



Tuesday e-Tech Alert October 12, 2004

Errors in System Hydrostatic Testing

One source of fire sprinkler contractor liability is improper testing of systems. Here are reports of two losses in recent years related to testing.

Inadequate Testing Leads to FDC Blowouts

An industrial park in New Jersey was arranged such that fire department connections near the street supplied the fire sprinkler systems within the buildings. When the fire department hooked up to the fire department connection (FDC) on one building during a fire, the vertical pipe containing the FDC lifted out of the ground from the pressure. The pipe had been connected at its base using a plain end fitting with no other rodding or restraint. The fire department was still cleaning up from the fire a few days later when a fire took place in the building across the street. The fire department hooked up to that FDC and it too blew out of the ground. While the fire in the first building was controlled, the second fire led to a total loss and a multi-million dollar lawsuit. The FDCs throughout the industrial park were subsequently dug up and re-anchored.

The problems with the FDCs should never have happened, since NFPA 13 (Section 16.2.1.10 in the 2002 edition) specifically requires that piping between an exterior fire department connection and the check valve in the fire department inlet pipe be hydrostatically tested in the same manner as the balance of the system.

Inadequate Testing Leads to Television Shutdown

Asked to make a repair to a leaking dry pipe system, fitters for a New York sprinkler contractor replaced a section of an 8-inch overhead main and then restored the system to service. Less than three months later, the piping section that was replaced allegedly pulled out of a mechanical coupling at one end. Although the flow was detected by a central station alarm service, water released from the large main before the system was shut down was blamed for more than a million and a half dollars worth of damage to a television studio, leading to litigation.

NFPA 13 (Section 16.2.1.5 in the 2002 edition) requires that where additions or modifications are made to an existing system affecting more than 20 sprinklers, the new portion must be isolated and tested at not less than 200 psi for two hours. The size of this main suggests it served more than 20 sprinklers. However, even if it didn't, testing was

required. Section 16.2.1.4 states “modifications affecting 20 or fewer sprinklers shall not require testing in excess of system working pressure”. System working pressure is the water pressure to which the system will be exposed, not the air pressure on a dry system. If a dry system is repaired and restored with air pressure only, the ability of the repair to hold the higher water pressure will not be known until such time as the system trips, and then it may be too late.

NFSA Tuesday TechAlert is c. 2004 National Fire Sprinkler Association, and is distributed to NFSA members on Tuesdays for which no NFSA Technical Tuesday Online Seminar is scheduled. Statements and conclusions are based on the best judgment of the NFSA Engineering staff, and are not the official position of the NFPA or its technical committees except as noted. Please send any comments or questions to Russell P. Fleming, P.E. (fleming@nfsa.org).

Upcoming NFSA Technical Tuesday Online Seminars:

October 19, 2004

Subject: Differences Between NFPA and FM Installation Standards

Instructors: Victoria Valentine, P.E. with Joseph B. Hankins, Jr., P.E. of FM Global

October 26, 2004

Subject: Stocklisting

Instructor: Cecil Bilbo, NFSA Technical Consultant

Information and registration for these seminars is available at www.nfsa.org. Select “Seminars” from the left side options and then “On-line”.