DEFENSE NUCLEAR FACILITIES SAFETY BOARD

MEMO TO: J. Kent Fortenberry, Technical Director
FROM: Timothy Hunt and Dave Kupferer, Pantex Site Representatives
DATE: 23 March 2007
SUBJECT: Pantex Plant Weekly Report

W76 Anomaly: During recovery actions following the repeated failure of a disassembly fixture to maintain vacuum, the production technicians noticed a hairline crack in a major component. Cracks in the subject material have been previously analyzed and the primary safety concern is maintaining control during subsequent disassembly actions, not increased sensitivity. The proposed path forward is to stabilize the crack prior to hand lifting the component into the storage container. A nuclear explosive safety change evaluation approved the recovery process with some suggested procedural improvements.

Infrared (IR) Detectors: To support a fire protection upgrade project in Building 12-44 several years ago, an engineering evaluation was performed to compare the capabilities of ultraviolet (UV) and IR flame detectors to actuate deluge systems in nuclear explosive areas. The IR detection system was ultimately chosen for installation in Building 12-44 due to its proven ability to detect smaller fires at a greater distance, cover a larger area, and reduce the likelihood of false alarms. The 2001 engineering evaluation recommended that actions be initiated to retrofit facilities employing UV detection systems with IR systems. To date, only the 12-44 cells utilize the enhanced capabilities of the IR detection system. BWXT is preparing a CD-0 pre-conceptual design package to expand the use of IR detectors to other facilities.

High Pressure Fire Loop Replacement: Since 1995, there have been 20 failures of the HPFL that were caused by external corrosion of the iron piping. In August 2005, the PXSO systems engineering group completed an assessment of the design, operation, maintenance and reliability of the HPFL system and concluded that the system is most vulnerable to failures of the lead-in piping – from the distribution system (loop) to the facility – in the Material Access Area (MAA). BWXT plans to start construction to replace 16,000 feet of the HPFL in early 2008, but the scope of this project does not include any of the lead-in piping. BWXT is working to identify additional funding mechanisms to replace more than 100 lead-in segments during the next decade. BWXT is prioritizing replacement of the lead-ins that are located in areas that have been observed to be more conducive to external corrosion.

PXSO Oversight: Last month, the Special Nuclear Material Component Requalification Facility (SNMCRF) NNSA Operational Readiness Review (ORR) team identified a post-start finding that PXSO had not scheduled and completed quarterly assessments as required by PXSO procedures. PXSO plans to address this finding by implementing a consistent definition of the term "assessment" and revising the relevant PXSO procedures. In addition, PXSO is in the process of implementing an issues management database system, Pegasus, that PXSO will use to track its oversight activities.

SS-21 Implementation Assessment: This week, personnel representing NA-12, CDNS, and LANS were at Pantex to assess how well the processes, procedures, and practices at Pantex meet the intent of the original SS-21 principles; prevent application of unanalyzed energy sources to the weapon, eliminate single point failure mechanisms, and reduce exposure to radiation to be "as low as reasonably achievable." The review team is compiling a report and expects to present its conclusions to the NNSA Senior Management Team in April.