

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 13, 2002

MEMORANDUM FOR: J. K. Fortenberry, Technical Director
FROM: W. White, Pantex Site Representative
SUBJECT: Pantex Plant Activity Report for Week Ending September 13, 2002

DNFSB Activity Summary: W. White was on site Monday and Tuesday and was out of the office for the remainder of the week, recruiting at Rice University on Thursday and Friday.

Deluge System Testing in Building 12-44: The installation of an automatic deluge fire suppression capability in the nuclear explosive cells in Building 12-44 is a deliverable to the Board under Recommendation 98-2, *Safety Management at the Pantex Plant*. The deluge fire suppression systems in these facilities utilize infrared detectors, in lieu of the ultraviolet detectors used in other Pantex Plant facilities. As part of the project to upgrade the deluge fire suppression capability in these cells, BWXT Pantex has begun over the past two weeks to flow test the water deliver systems in the cells. The test results to date have not been entirely successful.

A full flow test was conducted for cell 2. Water was allowed to flow from the deluge system into the cell and was collected in various locations around the cell. Based on water collection amounts during a set time period, the calculated water density of the deluge was slightly less than expected in a couple of locations.

In cell 3, the flow test was conducted with hoses attached to the deluge sprinkler heads. The pressure at one nozzle was less than anticipated, indicating either a problem with the pressure gauge or a partial obstruction in the water line. BWXT personnel also conducted the flow test in cell 4 with hoses attached to the deluge system. For this cell, miscellaneous debris in the system prevented the proper function of two of the deluge nozzles. The multiple line breaks in the high pressure fire loop over the past several years may have contributed to the debris in the system.

These test results may have implications for the deluge fire suppression systems in other Pantex Plant facilities. The Pantex Plant technical safety requirements specify an inspection of the water delivery system for the deluge fire suppression systems every three years. However, the methodology to be used in conducting this inspection has not been determined. The initial BWXT approach was to conduct the inspection using a boroscope. BWXT and OASO are currently re-evaluating this approach and may decide to require flow testing of a certain percentage of the deluge fire suppression systems on a periodic basis.

OASO has requested that BWXT evaluate the implications and causes of the test anomalies for Building 12-44, considering, in particular, whether concerns might exist for the deluge fire suppression systems in other nuclear explosive facilities. [II.A]