduled for early next week.

B53 Operations: Last week, NNSA convened an NCE to evaluate the closure package for the remaining open element of the pre-start finding from the July 2010 B53 NES study. This open element states that there are no process features to avoid complete reliance on a phenolic component as part of the load path during staging, transportation, and disassembly of certain partially assembled units. B&W addressed the other elements of the pre-start finding, which pertained to units that began as full assemblies, when it implemented a control to eliminate reliance on this component as part of the load path during dismantlement operations (see 9/3/10 report). However, B&W was unable to implement a similar control for the staging and transportation of the partial assemblies; therefore, during the last several months, Sandia National Laboratories (SNL) has performed material strength testing on a sampling of phenolic components from recently dismantled war reserve units in an attempt to demonstrate that the component's integrity would not be compromised during staging and transportation of the partial assemblies. SNL found a significant factor of safety when comparing the maximum principal stress found in onsite transportation environments to the lowest material strength found on the phenolic component. The NCE group concluded that the SNL analysis provided sufficient basis for the pre-start finding to be closed without any additional controls.

Limiting Conditions for Operations (LCO) Vulnerability: While developing corrective actions for a recent event where a facility manager failed to enter an LCO in a timely manner (see 6/17/11 report), facility management personnel identified a vulnerability in an LCO action statement for the deluge fire suppression system. One of the LCO action statements for the deluge fire suppression system requires a designated fire protection engineer to determine whether a fire watch is necessary upon loss of primary power to the system. This action statement could lead to an unacceptable situation in two nuclear explosive cells. The cells in question have a relatively limited supply of secondary power and all power to the emergency lighting system and the door interlock system would be lost in a matter of hours (the availability of the secondary power supply in these facilities still meets safety basis and National Fire Protection Association specifications). Since the door interlock system locks upon loss of power, any personnel located in the facility when secondary power is lost would not be able to egress the facility in a timely manner. Thus, if primary power were lost in these cells and a fire watch needed to be implemented, facility management would be faced with a difficult decision: place personnel in a facility that would eventually lose power to its emergency lighting system and means of timely egress or fail to comply with the action statement of the subject LCO. In the long term, B&W plans to enhance the secondary power supply to these cells. In the interim, authorization basis personnel are evaluating various options to eliminate this vulnerability.