High Hazard Cross-Connections

CONNECTIONS IN MINNESOTA

In response to the federal Safe Drinking Water Act Ground Water Rule (GWR) and documented incidents in Minnesota, the Minnesota Department of Health (MDH) classified high-hazard cross-connections that are not adequately protected as a Significant Deficiency (SD) for all Community Public Water Systems (CPWSs). When an SD is found during a sanitary survey the community public water system purveyor must correct it within 120 days.

MDH defines high-hazard cross-connections as those that would require a Reduced Pressure Zone (RPZ) backflow preventer or an air gap. However, CPWSs are strongly encouraged to adopt a more comprehensive approach by addressing all cross-connections through a cross-connection control program.

In addition, the Department of Labor and Industry (DLI) has adopted a new Minnesota Plumbing Code which went into effect January 23, 2016. As a result of the revised plumbing code, all testable backflow devices installed on or after, which includes RPZs, pressure type vacuum breakers, spill-proof vacuum breakers, and double check valve assemblies, must be tested and inspected annually. Also, notifications of the installation and testing of these backflow devices need to be provided to the community public water system purveyor. It is not the responsibility of the purveyor to ensure compliance with the reporting requirement, but the requirement does support an effective cross-connection control program.

In response to this, MDH is requiring CPWSs to continue to require SD compliance for high-hazard cross-connections but also recommend low-hazard cross-connections (those that would require pressure type vacuum breakers, spill-proof vacuum breakers, and double check valve assemblies but not RPZs) be addressed.

MDH is working to propose a rule revision in the near future requiring CPWSs meet the five standard elements of a Cross-connection control program: local authority, public education and awareness, trained/certified staff, written records, and enforcement. An effective Cross-connection control program is designed to be self-supportive, and the specific details associated with each element would be left to the discretion of the CPWS to meet their unique needs.

Plumbing cross-connection contamination incidents occur throughout Minnesota, in both large and small communities. Below is a sample of cross-connection contamination events at CPWSs identified during MDH Drinking Water Emergency Responses:

June 2009

- Location: Metro Area
- Population: 85,000
- Contaminant: Ethylene glycol

April 2011

- Location: Metro Area
- Population: 390,000
- Contaminant: Ethyl ether

Incidents have also occurred in small-to-medium-sized communities in Minnesota.

As of July 1, 2011, MDH District Engineers began working with CPWSs to start identifying high-hazard Cross-connections that are not adequately protected. These Significant Deficiencies have the potential to cause introduction of contamination into drinking water, and are in violation of the Minnesota Plumbing Code.

Many CPWSs already have established programs for monitoring high-hazard cross-connections in their water distribution system. MDH is working with the Minnesota

Department of Labor and Industry (DLI), League of Minnesota Cities (LMC), Minnesota Section of American Water Works Association (MNAWWA), Minnesota Rural Water Association (MRWA), local plumbing code authorities, and the plumbing industry to establish resources and rule language to help all CPWSs in addressing inadequately protected high-hazard Cross-connections.

These organizations are available to provide the following resources:

1. Provide information for elected officials regarding the threats and liabilities (public health and economic) associated with drinking water contamination due to inadequately protected high-hazard cross-connections, i.e. fact sheets, website resources, workshops [LMC, AWWA, MRWA, MDH, DLI, and local plumbing code authority];
2. Provide municipalities guidance for writing and adopting cross-connection control ordinances [LMC, AWWA, MRWA, MDH, DLI, and local plumbing code authority];
3. Require local plumbing code authorities to forward received copies of all RPZ backflow preventer installation and maintenance records to the PWS [local plumbing code authority and/or DLI];
4. Provide CPWSs with templates for tracking high-hazard cross-connections with RPZ installation and maintenance records, i.e. spreadsheet and postcard notices [MRWA and LMC]; and
5. Provide CPWSs with enforcement resources to address high-hazard cross-connections that are not adequately protected including:
   a. Ordinance language for enforcement and adopting any necessary fines [MRWA and LMC];
   b. Fact sheet listing responsible authorities [MDH];
   c. Assistance from enforcement authorities [regulatory authorities for licensed businesses; local plumbing code authority, DLI, and MDH].

Additional Resources

- American Backflow Prevention Association (https://abpa.org)
- League of Minnesota Cities (https://www.lmc.org) (ordinances)
- Minnesota American Water Works Association (https://www.mnawwa.org)
- Minnesota Rural Water Association (http:/www.mrwa.com) (templates and helpful hints for implementing cross-connection control programs)
- MDH Drinking Water Protection (http://health.mn.gov/water) (grant opportunities and fact sheets)
- Minnesota Department of Labor and Industry (http://www.dli.state.mn.us)

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July 2016

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