Backflow Prevention 101

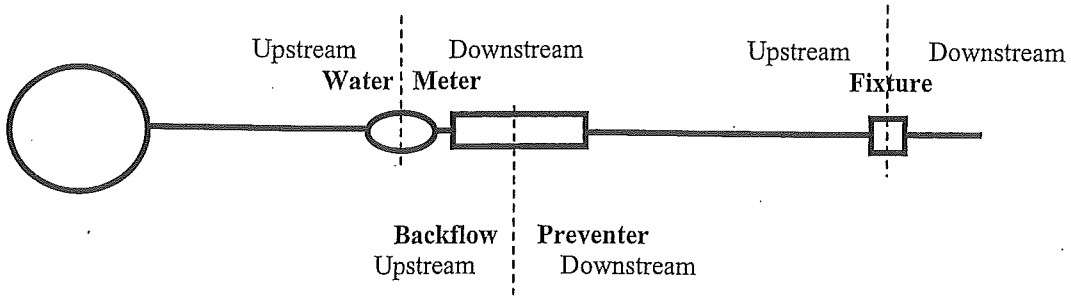
Backflow can be described as "**a reversal of the normal direction of flow within a piping system**" or as "**the flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply from any source other than the intended source of the potable water supply**".

The potential for a backflow condition occurring in a water system is all too likely in many of our homes, factories and public buildings. The existence of improper plumbing connections presents cross-connections that may, under backflow conditions, permit the water to flow the wrong way within the piping.

The probability of backflow taking place at any given outlet may actually be very small. But in view of the large number of service connections, the multiple cross-connections at each service connection and the potential for cross-connections to be created, then the probability becomes very significant and must be dealt with in a positive manner.

Upstream refers to the supply side (water main side) of any appurtenance connected to the water supply system.

Downstream refers to the discharge side (user's side) of any appurtenance connected to the water supply system.



A cross-connection can be described as "**any arrangement whereby backflow can occur**", or as "**any arrangement of pipes, fittings, fixtures, or devices that connects a non-potable water system to a potable water system**".

It is the point at which a water-using fixture is connected to the water user's potable water system.

An unprotected cross-connection provides the path or route through which backflow can occur,

Some of the more common examples are:

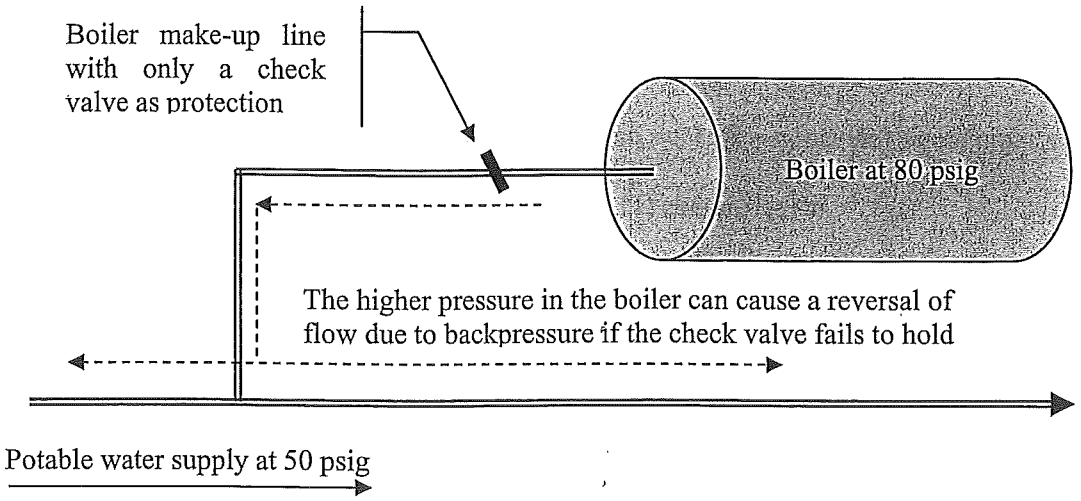
- boiler make-up lines
- chiller make-up lines
- fire protection systems
- spray hoses
- suction tees or aspirators
- tanks or vats with a submerged inlet
- x-ray & photo developing equipment
- irrigation systems
- hand-held lawn sprayers
- pressure washers
- commercial grade dishwashers
- commercial grade garbage disposals or grinders
- soap, sanitizer or wax eduction systems
- a janitor's sink with a hose attached
- hose bibs with a hose attached
- toilet tanks
- urinals

