

Cross-connection control

Soos Creek Water & Sewer District (Soos Creek) has the responsibility to protect the public water systems (PWS) from contamination due to cross connections¹. Washington Administrative Code (WAC) 246-290 (Group “A” Drinking Water Regulations), defines a cross connection as "Any actual or potential physical connection between a public water system or the consumer’s water system and any source of non-potable liquid, solid or gas that could contaminate the potable water supply by backflow²."

Backflow might occur either by back-pressure or back-siphonage.

- Back-siphonage can be caused by high velocities in pipes from maintenance, line breaks, or firefighting.
- Back-pressure occurs when the pressure at the point of use is higher than the supply pressure. Sources of back-pressure include booster pumps, boilers, elevated piping and interconnections with auxiliary systems.

Soos Creek Water & Sewer District requirements

The mission of Soos Creek Water & Sewer District, a public agency, is to provide reliable, high quality water and sewer services in an efficient, cost effective manner. Facilitating a cross-connection control and backflow program is one method used to ensure potable and non-potable water never mix.

Providing safe and reliable drinking water to our customer base is the District’s top priority. Soos Creek Water & Sewer District is required to have a “written description of the cross-connection control program in the water system plan required under WAC 246-290-100 ... the cross-connection control program shall include the minimum program elements described in subsection (3) of this section³.” (Sub-section 3 of WAC 246-290-490.)

Element 5 of Soos Creek’s written cross-connection control program, titled “Development and Implementation of Procedures to Ensure Approved Backflow Assemblies are Inspected and/or Tested”, outlines inspection requirements, frequency of testing, responsibility of testing and approved test procedures. Element 5 reads:

1. Inspection and Testing of Backflow Assemblies

- Any backflow assembly the District relies upon for protection of the PWS will be subject to inspection and testing.
- Inspection of backflow assemblies for proper application will be performed by a District CCS.
- Inspection of backflow assemblies for correct installation will be performed by either a CCS or a DOH certified Backflow Assembly Tester (BAT).
- Testing of backflow assemblies will only be performed by a District approved and DOH certified BAT.

¹ WAC 246-290-490. Cross-connection control. <http://apps.leg.wa.gov/wac/default.aspx?cite=246-290-490>. 10/2012.

² WAC 246-290-010. Definitions, abbreviations, and acronyms. <http://apps.leg.wa.gov/wac/default.aspx?cite=246-290-010>. 10/2012.

³ WAC 246-290-490. Cross-connection control. Section 2(e) <http://apps.leg.wa.gov/wac/default.aspx?cite=246-290-490>. 10/2012.

2. Frequency of Inspection and Testing

Inspection and testing of backflow assemblies will be conducted:

- At the time of installation;
- Annually, after installation;
- After a backflow incident;
- After a repair, reinstallation or relocation.

The District retains the right to require random testing for backflow assemblies protecting the PWS from Table 9 or High Hazard facilities.

3. Responsibility for Inspection and Testing

The District is responsible for inspection and testing of all District-owned backflow assemblies. For all new or existing commercial, residential or otherwise, the District is not responsible for testing any backflow assembly not owned by the District.

The District requires all customers be responsible for inspection and testing of backflow assemblies owned by the customer. The customer shall employ, at customer expense, a DOH certified and District approved BAT to conduct inspection and testing within the time period specified in a testing notice sent by the District. The test report shall be completed and signed by the BAT, then returned by the customer to the District before the due date specified by the District. It is the customer's responsibility to ensure the test report reaches the District's office in the specified time. A request for an extension of the completion time for the return of a test report may be made via phone call, email, and fax or in person by the customer to the District.

4. Approved Test Procedures

The District requires that all assemblies relied upon to protect the water system be tested in accordance with DOH-approved test procedures as specified in WAC 246-290-490(7)(d). The District does not permit alternate testing procedures not approved by the DOH.

5. Notification of Inspection and/or Testing

The District will notify all customers known to own backflow assemblies that are relied upon to protect the PWS to have their backflow assembly/s inspected and/or tested. Notices will be sent out three times per year; April, July and September. All letters will indicate when test reports are due. Generally speaking, test reports are due 60 days from the date of the letter.

6. Enforcement

When a customer fails to send in the inspection/test report within 10 days after the due date specified, and the District has not approved an extension, the District will take the following enforcement action:

- The District will send a second notice giving the customer an additional 14 days to send in the report. This notice will also inform the customer that failure to satisfactorily respond to this notice will result in service shut-off

- If the customer has not sent in the report by the due date given in the second notice, the District will hand deliver a notice, giving 7 days to service shut-off.
- The District will send copies of the third notice to occupants of the premises (if different from the customer), and to the authority having jurisdiction (AHJ).
- If the customer has not responded satisfactorily by the due date specified in the third notice, the District will implement service shut-off.

