

CHEMICAL ADDITION SAFETY PROGRAM
BOYLSTON WATER DISTRICT
BOYLSTON, MA
5/2/07

1.0 GENERAL INFORMATION

The Boylston Water District operated five gravel packed wells at three locations to provide water to the District customers. Potassium Hydroxide is added to the water to increase the pH and alkalinity of the water to prevent corrosion of pipe, plumbing and fixtures in the water system. This results in lower concentration of lead and copper in the water that is consumed and reduces leaks resulting from corrosion of copper pipe in the system. No other chemicals are added to the water at this time.

A recent event in Spencer, MA involving improper dosing of Sodium Hydroxide has generated concern about the safety of chemical addition procedures in public water systems. The purpose of this document is to describe the safety program used by the Boylston Water District to prevent improper dosing of Potassium Hydroxide.

2.0 CHEMICAL ADDITION SAFETY PROGRAM

The three chemical addition systems operated by the Boylston Water District were designed by a Massachusetts Registered Professional Engineer and inspected by the Massachusetts Department of Environmental Protection prior to being placed in service. Each system includes three systems to prevent improper dosing of Potassium Hydroxide.

- 2.1 The pump controls for the water system include a chemical metering pump relay. This relay closes the circuit to the chemical metering pump outlets when the well pump is running. When the well pump is not running, the relay is open and the outlets that the chemical metering pumps plug into are not energized preventing the chemical metering pumps from running.
- 2.2 Each chemical metering pump is fitted with an anti-siphon valve that prevents siphoning of Potassium Hydroxide in the event of low distribution system pressure.
- 2.3 Treated water (water that has been dosed with Potassium Hydroxide) is continuously run through a pH analyzer. The pH analyzer is programmed with alarm conditions. In the event of a high pH value (>9.0) or a low pH value (<5.0) the pH analyzer de-energizes the chemical metering pumps and sends an alarm notification to the certified operator through an auto-dialer.

All Alarm conditions are logged in the SCADA System (the computer system that controls water system operation). The pH monitoring equipment is calibrated monthly to

ensure accuracy, and pH electrodes are replaced approximately every two years or when the performance of the equipment is unacceptable.

Chemical addition reports documenting the quantity of Potassium Hydroxide added to the water and the amount of water treated are submitted monthly to DEP by the Certified Operators. Certified operators coordinate chemical deliveries and are present when bulk storage tanks are filled.