

ARTICLE 11 - Backflow Prevention and Cross Connection Control

11.1 Purpose.

The purpose of this Resolution is to adopt a Backflow Prevention and Cross-Connection Control Policy (“Policy”) in order to protect the District’s public water system from contaminants or pollutants that could enter its treated water distribution system by backflow from a customer’s water supply system through a service connection.

11.2 Authority.

- 11.2.1 The authority to implement this program is contained in the following statute, legislation and regulations and acts: Article 1-114 and Article 1-114.1 of Title 25 of the Colorado Revised Statutes; Section 39 of 5 CCR 1002-11, Colorado Primary Drinking Water Regulations; and the Colorado Plumbing Code.
- 11.2.2 The District shall have the authority to survey all service connections within the distribution system to determine if the connection is a cross-connection.
- 11.2.3 The District shall have the authority to control all service connections within the distribution system if the connection is a cross-connection.
- 11.2.4 The District may control any service connections within the distribution system in lieu of a survey as long as the service connection is controlled with an air gap or reduced pressure zone backflow prevention assembly.
- 11.2.5 The District may collect fees for the administration of this Policy.
- 11.2.6 The District shall maintain records of cross-connection surveys and the installation, testing and repair of all backflow prevention assemblies installed for containment and containment by isolation purposes.
- 11.2.7 Except as otherwise provided herein, the District shall administer, implement and enforce the provisions of this Policy.

11.3 Applicability.

This Policy applies to all commercial, industrial and multi-family residential service connections within the District and to any persons outside the District who are, by contract or agreement with the District, users of the District’s treated or potable water supply system. This Policy does not apply to single-family-residential service connections unless the District becomes aware of a cross connection at the single family connection.

11.4 Definitions.

Active Date: means the first day that a backflow prevention assembly or backflow prevention method is used to control a cross-connection in each calendar year.

Air Gap: is a physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel installed in accordance with standard AMSE A112.1.2.

Backflow: means the undesirable reversal of flow of water or mixtures of water and other liquids, gases or other substances into the District's distribution system from any source or sources other than its intended source.

Backflow Contamination Event: means backflow into a public water system from an uncontrolled cross connection such that the water quality no longer meets the Colorado Primary Drinking Water Regulations or presents an immediate health and/or safety risk to the public.

Backflow Prevention Assembly: means any mechanical assembly installed at a water service line or at a plumbing fixture to prevent a backflow contamination event, provided that the mechanical assembly is appropriate for the identified contaminant at the cross connection and is an in-line field-testable assembly.

Backflow Prevention Method: means any method and/or non-testable device installed at a water service line or at a plumbing fixture to prevent a backflow contamination event, provided that the method or non-testable device is appropriate for the identified contaminant at the cross connection.

Certified Cross-Connection Control Technician: means a person who possesses a valid Backflow Prevention Assembly Tester certification from one of the following approved organizations: American Society of Sanitary Engineering ("ASSE") or the American Backflow Prevention Association ("ABPA"). If a certification has expired, the certification is invalid.

Containment: means the installation of a backflow prevention assembly or a backflow prevention method at any connection to the public water system that supplies an auxiliary water system, location, facility, or area such that backflow from a cross connection into the public water system is prevented.

Containment By Isolation: means the installation of backflow prevention assemblies or backflow prevention methods at all cross connections identified within a customer's water system such that backflow from a cross connection into the public water system is prevented.

Controlled: means having a properly installed, maintained, and tested or inspected backflow prevention assembly or backflow prevention method that prevents backflow through a cross connection.

Cross Connection: means any connection that could allow any water, fluid, or gas such that the water quality could present an unacceptable health and/or safety risk to the public, to flow from any pipe, plumbing fixture, or a customer's water system into a public water system's distribution system or any other part of the public water system through backflow.

Multi-Family: means a single residential connection to the public water system's distribution system from which two or more separate dwelling units are supplied water.

Single-Family: means a single dwelling which is occupied by a single family and is supplied by a separate service line; or a single dwelling comprised of multiple living units where each living unit is supplied by a separate service line.

Uncontrolled: means not having a properly installed and maintained and tested or inspected backflow prevention assembly or backflow prevention method, or the backflow prevention assembly or backflow prevention method does not prevent backflow through a cross connection.

Water Supply System: means a water distribution system, piping, connection fittings, valves and appurtenances within a building, structure, or premises. Water supply systems are also referred to commonly as premise plumbing systems. A customer's water supply system may consist of plumbing systems supplied by the District's treated or potable water supply system and/or from any other source, including private wells and/or cisterns.

11.5 Requirements.

11.5.1 Commercial, industrial and multi-family service connections shall be subject to a survey for cross connections. If a cross connection has been identified an appropriate backflow prevention assembly and or method shall be installed at the customer's water service connection within 120 days of its discovery. The assembly shall be installed downstream of the water meter or as close to that location as deemed practical by the public water system. If the assembly or method cannot be installed within 120 days the District must take action to control or remove the cross connection, suspended service to the cross connection or receive an alternative compliance schedule from the Colorado Department of Public Health and Environment.

11.5.2 In no case shall it be permissible to have connections or tees between the meter and the containment backflow prevention assembly. In instances where a reduced pressure principle backflow preventer cannot be installed, the owner must install approved backflow prevention devices or methods at all cross-connections within the owner's plumbing system.

11.5.3 Backflow prevention assemblies and methods shall be installed in a location which provides access for maintenance, testing and repair.