Several types of backflow preventers are available

Air gaps (AG)

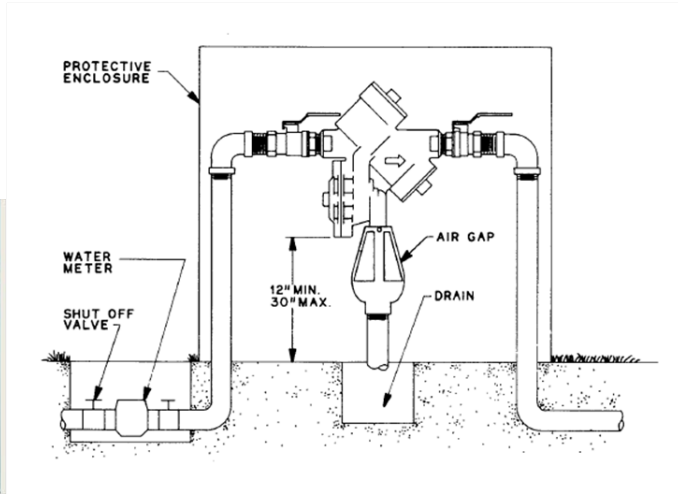
An air gap is a vertical, physical separation between the end of a water supply outlet and the flood-level rim of a receiving vessel. This separation must be at least twice the diameter of the water supply outlet and never less than one inch. An air gap is considered the maximum protection available against backpressure backflow or backsiphonage, but is not always practical and can easily be bypassed.

- Used for high health hazard situations
- Not always practical
- Vulnerable to bypass arrangements
- Use of an air gap often exposes water to dust, debris, airborne bacteria, and other contaminants and pollutants

Reduced pressure backflow assemblies (RPBA)

An RPBA is a mechanical backflow preventer that consists of two independently acting, spring-loaded check valves with a hydraulically operating, mechanically independent, spring-loaded pressure differential relief valve between the check valves and below the first check valve. It includes shutoff valves at each end of the assembly and is equipped with test cocks. An RPBA is effective against backpressure backflow and backsiphonage and may be used to isolate health or non-health hazards.

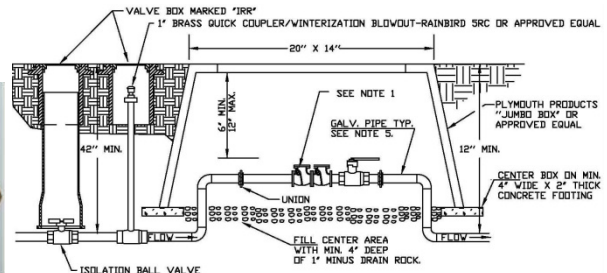
- Usually most expensive and complex
- Installed above ground
- Used at high-hazard sites such as hospitals, chemical plants, mortuaries
- Only device that allows for applying fertilizer or other chemicals into irrigation systems
- State requires annual testing by State-certified tester



Double check valve assemblies (DCVA)

A DCVA is a mechanical backflow preventer that consists of two independently acting, spring-loaded check valves. It includes shutoff valves at each end of the assembly and is equipped with test cocks. A DCVA is effective against backpressure backflow and backsiphonage but should be used to isolate only non-health hazards.

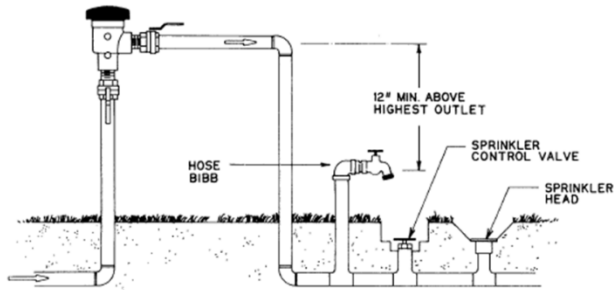
- Highly versatile
- Install anywhere (above or below ground)
- Used for irrigation systems supplied by City water only
- Low-hazard sites such as apartment buildings
- State requires annual testing by State-certified tester



Pressure vacuum breaker assemblies (PVB)

A PVB is a mechanical backflow preventer that consists of an independently acting, spring-loaded check valve and an independently acting, spring-loaded air inlet valve on the discharge side of the check valve. It includes shutoff valves at each end of the assembly and is equipped with test cocks. A PVB may be used to isolate health or non-health hazards but is effective against backsiphonage only.

- Used for irrigation systems supplied by City water only
- Installed 12" above highest piping point
- State requires annual testing by State-certified tester



The assembly you need is determined by the hazard. In general, we accept air gaps and reduce pressure backflow assemblies for high hazards and double check valve assemblies, pressure vacuum breaker assemblies and atmospheric vacuum breakers for low hazards.

The backflow preventer chosen must be listed on the Washington State Department of Health's Approved Backflow Prevention Assembly List⁴. Assemblies not currently listed must have been listed at the time of original installation.

New assemblies must be tested annually⁵ by a State of Washington certified backflow assembly tester⁶ and after installation, repair, or replacement. A copy of the test report must be provided to Soos Creek via mail, email or in-person. It is the responsibility of the owner of the property to ensure Soos Creek receives the test report.

For answers to specific cross-connection control questions, lists of approved assemblies or certified testers, or to request an inspection, call (253) 630-9900 or send us an e-mail.

⁴ Washington State Department of Health. Cross-connection control and backflow prevention. <https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm?action=pubdetail&type=title&PubId=333>. 10/2012.

⁵ WAC 246-290-490. Cross-connection control Section 5 (a) (iv). <http://apps.leg.wa.gov/wac/default.aspx?cite=246-290-490>. 10/2012

⁶ Washington State backflow assembly tester's list. http://www.instruction.greenriver.edu/wacertservices/bat/bat_publiclist.asp. 10/2012