



## Automatic Sprinklers: Obstruction Investigations

No. FP-2010-43 October 26, 2010

**Learning Objective:** The student shall be able to list the conditions requiring obstruction investigations for water-based fire protection systems.

Over time pipe can become obstructed by various forms of corrosion that affect water flow and, eventually, sprinkler system performance. Although today's picture illustrates a potable water line problem, the same conditions can develop in water-based fire protection systems. The valve in this picture is only 10 years old.

National Fire Protection Association (NFPA) 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, requires internal pipe inspections to discover and resolve these problems. A pipe and branch line inspection must be performed every 5 years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch. Alternative nondestructive examination methods are permitted.

If slime or tubercles—as shown here—are found, the system must be tested for indications of microbiologically influenced corrosion (MIC). (See *Coffee Break* 2008-20 for an explanation of MIC.) An obstruction investigation must be conducted for system or yard main piping, whenever any of the following conditions exist:

- defective intake for fire pumps taking suction from open bodies of water;
- the discharge of obstructive material during routine water tests;
- foreign materials in fire pumps, in dry pipe valves, or in check valves;
- foreign material in water during drain tests or plugging of inspector's test connection(s);
- plugged sprinklers or plugged pipe found in sprinkler systems dismantled during building alterations;
- failure to flush yard piping or surrounding public mains following new installations or repairs;
- a record of broken public mains in the vicinity;
- abnormally frequent false tripping of a dry pipe valve(s);
- a system that is returned to service after an extended shutdown (more than 1 year);
- there is reason to believe that the sprinkler system contains sodium silicate or highly corrosive fluxes in copper systems;
- a system has been supplied with raw water through the fire department connection;
- pinhole leaks; and
- a 50-percent increase in the time it takes water to arrive at the inspector's test connection from the time the valve trips during a full flow trip test of a dry pipe sprinkler system (when compared to the original system acceptance test).



The condition of this valve assembly in the domestic service line suggests the fire protection service should be checked. Photo courtesy of Bryan Blake.

