IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

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Drinking Water
Cross-Connection Control Programs

What is a Cross-Connection?

A cross-connection is an actual or potential connection or piping arrangement between a drinking water system and another source that could introduce anything other than the potable water intended to normally supply the system.

Cross-connections include bypass arrangements, jumper connections, removable sections, swivel or changeover devices, and other devices that may cause nonpotable water to backflow into the potable water supply. Backflow occurs when the normal flow direction of the water system is reversed due to back pressure or back siphonage.

Responsibilities of Public Water Systems

Water purveyors must take reasonable and prudent measures to protect their water systems against contamination and pollution from cross-connections. Methods include the following:

- Premises isolation or containment
- Internal (or in-plant) isolation
- Fixture protection
- Some combination of above
- Specific cross-connection control requirements vary depending on whether a system is a community water system or noncommunity water system.

Responsibilities of Community Water Systems

Community water system purveyors are required to implement and enforce a cross-connection control program to prevent toxic or hazardous materials from entering the system. Programs must include at least the following:

- An inspection program to locate cross-connections and determine required suitable protection.
- A requirement that suitable protection is installed before providing water service for new connections.
- A requirement that adequate backflow prevention assemblies are installed, operating, and inspected and tested annually by a tester licensed by the Idaho Bureau of Occupational Licenses (IBOL).
- A requirement that assemblies that cannot pass annual testing or are defective shall be repaired, replaced, or isolated within 10 business days. If no action is taken after 10 business days, water service to the failed assembly must be discontinued.
- Discontinuance of service for any facility where suitable backflow protection has not been provided for a cross-connection.

Responsibilities of Noncommunity Water Systems

Noncommunity water system purveyors must make sure that cross-connections either do not exist or are isolated from the water system by an appropriate backflow prevention assembly. Backflow prevention assemblies must be inspected and tested annually by a tester licensed by IBOL.

Backflow Prevention Assemblies and Devices

A backflow prevention assembly and a backflow prevention device are different. A backflow prevention assembly is a set of mechanical components that prevents the undesired backflow of nonpotable water or other liquids into the potable water system and can be tested and repaired in place. A backflow prevention device is a backflow preventer that does not meet the approval requirements of a backflow prevention assembly (i.e., is not testable). Also, not all mechanical assemblies and devices provide equal backflow protection.

Some types of backflow prevention assemblies include the following:

- Double-check valve assemblies
- Reduced-pressure principle backflow assemblies
- Spill-resistant vacuum breaker assemblies
- Pressure vacuum breaker assemblies

Some types of backflow prevention devices include the following:

- Residential meter check/single-check valve
- Dual-check backflow preventer
- Dual-check with atmospheric vent
- Hose bibb vacuum breaker
- Atmospheric vacuum breaker

Backflow assembly types must pass a performance test conducted by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research. In addition, all double-check valve and reduced-pressure principle backflow assemblies must meet American Water Works Association (AWWA) Standards C-510 and C-511, respectively.

Some types of backflow prevention devices, such as atmospheric vacuum breakers, must be approved by either the International Association of Plumbing and Mechanical Officials (IAPMO) or the American Society of Sanitation Engineers (ASSE).

Before installing backflow preventers (assemblies or devices), water purveyors must make sure they are selected from an appropriate reference material deemed acceptable by the Idaho Department of Environmental Quality (see the “Idaho Rules for Public Drinking Water Systems,” 58.01.08.552.06.b). The installation of any backflow assembly or device must also comply with any local ordinances.