

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

**MEMO TO:** J. Kent Fortenberry, Technical Director  
**FROM:** Timothy Hunt and Dave Kupferer, Pantex Site Representatives  
**DATE:** 14 April 2006  
**SUBJECT:** Pantex Plant Weekly Report

**Pantex Electrostatic Discharge (ESD) Environments:** In December, PXSO tasked BWXT to evaluate and document a Pantex ESD environment for use in requesting weapon response from design agencies. One of the goals was to more accurately define the ESD environment to possibly allow a reduction in the number of mitigating controls. BWXT's evaluation addressed assumed voltages on personnel and tooling and capacitances of various tools. The report concluded that humans will be characterized by a voltage probability distribution function and a standard capacitance value of 300 pF; tools will be characterized by determining the electrical area or by measured/calculated capacitances; and operations in facilities with floor pads will use an assumed value of 25 kV for personnel and tooling.

**Barrier Analysis:** In response to Pantex Throughput Improvement Plan initiatives, BWXT is analyzing the possibility of installing barriers in nuclear explosive facilities that could effectively reduce the hazards presented by a high explosive violent reaction during multi-unit operations. Two barrier designs are currently being considered; a sandbag barrier and a steel barrier.

**Electrical Safety:** This week, in a letter to BWXT, PXSO expressed additional concerns regarding BWXT's maintenance and construction electrical safety programs. The letter references six electrical related events that occurred during the past year that had the potential to impact worker safety. PXSO is directing BWXT to provide a list of self-assessments that will be performed this fiscal year (FY) that are intended to improve electrical safety performance. PXSO is also requesting that BWXT create a FY2007 Performance Evaluations Plan (PEP) performance objective to improve electrical safety.

**Cell Gap Calculation:** Last week, BWXT published a report that qualitatively analyzes what the potential off-site consequence could be of an explosion (not a nuclear detonation) in a nuclear explosive facility that contains special nuclear material (SNM). This report presents off-site dose estimates that are significantly reduced from previous estimates. BWXT believes that the new values are realistically conservative. The report concludes that an explosion during nuclear explosive operations currently being performed at the site would not challenge the off-site evaluation guideline (25 rem). But, proposed multi-unit operations could challenge those off-site guidelines using the analysis methodologies delineated in the report. The report proposes that additional analysis should be performed to determine the quantity of SNM that would be filtered through the gravel gertie during this type of explosion. BWXT estimates that off-site dose estimates could be reduced by 50 to 95 percent through this additional analysis.

**Closure of Assessment Post-start Findings:** PXSO recently completed a review of BWXT's initiatives to close Conditions of Approval (COAs) developed during the safety basis approval process and to close post-start findings developed during Nuclear Explosive Safety Studies (NESSs) and NNSA Readiness Assessments (RAs). In December 2005, there were 724 open post-start findings, including 53 NESS findings, 55 NNSA RA findings, and 616 COAs. The Pantex FY2006 PEP contains an incentive for BWXT to close the aforementioned findings. Since December, 18 NESS findings and 19 COAs have been issued. Since October 2005, BWXT has closed five COAs. In its report, PXSO noted that BWXT's formal processes for tracking COAs and communicating closure of findings should be improved.