

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

MEMO TO: J. Kent Fortenberry, Technical Director
FROM: Timothy Hunt and Dave Kupferer, Pantex Site Representatives
DATE: 28 July 2006
SUBJECT: Pantex Plant Weekly Report

W88 Cell Operations Restart: This week, in support of restarting pre-SS-21 W88 operations, PXSO requested that NA-12 approve an exemption to the requirements of 10CFR830.207(a). This requirement would drive BWXT to develop and submit a W88 Hazard Analysis Report (HAR) compliant with DOE Standard 3016, *Hazard Analysis Reports for Nuclear Explosive Operations*. The PXSO letter recommends that the exemption be limited to the minimum number of units needed to satisfy surveillance and programmatic needs. It appears that, despite the obvious safety benefits that could be realized using the SS-21 process and upgraded HAR, BWXT plans to use the pre-SS-21 W88 process without additional analysis of hazards and possible compensatory measures.

Electrical Distribution System Performance Test: On Friday, BWXT conducted a loss of power test during which one of the main substations was shut down affecting about 140 non-critical facilities. BWXT expended considerable resources during the past several months to update the electrical distribution system diagrams and increase the overall level of knowledge of the system engineers. The test was generally successful in that very few unexpected scenarios arose and most equipment operated as designed. The test was well planned and executed by engineering, maintenance, and senior management personnel. Although power was not lost to production facilities, nuclear operations were suspended during the test until electrical power was verified restored to normal alignment..

Lightning Bonding Wire Length: The Sitewide Safety Analysis Report (SAR) credits the bonds as a safety class system and reads, "The bonds must be as short as possible ... and should not exceed ... one foot unless necessary to avoid an obstruction or to find an available bonding point." Bond wires exist in Pantex facilities that are longer than 1 foot for no apparent technical reason (e.g., slack in the wire or wires connected to an existing lug for convenience). Of approximately 6000 engineered bonds, more than 1700 are greater than 1 foot long, about 250 are longer than 2 feet. A walkdown of about half the bond wires exceeding 2 feet indicates that most could be shortened to less than 2 feet, and many shorter than 1 foot. Although many bonds are not in the production areas of the facilities and may not be a threat to the nuclear explosive (e.g., mechanical and storage rooms, penthouses, corridors), analyses have not been performed to confirm this. BWXT has drafted an engineering evaluation that is intended to provide a basis to increase the acceptable bond wire length from 1 to 2 feet. For the bond wires greater than 2 feet, BWXT engineering has requested that maintenance inspect the bonds to determine if they meet the SAR criteria, but the effort has a low priority.

High Resolution X-Ray Computed Tomography Project: BWXT is preparing to start up a new Hazard Category 2 facility to evaluate pits using high energy digital radiography and computed tomography. The process involves only nuclear material, not nuclear explosive, operations. An existing bay has been modified for newly installed safety systems, components and special process equipment. The 9 MeV linear accelerator will provide much higher resolution and pit measuring capabilities than current Pantex technology. The contractor and NNSA operational readiness reviews recently concluded with no pre-start findings identified. Upon formal written concurrence by NNSA, an operational start date will be identified.