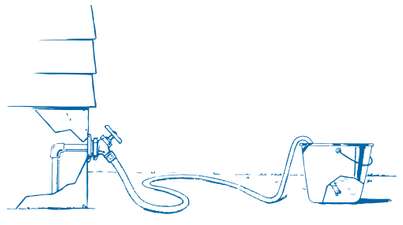
protecting your DRINKING WATER FROM CONTAMINATION

How Contamination Occurs

Water normally flows in one direction from the public water supply, through a customer's cold or hot water plumbing, to a sink or other plumbing fixture. The fixture is often the end of the potable drinking water system and beginning of the waste water system.

Under certain conditions, water may flow in the reverse direction. This is known as ***backflow.*** Backflow occurs when backsiphonage or backpressure is created in a water line.

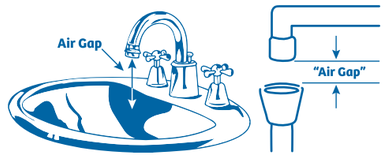
Backsiphonage may occur due to a loss of water pressure in the water distribution system during a high water withdrawal for firefighting, hydrant flushing, a water main break, or a shutdown for water main repairs. A reduction in water pressure below atmospheric can create a vacuum in the piping. If a hose is submerged in a bucket or wading pool and the water is running during these conditions, the non-potable water in that container could be drawn into the household plumbing and potentially back into the public water system.



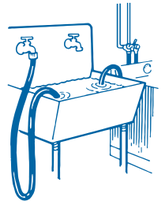
Backpressure may be created when a source of pressure, such as a pump, creates a pressure greater than that supplied from the distribution system. If a pump supplied from a non-potable source, such as a landscape pond were accidentally connected to the plumbing system, the non-potable water could be pumped into the drinking water supply.

Common Household Hazards

1. **Sinks, Tubs, & Tanks** - All faucets whether in your kitchen, bathroom, or basement must be installed so that the end of the faucet is above the overflow level of the sink or tub. This "air gap" prevents the contents of the sink, tub or tank from being sucked or "backsiphoned" into the water line during a loss of water pressure. *Note: The drain line from a water softener should be "air-gapped" or have an "air break."*

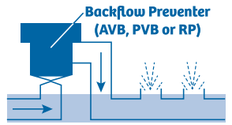


2. **Submerged Hoses** - Any number of chemical or biological contaminants may be contained in a bucket or container such as a pool, pond, tub or tank. Submerged hoses act as a conduit for contaminants to move into the water supply under backflow conditions. A hose connection vacuum breaker can prevent the backflow of contaminated water into the drinking water supply.

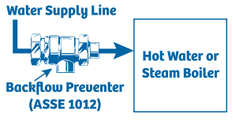


3. **Spray Applicators** - Pesticides and fertilizers used on the lawn and garden can be toxic or fatal if ingested. Cleaning chemicals sprayed on cars and house siding may cause health problems. A hose connection vacuum breaker helps to protect your drinking water from these hazards.

4. **Irrigation Systems** - Chemicals, fertilizers, or animal waste may contaminate water that pools around ground-level sprinkler heads. If an irrigation system is not properly constructed, these contaminants may backflow into your drinking water. A vacuum breaker [atmospheric (AVB) or pressure (PVB)] or reduced pressure principle assembly (RP) can protect against backflow.



5. **Hot Water & Steam Boilers** - Boiler water (which may contain poisonous anti-corrosion chemicals) may be pushed or "backpressured" into the supply line when the pressure of the boiler water exceeds the water supply line. This contaminated water may be forced into your home's drinking water unless there is an appropriate backflow preventer.



Protection of the Public Water System

In general, plumbing systems installed in compliance with the plumbing code provide adequate protection from contamination. Additional protection may become necessary if a single-family home has special plumbing that increases the hazard above the level found in typical residential homes.

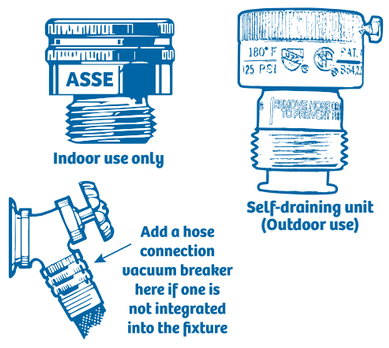
To help determine if additional protection is required, Madison Water Utility staff may conduct a survey of your residence to assess the risk of potential contamination. Based on the results of the evaluation, the installation of backflow prevention devices may be required.

PROTECT YOUR DRINKING WATER

Hose Connection Vacuum Breaker

Hoses have many uses in everyday life. However if submerged in a contaminant or non-potable water they can pose a risk to your drinking water. Hose connection vacuum breakers help to keep your drinking water safe. They make sure that no harmful materials are drawn back into the hose and then into your household plumbing. These devices screw directly onto threaded faucets.

Any faucet with hose threads, that does not already have an internal backflow prevention feature, should have a vacuum breaker added. Houses constructed after 1994 typically do not require additional protection, on outdoor fixtures, because these newer faucets include built in backflow prevention. When adding protection to an outside fixture, be sure the unit is "self-draining" to avoid damage during freezing conditions.



NOTE: These devices are not intended for operation under continuous pressure.

Only use approved products—check for the ASSE stamp.

How to Prevent Contamination of Your Drinking Water

» Check your home and reduce these hazards with the proper backflow protection.

» Only use approved devices which display the ASSE stamp.

» Contact a licensed plumber or the Madison Water Utility.

» **DO NOT** use hose spray attachments without proper backflow protection.

» **DO NOT** connect waste pipes from water softeners or other treatment systems directly to the sewer or a submerged drainpipe, ensure there is an air gap.

» **DO NOT** submerge hoses in standing water or possible contaminants, ensure there is an air gap.

Madison Water Utility

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Household Hazards

Madison Water Utility delivers safe, high quality drinking water. However, once inside your home, plumbing deficiencies can lower the quality of your water.

Any time drinking water contacts a source of contamination or non-potable water, a cross connection is created. This may pose a health hazard if drawn back into your plumbing system and/or the public water supply. This can happen if there is a sudden loss of water pressure caused by a water main break or hydrant use, and the proper protection is not in place.

Most modern water-using fixtures and appliances are designed for safety with built-in backflow protection. If this protection is absent, there are simple low-cost devices that can protect you and your family from the risks of water contamination. **This brochure discusses some common hazards and tips to avoid accidental water contamination.**