



Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Drinking Water Program

Chemical Safety Control
(New Requirements)

Background

In January 2008, MassDEP undertook a Chemical Safety Initiative to review the handling and storage of treatment chemicals at water and wastewater treatment facilities in order to protect the public from accidental or intentional acts involving the use of these chemicals. As a part of the initiative, the DWP evaluated its requirements and guidance for controls and alarms for chemical feed systems at water treatment facilities. This task was performed by the DWP Emergency Response Work Group, with assistance from an expert panel of water suppliers and system design engineers. The focus of this group was to review the existing technology and develop guidelines and requirements that would not impose unreasonable costs on water suppliers. The result is a proposed Chemical Safety Control Strategy, has been incorporated into Chapter 6 of the *Guidelines and Policies for Public Water Systems*.

Description of Chemical Safety Control Strategy

The Chemical Safety Control Strategy outlines requirements for controls and alarms for critical chemical feed systems at water treatment facilities. Critical chemical feed systems are defined as those systems that could result in a threat to public health and safety if the treatment chemicals were overfed or underfed into the distribution system. Critical chemical feed systems have been identified as certain chemicals used for disinfection, pH control, fluoridation and other chemicals as determined by MassDEP. Chemicals, which have been determined by the DWP to not be critical chemical feed systems, have also been identified and will be exempt from the requirements. The basic system requires critical chemical feed systems to be monitored with a chemical analyzer, unless the DWP grants a waiver of this requirement. The pump motor controller, metering pump and analyzer for critical chemical feed systems must be interlocked so that no chemical is injected if the corresponding raw or finished water pump is not running. Acceptable electrical configurations for interlocks include:

- Hard wiring with electrical interlocks tied to controls with an HOA switch equipped with a timer to insure that the metering pump, when left in the hand mode, is automatically shut down after a prescribed interval.
- Connection to a duplex electrical receptacle, that accepts only twist lock plugs, where each outlet is energized only when approved controls are satisfied. One outlet, which will be used for routine operation, will be interlocked with the safety shut down systems. The other outlet, which will allow for routine service and testing of the metering pump, must have a separate power supply that is equipped with a timer to automatically shut down the pump after a prescribed interval.
- Other configurations as approved by the DWP.

The proposed Chemical Safety Control Strategy also contains guidance on controls, instrumentation, alarming, recording and data logging, and testing alarms and controls. Quarterly testing of critical chemical feed systems alarms and controls will be required and logs must be maintained to record the test results. Testing must be performed on high and low critical alarms, interlocks, and remote notification devices. Methods for testing alarms are outlined in the Chemical Safety Control Strategy.

Schedule for Implementation

The Chemical Safety Control Strategy has been reviewed by stake holders with a shared interest in drinking water. These stake holders include the MassDEP's Safe Drinking Water Act Advisory Committee, water works organizations and vendors. It is anticipated that the Chemical Safety Control Strategy will be adopted in the spring of 2009 with a timeline for implementation that will allow public water systems to appropriate the necessary funds to make needed improvements.