



## Coffee Break Training - Fire Protection Series

### Access and Water Supplies: Automatic Water System Flushing Systems

No. FP-2010-30 July 27, 2010

**Learning Objective:** The student shall be aware of the existence of automatic hydrant flushing devices and will recognize hydrants to which they are attached.

The level of residual chlorine in underground water systems is an indicator of water quality and safety. The chlorine level in water changes over time, and depends on water temperature, initial chlorine concentration, and the nature and type of organic matter that may be present in the water.

In recent years, many water utilities have noted that chlorine levels in portions of their distribution systems are often too low for the water to be potable. Dead-end water mains (resulting from cul-de-sac developments and/or provisions for future extension of the system) and/or low flow rates in a section of the water system can result in lower than required chlorine levels in the water in underground mains.

Where low chlorine levels are noted, water main flushing is the most commonly used method to remove the stagnant water and replace it with fresh water. Manual flushing of the mains is time consuming and expensive, so water utilities are increasingly using automated flushing devices to flush the stagnant areas of water distribution systems. While most automatic flushing devices do not interfere with fire hydrant operations, one type of device designed for temporary use is attached to a fire hydrant. Fire departments should be aware of these devices and the impact that they may have on operations.

The automatic flushing device is firmly attached to a 2- 1/2-inch (63.5 mm) outlet on a hydrant. (A water meter, as shown in the photo, is an optional component of the system.) The device contains a battery-operated controller that is programmed to open a valve and discharge water to grade at predetermined times.

The principal concern about these devices to the fire service is that the fire hydrant to which the device is attached must be left in the "ON" position—the valve must be open at all times so that water can be flushed. In areas where frost-proof or dry-barrel fire hydrants are used, opening any of the other ports of the hydrant without shutting off the main control valve could result in the cap forcefully blowing off the hydrant and causing an injury. When the device is attached to a wet-barrel fire hydrant, there is less of a chance for injury, although injury could occur if other outlet valves are left in the open position.

Where an automatic water flushing system is attached to a fire hydrant, the hydrant should be placed out of service and prominently marked. If the hydrant must be used, take care to shut the water control valve(s) before attempting to remove any of the caps.

Fire inspectors and operations personnel should work with their area's water purveyors to have pre-incident plans so that they are aware of these installations.



Automatic water system flushing device attached to hydrant showing water flush cycle. Photo courtesy of Hydro-Guard®.



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