

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

MEMO TO: J. Kent Fortenberry, Technical Director
FROM: Timothy Hunt and Dave Kupferer, Pantex Site Representatives
DATE: 6 July 2007
SUBJECT: Pantex Plant Weekly Report

Seismic and Fire Protection Upgrades: There are more than 60 nuclear explosive facilities at Pantex. During the past couple years, BWXT has been planning to upgrade both the equipment (seismic qualification) and fire protection systems (corrosion resistance) that are located in and support these nuclear explosive facilities. In March, BWXT submitted a project plan to PXSO in which BWXT committed to evaluate and modify overhead items in cells 12-96 and 12-85 to be compliant with performance category-3 (PC-3) seismic qualification criteria. Cells 12-85 and 12-96 were selected to be evaluated and modified first because they were scheduled to be taken out of service to facilitate upgrades to the high pressure fire loop (HPFL) system, particularly replacement of the lead-in piping. Recently, BWXT completed the seismic upgrades in 12-85 and expects to finish upgrading equipment in 12-96 during the next couple weeks. However, BWXT is struggling to identify funding to initiate construction activities to support the upgrades to HPFL lead-in piping. Two weeks ago, lead-in piping that supports 12-15A, a training facility, failed due to external corrosion. BWXT routed hoses to provide the fire protection systems in 12-15A with an alternate water supply. BWXT hopes to start construction activities to repair the piping next week. There have been 21 HPFL failures since 1995 caused by external corrosion of the iron piping.

Collaborative Authorization for the Safety-basis Total Lifecycle Environment (CASTLE)

Software: During the past few years, LLNL, in conjunction with BWXT, has developed a software program called CASTLE to support startup and maintenance of nuclear explosive processes. CASTLE was utilized during W80 SS-21 startup activities to integrate process, tooling, weapon, and analysis information in a user friendly medium. BWXT personnel believe the use of CASTLE helped to improve communication between the involved parties (authorization basis analysts, process engineers, and weapons response personnel) and improved the efficiency of the startup project team. During the next several years, LLNL hopes to expand CASTLE's capabilities to provide an interconnected framework that is able to identify and reduce inconsistencies in weapon operations support documentation (safety basis documents, weapon safety specifications, information engineering releases, procedures, etc.).

BWXT Nuclear Safety Officers (NSOs): BWXT has filled one of the two open requisitions for an NSO. The selectee was most recently a production technician. This brings the total number of NSOs to four and should increase the amount of conduct of operations oversight and mentoring the technicians receive. Another offer has been extended to an off-site applicant.

Lightning Bond Wires: Of approximately 6000 engineered bonds in nuclear explosive facilities, about 250 were initially longer than two feet. A BWXT engineering evaluation found that although impedance increases with bond wire length, it is sufficiently low to meet functional requirements up to 24 inches. BWXT implemented a project last year to reduce bond wire lengths to less than 24 inches, where possible. To date, about half the bond wires have been dispositioned. Ninety three have been shortened by cutting the wire (i.e., removing the slack) or moving the attachment lug and 23 have been accepted as-is. An analysis of those wires accepted as-is has not been completed. The physical modifications have been temporarily halted due to a moratorium on drilling into concrete structures.