



Cross-connection Regulation under Chemigation and Fertigation

This publication provides guidance to anyone who connects a potable water supply to an irrigation system or a fertigation or chemigation system. This is common practice for greenhouses, indoor grows and agriculture in general. It may also apply to golf courses, private residences, parks, and other operations, depending on their source of irrigation water and if they apply chemicals through the irrigation system.

This document references rules (Washington Administrative Code, or WAC) issued by the Washington State departments of Agriculture (WSDA) and Health (DOH), and the Uniform Plumbing Code as amended by Washington State.

Protecting a public water system

All farms and businesses with irrigation systems connected to a public water system must protect that water system. You must use one of the following:

- Reduced pressure backflow assembly (RPBA)
- Reduced pressure detector assembly (RPDA)
- Approved air gap (normally located close to the water meter or the connection to the public water supply main)

Required by:

- WAC 246-290-490 (Group A Public Water Supplies) DOH, applies to all farms and other businesses with irrigation systems. Enforced by water purveyor or cross-connection specialist contracted with the water purveyor.
- WAC 16-202-1023 (Chemigation Rule) WSDA, applies to irrigation systems that chemigate.
- WAC 16-303-2020 (Fertigation Rule) WSDA, applies to irrigation systems that fertigate.

Only approved devices or approved air gaps are allowed.

Backflow prevention devices and air gaps must be inspected annually [WAC 246-290-490 (7(a)(ii))]. Plumbing systems are inspected to make sure the backflow prevention (mechanical valves and air gaps) are functioning properly not plumbed around.



Example of an approved air gap.

Protecting a potable water distribution system with irrigation that injects chemicals (nutrients and or pesticides)

Potable water systems must be protected from cross contamination when the water distribution system includes chemical injection. You must use one of the following:

- Reduced pressure backflow assembly (RPBA)
- Reduced pressure detector assembly (RPDA)
- Approved air gap

Required by:

- UPC¹ 603.5.6.3 – Local jurisdiction enforces.
- WAC 16-202-1023 (Chemigation Rule) WSDA, applies to irrigations systems that chemigate.
- WAC 16-303-2020 (Fertigation Rule) WSDA, applies to irrigation systems that fertigate.



Backflow prevention devices must be inspected annually, but not air gaps (UPC¹ 603.4.2). Local jurisdictions may have stricter requirements than the UPC¹.

Protecting potable water that includes irrigation without pumps or chemical injection

You must protect potable water sources for irrigation systems without chemical injection or pumps using one of the following:

- Atmospheric vacuum breaker (AVB).
- Pressure vacuum breaker backflow prevention assembly (PVB).
- Spill-resistant pressure vacuum breaker (SVB).
- Reduced pressure principle backflow prevention assembly (RP).
- A double-check valve backflow prevention assembly (DC) may be allowed if approved by the water purveyor and the authority having jurisdiction.

Required by:

UPC¹ 603.5.6 – Local Jurisdiction enforces. (WSDA does **not** have jurisdiction.)

Backflow prevention devices must be inspected annually, but not air gaps (UPC¹ 603.4.2). Local jurisdictions may have stricter requirements than the UPC¹.

Approved backflow prevention devices

All backflow prevention devices must appear on the current approved backflow prevention assemblies list developed by the University of Southern California (USC) Foundation for Cross-Connection Control and Hydraulic Research. You can find the USC list by visiting fccchr.usc.edu, and clicking on “List of Approved Assemblies” under Favorites. All devices must be installed in the orientation stated on the list.

Approved air gap

An air gap is the highest level of protection and may be used in any situation requiring backflow prevention.

The Chemigation Rules and Fertigation Rules define air gap as an “unobstructed physical separation between the free-flowing discharge end of a water supply and the overflow rim of an open or non-pressurized receiving vessel. The separation must be at least four times the diameter of the supply pipe measured vertically from the overflow rim of the receiving vessel, and in no case be less than 25 mm, or 1-inch.”

¹UPC as used in this document means Uniform Plumbing Code as amended by Washington State in Chapter 51-56 WAC.