

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

MEMO TO: Timothy J. Dwyer, Technical Director
FROM: Matthew Duncan and Rory Rauch, Pantex Site Representatives
SUBJECT: Pantex Plant Report for Week Ending March 12, 2010

Lightning Safety: The lightning committee, in its efforts to disposition a postulated bond wire inductance hazard, has been working for two years to develop a methodology that verifies intrinsic bonding of facility penetrations to the Faraday cage. B&W personnel recently resumed facility-level testing to support the development of time domain reflectometry (TDR) as a method of intrinsic bond verification. B&W was forced to postpone this testing for several months while it resolved equipment issues. During the postponement, system engineering personnel developed what they hope to be a more efficient, defensible TDR protocol (personnel can now establish intrinsic bonding directly from the instrument's output data rather than performing a series of computations). The lightning committee plans to meet this month, at which time the B&W representatives on the committee will present the data gathered using the new protocol and the committee will determine the steps needed to vet, implement, and approve its use.

Prohibited Items: While establishing a fire watch, technicians discovered prohibited items—a 1.4g explosive and a pre-flight controller with spin rockets—in the equipment interlocks of two separate bays. Technicians had placed the items in their respective interlocks two days prior while preparing to restart operations following maintenance activities. In response to this discovery, B&W exercised the newly implemented Generic Limiting Condition of Operation (LCO, see 11/27/09 report). Per the action statements of the Generic LCO, if B&W finds that it has failed to comply with a specific administrative control (SAC) covered by the LCO (the LCO governs about 50 SACs), compliance with the SAC shall be restored immediately. In this case, technicians placed the items in their respective operating bays. As an extent-of-condition review, manufacturing management directed technicians to inspect all equipment interlocks and verify the absence of prohibited items. B&W management held a stand-up briefing to remind the technicians involved with the incident of the applicable requirements. Prior to the implementation of the Generic LCO (which is allowed per DOE-STD-1186), this incident would have been declared a technical safety requirement (TSR) violation and externally reported.

Positive Unreviewed Safety Question (USQ): While reviewing a work package for maintenance on the dynamic balancer in a mass properties bay, the system engineer noticed a discrepancy between the bolts on the drawing and the bolts that were specified in the work package. The actual bolts had coarse threads, whereas the bolts specified in the work package contained fine threads. The engineer updated the work package to require the installation of coarsely threaded bolts and the maintenance was completed. Approximately two weeks later, the engineer discovered this discrepancy affected the safety basis. As currently specified in the TSRs, the dynamic balancer is required to withstand a torsional load of 35,880 ft.-lbs—a safety factor of 102:1 relative to the actual torsional load required. The coarse bolts reduced the safety factor to 101:1; therefore, B&W declared a positive USQ. The system engineer will update the calculation to reflect the use of coarse bolts. The authorization basis department plans to change the TSR to specify only the required minimum safety factor, not the full capability of the bolts.