

INDUSTRY PUBLIC UTILITIES

Cross-Connection Control Program



BACKFLOW FAQs

WHAT IS BACKFLOW?

Backflow is the reverse flow of water or other substances into the water distribution system. There are two types of backflow: backpressure and backsiphonage.

WHAT ARE THE TWO TYPES OF BACKFLOW?

BACKPRESSURE

Backpressure backflow occurs when the pressure in the opposite direction of flow becomes greater than the desired direction, the flow of water will begin to flow backwards. This will result in the water from the customer's end flowing back into the water distribution system. This can be dangerous if the water flowing backwards contains contaminants or pollutants.

Example of backpressure from the US Environmental Protection Agency

For example, backpressure resulting from tank cleaning activities by a gas company in Connecticut caused propane to backflow into the distribution system, causing fires in two homes and evacuation of hundreds of people. Gas company workers were purging a propane tank with water and did not realize the pressure in the tank was greater than in the water line feeding the tank, thus creating a backpressure of propane vapor into the distribution system (US EPA, 1989.)

BACKSIPHONAGE

Backsiphonage can occur when there is one area of the distribution system that is utilizing large amounts of water, such as fighting a fire or a large break in the main line. Since that area requires large amounts of water, it creates a vacuum effect where water from all parts of the distribution system begins to rush to that location. This results in a pressure drop throughout the distribution system and can cause contaminants to be backsiphonaged or "sucked" into the water distribution system.

Example of backsiphonage: US Environmental Protection Agency

For example, in 1974 in Washington State, the high rate of flow caused by the activation of a fire deluge system reduced pressure in a domestic water line, causing backsiphonage of a chemical and other pollutants into the potable water system (AWWA PNWS, 1995.)

WHAT IS A CROSS-CONNECTION?

A cross-connection is a point where non-drinkable water or other substances from a customer's internal plumbing system can potentially enter the public water supply.



WHAT IS A BACKFLOW PREVENTION ASSEMBLY?

A backflow prevention assembly is an effective device used to prevent backflow into the shared potable water system. These devices are connected to the customer's internal plumbing system or the on-site plumbing directly after the meter on the customer owned portion. There are many different models of backflow devices, and they offer different levels of protection depending on the hazard present.

They function by stopping the flow of water when they sense that the flow of water has been reversed.

HOW DO I GET MY BACKFLOW PREVENTION ASSEMBLY (BPA) TESTED?

Customer's are responsible for getting their BPA field tested on an annual basis by a certified backflow tester. Backflow testers must be certified by an organization recognized by the California State Water Resources Control Board. The list of recognized certifying organizations is provided on the District website as "Certified and Recognized Backflow Tester Organizations".

HOW DO I CHOOSE WHICH BACKFLOW PREVENTION ASSEMBLY (BPA) TO INSTALL?

The District does not direct customers which BPA to install.

Customers can select a BPA to install from the USC Foundation for Cross-Connection Control and Hydraulic Research: List of Approved Backflow Prevention Assemblies. A link to the list of BPAs is provided on the District website.

The District will ensure that each replaced or newly installed BPA (e.g., PVB, SVB, DC, RP, etc.) for protection of the public water system is approved through both laboratory and field evaluation tests performed in accordance with at least one of the following:

- Standards found in Chapter 10 of the *Manual of Cross-Connection Control, Tenth Edition*, published by the University of Southern California Foundation for Cross- Connection Control and Hydraulic Research; or
- Certification requirements for BPAs in the Standards of ASSE International current as of 2022 that include ASSE 1015-2021 for the DC, ASSE 1048-2021 for the DCDA & DCDAll, ASSE 1013-2021 for the RP, and ASSE 1047-2021 for the RPDA & RPDA-II and must have the 1YT mark.