Backpressure can be described as "**a reversal of the normal direction of flow in a piping system due to a downstream pressure that is greater than the normal supply pressure**".

When the pressure is greater in a water user's water system than the pressure in the public water system, then the water will reverse its normal direction of flow and move towards the public water system.

Backpressure can be created by boilers, chillers, internal pumping systems, or any other system that can create a water pressure that is greater than the normal supply pressure.

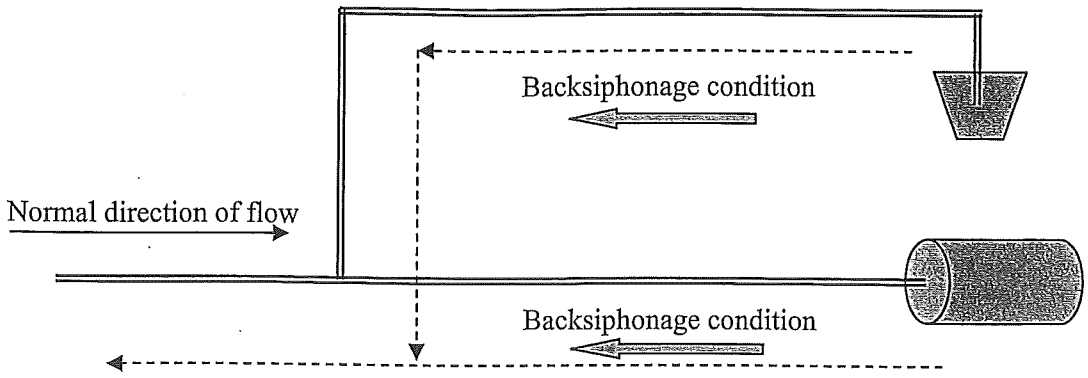
So if a fixture, such as a boiler, creates a pressure greater than the supply pressure then there will be backflow unless the appropriate backflow prevention device is installed.



Pumps on secondary or auxiliary water system installations are a primary cause of backpressure and can be found at a variety of premises.

A typical backflow situation involving pumps is illustrated by visualizing a pump supplying well water to a plumbing system that is also connected to the public water supply. If the pump is capable of producing a higher pressure than the public water system or if the public water system pressure should drop, then the pump can discharge its water through the internal plumbing system into the public water main.

Backsiphonage can be described as "**a reversal of the normal direction of flow in a piping system due to a drop in the supply pressure to the point where a vacuum, partial vacuum or negative pressure occurs in the upstream piping**".



Backsiphonage can be caused in the water user's system by insufficient internal piping hydraulic capacity, by a drop in pressure in the user's upstream piping, or by a drop in pressure in the public water system.

Generally backsiphonage occurs more frequently in the water user's system inside the building and on the upper floors, than to the public water system since the volume or duration of a backsiphonage condition is usually not of sufficient quantity or duration to reach the public water system.

Backsiphonage can be caused in the public water system by a water main break, by a break in the consumer's piping, if the water is turned off for maintenance or repair, if a fire hydrant is struck, if the fire department is drawing water to fight a fire, or by any abnormally heavy water use from the water main.

The Village of Leipsic is asking for your help. If you think you have a cross-connection, or experienced a backsiphonage backpressure incident, please notify the Village at 419-943-2704 or directly to

Leo Ellerbrock	419-957-0508
Eric Steingass	419-615-5842