Approved September 9, 2020 and Amended September 25, 2020

La Plata West Water Authority
BACKFLOW PREVENTION AND CROSS-CONNECTION CONTROL PROGRAM

Introduction

This Policy addresses Article 12 of the Colorado Primary Drinking Water Regulations and Regulation 11 that states a public water system shall have no uncontrolled cross-connections to a pipe, fixture, or supply, any of which contain water not meeting provisions of the drinking water regulations. As a public water supplier, La Plata West Water Authority (LPWWA) is required to comply with the Colorado Primary Drinking Water Regulations, 5 CCR 1002-11 (Regulation 11). Section 11.39 of Regulation 11 requires that water suppliers do the following:

- Develop and implement a written Backflow Prevention and Cross-Connection Control Program (BPCCCP)
- Do not install cross connections at its facilities or throughout the distribution system
- Control the installation of new uncontrolled cross connections
- Survey all Non-Single-Family-Residential (NSFR) connections for cross connections or control (NSFR) connections with the most protective backflow prevention assembly or backflow prevention method
- Control any identified cross connection in a manner that prevents backflow through the cross connection into the distribution system or if applicable the water supply system
- Perform or verify annual backflow prevention assembly testing
- Perform or verify annual backflow prevention method inspections
- Ensure that all failed assemblies and inadequate methods are repaired
- Keep records and develop an annual report to track compliance with the BPCCC Rule

A cross-connection is any point in a water distribution system where chemical, biological, or radiological contaminants may come into contact with potable water. During a backflow event, these contaminants can be drawn or pushed back into the potable water system. A backflow prevention device installed at every point of cross-connection prevents contaminated water from entering the potable water distribution system.

Any hazardous cross-connection discovered to be uncontrolled will be corrected within 30 days or the water service will be shut off. The Colorado Department of Public Health and Environment will be informed of the hazardous connection and the corrective action being taken.

Identification of Potential Cross-Connections

Any NSFR water service installation will be inspected for compliance with these requirements for backflow prevention.

The LPWWA water distribution system is located in a rural area where many single-family residential (SFR) homes have wells and or cisterns connected to the house plumbing. Well connections and cisterns connected to subscriber service lines are potentially hazardous cross-connections and need to be

controlled with the proper backflow prevention method or device. Therefore, **all SFR homes with existing wells or cisterns that remain connected to the SFR plumbing** will need to implement backflow prevention and will be inspected for compliance.

Public Education

The LPWWA will offer educational material and opportunities if requested by its consumers about the potential health risk that cross-connections pose, with an emphasis on cross-connections at or within homes and other residences.

Installation of Devices

The LPWWA will require system users with identified cross-connections to install and maintain backflow prevention devices on potentially hazardous service connections, as listed in Table 2. All service connections within the water system must comply with Article 12 and the *Colorado Cross-Connection Control Manual.*

Due to the complexity and diversity of plumbing systems, it is strongly recommended that the homeowner **not** install the device. This should be done by a certified plumber or technician to ensure that it is installed properly and in the correct location.

Annual Testing

Article 12 requires that backflow prevention devices be tested annually by a certified backflow prevention technician. A visual check of air gaps is sufficient, but mechanical backflow preventers have to be tested by a certified technician, with properly calibrated gauge equipment. A certified cross control technician is an individual in possession of a valid certification from an organization accepted within the Colorado Department of Public Health and Environment, Article 12 Hazardous Cross Connection, section of the Colorado Primary Drinking Water Regulations.
The following is a list of certified technicians in our area, with contact information:
http://www.durangogov.org/DocumentCenter/View/350

Record Keeping

Testing and maintenance records will be kept for three years, per the requirements of Article 12.

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List of Backflow Prevention Devices and Methods

The following approved devices and methods can be used for backflow prevention:
Table 1.

Device or Method	**Abbreviation**	**Typical Appropriate Uses**
Double-Check valve assembly *(Must be tested upon installation and require annual testing by a certified cross connection technician)*	DC	~~Appropriate for use in non-health hazard cross-connections and continuous pressure applications subject to backpressure or back-siphonage incidents.~~ Appropriate for cross connections to fire suppression systems except when upstream of a chemical other than food grade glycerin.
Reduced Pressure Zone backflow assembly *(Must be tested upon installation and require annual testing by a certified* cross connection technician)	RPZ	Appropriate for any identified contaminant except direct connections to sewer or installations which may impair the integrity of the assembly to function as designed.
Air Gap	AG	Appropriate for any identified contaminant. All cross connections can be controlled using an air gap installed in accordance with standard AMSE A112.1.2.

The Colorado Department of Public Health and Environment (CDPHE) accepts the use of backflow preventers that have received approval by either University of Southern California Foundation of Cross-Connection Control and Hydraulic Research or the American Society of Sanitary Engineers (ASSE).

The following is a list of common cross-connections and devices and methods that may be used to prevent backflow:

Table 2.

Type of Cross-Connection	**Appropriate Backflow Prevention Assembly or Method**
Cistern or other storage container	Minimum 4-inch AG above the overflow line (AG must be inspected annually)
	< 4-inch AG combined with a DC (A DC without an AG is unacceptable)
	RPZ
Well connection	RPZ, AG
Fire sprinkler system; Solar house using potable water as heat source	DC on water only line. Approved RPZ assembly on branch lines carrying chemicals.
Photographic processors and developers	RPZ
Hot water boilers	RPZ
Water hauler tank filling station	AG

Standards for Assemblies and Methods

(1) Only the models of backflow prevention assemblies that are approved by the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California (USC- FCCC&HR) or The American Society of Sanitary Engineering (ASSE) are acceptable for use when installing assemblies and devices used to control cross connections in accordance with Regulation 11.

(2) Air gaps must be installed in accordance with standard AMSE A112.1.2.

(3) Backflow prevention assemblies and air gaps used for containment shall be installed on the user's water service line as close as possible to the point of connection to the public water system and prior to any other connection or branch line. If it is not possible or practical to install backflow prevention assemblies or air gaps as described, the installation shall be at the approval of the water supplier; such backflow prevention assemblies or air gaps used for containment by isolation shall be installed in the user's plumbing system as close as possible to the cross-connections and shall be installed in accordance with the applicable plumbing code.

(4) No bypass piping shall be allowed around the backflow prevention assembly unless the bypass is equipped with the same degree of backflow prevention protection.

(5) Reduced pressure zone backflow prevention assemblies shall be installed with no plug or additional piping affixed to the pressure differential relief valve port (except for specifically-designed

funnel apparatus available from the manufacturer) and with the pressure differential relief valve port a minimum of twelve inches (12”) above floor level or finished grade. Additionally, the assembly shall be installed at a location where any leakage from the pressure differential relief valve port will be noticed, that allows easy access to the assembly for maintenance and testing, and that will not subject the assembly to flooding.

(6) All double check valve assemblies and double check detector backflow prevention assemblies shall be installed at a location that allows easy access to the assembly for maintenance and testing and that will not subject the assembly to excessive heat or freezing.

(7) All backflow prevention methods should be installed in accordance with the most current Colorado Plumbing Code.

Additional resource:
Colorado Cross-Connection Control Manual; Corporate Discount Books, (303)465-0465