

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 April 30, 2010

Offsite Shipments: As reported on 1/8/10, B&W had shipped a canned subassembly (CSA) to Y-12 with a serial number on the shipping label that did not match the serial number on the component. Since then, there have been two additional events involving a discrepant CSA serial number. The second event occurred during shipping container packaging preparations. The lids from multiple drums were removed and placed out of the way. Upon reassembly, the lids were not placed on their matching drums. The most recent event resulted from a technician misreading a “9” as a “7”. B&W suspended similar shipments pending a full investigation and causal analysis. In addition, B&W will evaluate the causal analysis and corrective actions from the first event to determine whether they should have prevented the final two occurrences.

Lightning Safety: Lightning subject matter experts (SMEs) from the Nuclear Security Enterprise Electromagnetic Committee met last week at Pantex. The primary objective of the meeting was for the design agency SMEs to observe firsthand the new method of verifying intrinsic bonding of facility penetrations to the Faraday cage. The new method first utilizes time-domain reflectometry (TDR) to establish whether the penetration is intrinsically bonded on a global scale. To determine whether the intrinsic bond exists at the Faraday cage boundary, the analyst utilizes TDR to measure the distance of the conductive path between an established connection to the facility Faraday cage (a ground lug) and the penetration. The analyst will deem the penetration intrinsically bonded if this measured distance is within some margin-of-error of the distance reconstructed from the dimensions of the Faraday cage represented in drawings and old construction photographs. The SMEs raised no issues with the new method and the B&W participants on the committee will continue to prepare the supporting documentation (i.e., engineering evaluation) needed to obtain formal committee approval.

Loss of Power Events: A nuclear explosive cell lost primary power on two occasions in a four day span. The limiting conditions of operation (LCO) for the deluge fire suppression system in this facility state that both primary and secondary power are required for the system to be fully operable. Following the second event, the facility manager entered the LCO for loss of primary power because there were greater than Hazard Category 3 quantities of nuclear material in the facility. Per the action statements of the LCO, fire protection engineering personnel evaluated the configuration of the material and determined a fire watch was not necessary. The secondary power supply (batteries credited to provide power for 24 hours) worked as designed in both events.

Maintenance personnel determined the cause of both events was similar. In both cases an older piece of equipment—in one case a heater and the other an electrical ballast in a lighting panel—caused a ground fault, which tripped the main breaker in the facility. System engineering personnel believe the two events were independent and are not indicative of a more global deficiency in the facility electrical distribution system. Fire protection personnel have been planning to add a redundant secondary power supply for all deluge fire suppression systems to facilitate removal of primary power from the operability requirements for this system.