

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 16, 2004

MEMORANDUM FOR: J. K. Fortenberry, Technical Director
FROM: W. White, Pantex Site Representative
SUBJECT: Pantex Plant Activity Report for Week Ending January 16, 2004

DNFSB Activity Summary: W. White was on site all week. M. Duncan and R. West were on site Tuesday through Friday to review the NNSA readiness assessment of the seamless safety tooling for the W78 program.

Operations Involving Cracked High Explosives: Last week, BWXT production technicians identified a cracked, explosive component (PBX 9404) while disassembling a nuclear explosive. Production technicians appropriately placed ongoing operations into a safe configuration and stopped work. On Tuesday of this week, BWXT approved a nuclear explosive engineering procedure (NEEP - temporary procedure to address process deviations) to continue the disassembly of the unit following taping of the high explosive. The application of various required processes to develop, approve, and implement this procedure was inadequate.

The unreviewed safety question evaluation concluded that the taping and movement of cracked high explosives were covered in the existing safety basis. The nuclear explosive safety review determined that the taping and movement of cracked high explosives had been evaluated in the previous nuclear explosive safety study. A design agency input addressed the sensitivity of cracked high explosives but did not include any weapon response for drops of damaged PBX 9404. Communication problems between engineering and manufacturing personnel led to the procedure being carried out in a manner that was not intended. The procedure was too vague to follow as written, and the training received by production technicians was verbal instruction and involved no hands-on demonstrations or trial runs.

While carrying out the procedure, the cracks in the high explosive expanded. Production technicians appropriately stopped work again and placed operations in a safe configuration. The high explosive now appears to be in at least two pieces with additional cracks that have expanded. Following this occurrence, BWXT began an internal review of the actions that were taken to approve and implement the most recent operation. BWXT is also reviewing the tooling and process to determine how the cracks originated. All work on the affected program has been suspended, and the use of any existing NEEPs is suspended until each NEEP can be reviewed again for approval. PXSO sent a letter to BWXT on Thursday noting several of the problems discussed above. [I, P1, P3C, M6, W2, W3, W4, W5]

W78 Seamless Safety Process: The W78 readiness assessment (RA) continued for a second week and is scheduled to conclude next week. Completion is dependent on observing operations that are 1–2 days behind schedule. About 5 pre-start findings have been tentatively identified. Operators have been proficient with the exception of those in the mass properties facility, who violated a safety requirement. Procedures have been able to be performed as written with only a few issues. The RA team review of authorization basis implementation for the W78 program has been hampered by the complexity of the safety basis for the W78 and the availability and experience of the RA team members reviewing the authorization basis.

The scope of the RA does not include review of facility representative (FR) knowledge of the W78 process and safety basis. Discussions with PXSO management revealed that no training or qualification requirements for specific weapons programs exist for FRs. During the discussion, PXSO indicated that this issue is being reviewed and that the FR training and continuing education program is being revised. One factor limiting the ability to expand FR training and qualification requirements is the limited number of FRs when compared with the number of weapons, facility, and site-wide safety bases. [I, M1]