STEP UP
YOUR GAME

Is Your Cross-Connection Control Sufficient?

Colleen Johnson

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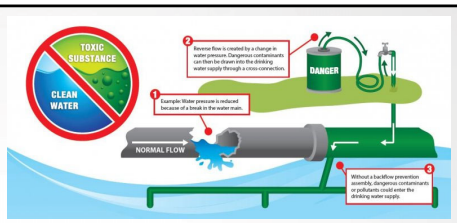
Definitions



cross connection

a physical connection between drinkable water and a liquid or gas that could make the water unsafe to drink

backflow

water flowing opposite to its intended direction, either from a loss of pressure in the supply lines or an increase in pressure on the customer's side

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Do You Drink Water?

- Potential cross contamination and back-flow situations can happen to you.
- Not just the concern of plumbers and water systems. Any misuse of a hose can cause a back flow situation.
- In plant situations and environmental field work, all potable water uses must be protected from cross connections.

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It's Happened in Texas: Pesticide Case Study

- During pesticide preparation, a worker pushed a garden hose to the bottom of a tank.
- Nearby, utility workers flushed a water main.
- Water pressure dropped, reversing flow in the hose; pesticide solution flowed from the tank to the home's water lines.
- Luckily, the worker noticed and informed the utility workers. Lines were flushed including the city water utility line.
- Residents were warned not to use the water until testing cleared the system.

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It's Happened in Corpus Christi, TX: 2016 Industrial Case Study

- Dec. 1 - Numerous reports to City of dirty/smelly water near Ergon Asphalt. The State Agency was called in to help.
- Dec. 14 – Citywide DO NOT USE warning issued (more severe than a boil water notice). No showers, laundry, or drinking, even if purified.
- Dec. 18 – The City together with the state, and EPA cleared the system.
- Industrial client didn't have or didn't properly maintain a back-flow device.
- City began requiring industries to have professional engineering certifications.
- Consequences: Bad press, extra expenses, work disruptions, lawsuits.

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The Exploding Toilets Case Study: 1989, Fordyce, Arkansas

- Explosions and subsequent fires destroyed 2 houses and a business. 3 people were injured when explosions occurred after they flushed toilets.
- Investigations revealed that the propane gas had back-flowed from a railroad tank car, through a hose, and then a cross-connection with the public water system.
- The nearby railroad car refurbishing business worked on tank cars containing propane, methane, and ammonia. Propane was usually bled off through a tower and burned. Then they injected steam, water, and air to clean. Accidentally, they connected a water hose directly to the potable system. The high-pressure propane back-flowed.

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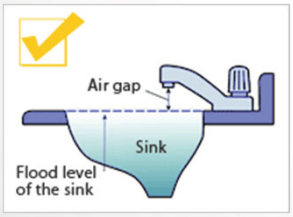
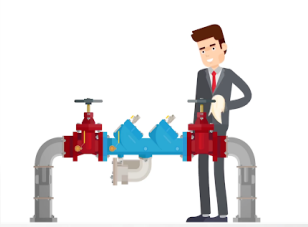
Examples of Backflow Devices





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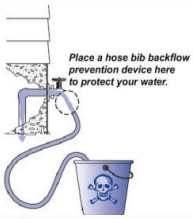
Your Role as a Water Customer

—Ways a garden hose can be a cross connection:

- In a clogged gutter, downspout or sewer pipe
- directly connected to a hose end sprayer
- Soap/brush to wash your car
- In a puddle or pool
- Prevention: Use hose bib vacuum breakers



Irrigation system:

- Make sure you have suitable back flow prevention and have a licensed inspector test annually
- Hire a licensed irrigator

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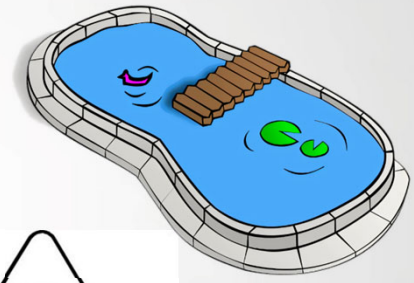
Better practices prevent contamination at Home

By taking steps to control cross connections and prevent the possibility of backflow at your home, you will help to protect the public water supply and ensure that your family continues to enjoy safe drinking water.



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Your water system's role in cross connection control

- Good maintenance, sound operations.
- Maintain system pressure during high demand, and ask customers for cooperation during low pressure situations, such as freezes.
- Operate a cross connection control program – example businesses requiring high-grade back flow prevention include:
  - Mortuaries,
  - Minor surgery centers,
  - Hospitals, and
  - **Chemical plants** and refineries.
- Require Customer Service Inspections.

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Your Role At Your Facility or Site

—Separate process and potable water; Keep Contaminants out of potable water!

- Implement a Cross Connection Policy
- Implement a Hose Policy

- Include cross connections in management of change (MOC) planning, policy, and procedures

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QUESTIONS?

Contact Colleen Johnson at cjohnson@cecinc.com

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