11.5.4 Reduced pressure principle backflow preventers shall not be installed in manner subject to flooding.

11.5.5 Provisions shall be made to provide adequate drainage from the discharge of water from reduced pressure principle backflow prevention assemblies. Such discharge shall be conveyed in a mater which does not impact waters of the state.

11.5.6 All assemblies and methods shall be protected to prevent freezing. Those assemblies and methods used for seasonal services may be removed in lieu of being protected from freezing. The assemblies and methods must be reinstalled and then tested by a certified cross-connection control technician upon reinstallation.

11.5.7 Where a backflow prevention assembly or method is installed on a water supply system using storage water heating equipment such that thermal expansion causes an increase in pressure, a device for controlling pressure shall be installed.

- 11.5.8 All backflow prevention assemblies shall be tested at the time of installation and on an annual schedule thereafter. Such tests must be conducted by a Certified Cross-Connection Control Technician.
- 11.5.9 The District shall require inspection, testing, maintenance and as needed repairs and replacement of all backflow prevention assemblies and methods, and of all required installations within the owner's plumbing system in the cases where containment assemblies and or methods cannot be installed.
- 11.5.10 All costs for design, installation, maintenance, testing and as needed repair and replacement are to be borne by the customer.
- 11.5.11 No grandfather clauses exist except for fire sprinkler systems where the installation of a backflow prevention assembly or method will compromise the integrity of the fire sprinkler system.
- 11.5.12 For new buildings, all building plans must be submitted to the public water system and approved prior to the issuance of water service. Building plans must show:
- (a) Water service type, size and location
 - (1) Meter size and location
 - (2) Backflow prevention assembly size, type and location
 - (3) Fire sprinkler system(s) service line, size and type of backflow prevention assembly.
- 11.5.13 All fire sprinkling lines shall have a minimum protection of an approved double check valve assembly for containment of the system.
- 11.5.14 All glycol (ethylene or propylene), or antifreeze systems shall have an approved reduced pressure principle backflow preventer for containment.
- 11.5.15 Dry fire systems shall have an approved double check valve assembly installed upstream of the air pressure valve.
- 11.5.16 In cases where the installation of a backflow prevention assembly or method will compromise the integrity of the fire sprinkler system the District can chose to not require the backflow protection. The District will measure chlorine residual at location representative of the service connection once a month and perform periodic bacteriological testing at the site. If the District suspects water quality issues the District will evaluate the practicability of requiring that the fire sprinkler system be flushed periodically.

11.6 Inspection, Testing and Repair.

- 11.6.1 Backflow prevention assemblies or methods shall be tested by a Certified Cross-Connection Control Technician upon installation and tested at least annually, thereafter. Any backflow prevention assemblies or methods that are non-testable, shall be inspected at least once annually by a certified cross-connection control technician. The tests and/or inspections shall be made at the expense of the customer.
- 11.6.2 As necessary, backflow prevention assemblies or methods shall be repaired and retested or replaced and tested at the expense of the customer whenever the assemblies or methods are found to be defective.

11.6.3 Testing gauges shall be tested and calibrated for accuracy at least once annually.

11.7 Reporting and Recordkeeping.

11.7.1 Copies of records of test reports, repairs and retests, or replacements shall be kept by the customer for a minimum of three (3) years.

11.7.2 Copies of records of test reports, repairs and retests shall be submitted to the District by mail, facsimile or e-mail by the testing company or testing technician.

(a) Information on test reports shall include, but may not be limited to,

- (1) Assembly or method type;
- (2) Assembly or method location;
- (3) Assembly make, model and serial number;
- (4) Assembly size;
- (5) Test date;
- (6) Test results including all results that would justify a pass or fail outcome;
- (7) Certified cross-connection control technician certification agency;
- (8) Technician's certification number;
- (9) Technician's certification expiration date;
- (10) Test kit manufacturer, model and serial number; and
- (11) Test kit calibration date.

11.8 Right of Entry.

A properly credentialed representative of the District shall have the right of entry to survey any and all buildings and premises for the presence of cross-connections for possible contamination risk to and for determining compliance with this section. This right of entry shall be a condition of water service in order to protect the health, safety and welfare of customers throughout the District's distribution system.

11.9 Compliance.

11.9.1 Customers shall cooperate with the installation, inspection, testing, maintenance, and as needed repair and replacement of backflow prevention assemblies and with the survey process. For any identified uncontrolled cross-connections, the District shall complete one of the following actions within 120 days of its discovery:

- (a) Control the cross connection;
 - (1) Remove the cross connection; or
 - (2) Suspend service to the cross connection.

11.9.2 The District shall give notice in writing to any owner whose plumbing system has been found to present a risk to the District's distribution system through an uncontrolled cross connection. The notice and order shall state that the owner must install a backflow prevention assembly or method at each service connection to the owner's premises to contain the water service. The notice and order will give a date by which the owner must comply.

11.9.3 In instances where a backflow prevention assembly or method cannot be installed, the owner must install approved backflow prevention assemblies or methods at all cross-connections within the owner's water supply system. The notice and order will give a date by which the owner must comply.

11.10 Violations and Penalties.

Any violation of the provisions of this Policy, shall, upon conviction be punishable as provided in all applicable statutes, laws, and regulations.

11.11 Conflict with Other Codes.

If a dispute or conflict arises between the Colorado Plumbing Code as adopted herein, and any plumbing, mechanical, building, electrical, fire or other code adopted by the State, then the most stringent provisions of each respective code shall prevail.

11.12 Severability.

If any part, section, subsection, sentence, clause or phrase of this Resolution is for any reason held to be invalid, such invalidity shall not affect the validity of the remaining provisions.

