

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

MEMO TO: J. Kent Fortenberry, Technical Director
FROM: Timothy Hunt and Dave Kupferer, Pantex Site Representatives
DATE: 23 December 2005
SUBJECT: Pantex Plant Weekly Report

Surge Suppression: During the past decade, Pantex personnel have repeatedly discovered unanalyzed electrical pathways through which lightning could impact nuclear explosive operations. Many engineered controls have been implemented as a result. BWXT has also implemented a lightning stand-off administrative control to assure that nuclear explosive operations are conducted away from walls and electrical equipment. However, a small number of nuclear explosive operations use electrical equipment for which the lightning stand-off control is impractical. A lightning warning system is used to allow stoppage of operations involving that equipment. In early 2004, BWXT discovered additional “alternate pathways” through the electrical distribution system. Subsequently, BWXT installed two layers of surge suppression to protect specific electrical equipment from a potential lightning strike. BWXT modified the safety basis to include the functional requirements of the surge suppression systems, and noted that the systems would be tested at a later date. Recent testing performed by Lightning Technologies, Inc. demonstrated that some of the installed surge suppression configurations do not meet the requirements that are identified in the safety basis. BWXT subsequently declared an Unreviewed Safety Question (USQ) and submitted a Justification for Continued Operation (JCO) that PXSO has approved. A critique has not been held to discuss this new information. It is unclear if this new information represents a technical safety requirement violation.

Radiation Safety: Last week, while calibrating a continuous air monitor using an unsealed alpha source, metrology technicians determined that the source radiation level was lower than expected. A technician cleaned the source using a cloth and alcohol, which is allowed per an internal procedure that is specific to alpha sources. Using a portable counter, the technicians determined that the cloth had become contaminated and notified radiation safety. Radiation safety surveyed the area and the technicians, and bagged the contaminated cloth and the source. It appears that radiation safety has not been reviewing metrology procedures that involve the use of radiation sources, including the procedure in question.

Nuclear Explosive Safety (NES) Master Studies: BWXT has proposed to PXSO that the following NES Master Studies be conducted during the next few years: Approved Equipment Program, Bays and Cells, Special Purpose Facilities, On-site Transportation and Staging, and Support Activities. As proposed, the Support Activities NES Mater Study would include procedures and training. BWXT is recommending that the Interactive Electronic Procedures and Paint Bay Operations NES Master Studies do not need to be revisited as full-blown studies, but rather as Operational Safety Reviews.

Electrostatic Discharge (ESD): During the past four months, the national laboratories, BWXT, and PXSO have been working together to develop a formal methodology for defining and analyzing ESD environments. PXSO has expressed concern that a lack of common ESD environment definition has led to perplexing weapon responses and that it is unclear whether weapon response activities to date, regarding ESD, are addressing an actual hazard or are an artifact of varying ESD environment assumptions. This week, PXSO requested that BWXT augment the Pantex documented safety analyses within 60 days by defining a specific Pantex ESD environment.