

Chapter 8 – Water and Sewage Systems

Proper sanitary controls pertaining to the water supply system and sewage and liquid waste disposal systems are necessary in all types of food establishments to prevent the contamination of food and the creation of public health hazards.

WATER SUPPLY SYSTEM

Water for food establishments is so commonplace that very little thought is given as to its availability, purity and safety.

For the most populous parts of Idaho, water is supplied to the food establishment by a community water supply system. However, some establishments in rural areas are on non-community systems. All water supply systems must comply with the following two important regulations:

Idaho Regulations for Public Drinking Water Systems to ensure the purity and safety of the water when it reaches the establishment; and

Uniform Plumbing Code to ensure that the plumbing that carries the water in the establishment is properly sized, installed and maintained.

Despite the protection initially provided through compliance to these two regulations, hazards occur through repairs, emergencies, changes and/or alterations in the water delivery system and distribution system within the establishment. Also, custom water systems, portable water systems, and bottled water operations present particular concerns that need special attention.

CROSS-CONNECTIONS

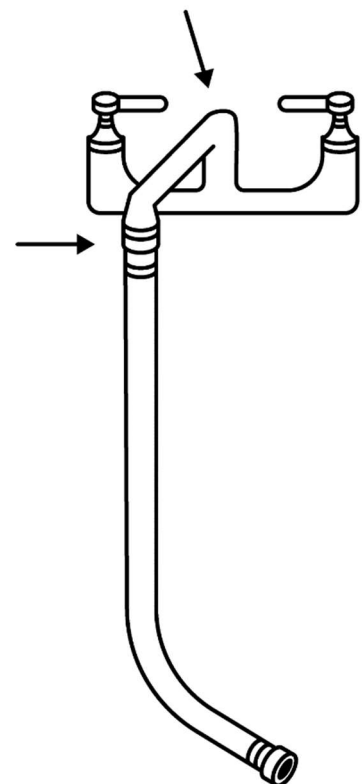
Of major public health concern in all types of food operations are cross-connections (situations that contribute to backflow and backsiphonage of contaminated water into the safe water supply system). Idaho health agencies find many cross-connections during inspections of food establishments. Examples are as follows:

Hoses connected to faucets without backflow prevention devices

is one of the most common cross-connections found in food establishments. The seriousness of this type of cross-connection can be better appreciated with three examples of actual Idaho cases of backsiphonage because of this practice:

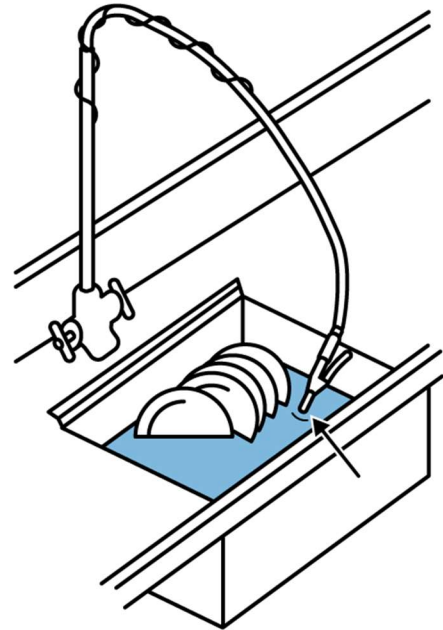
Case #1. Foul tasting and dirty water at a Treasure Valley meat packing plant was the result of backsiphonage through a hose on the floor of the kill room of the plant. Blood, guts and other debris were sucked into the water system through the hose.

Case #2. Backsiphonage through a hose in a wash vat in another Treasure Valley food establishment resulted in chemical sanitizer



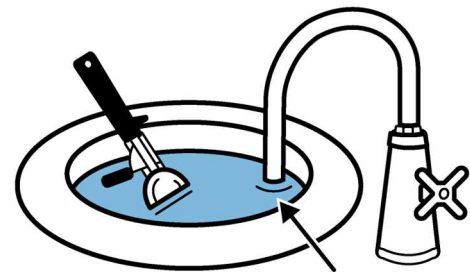
being sucked out of the vat and carried elsewhere in the water distribution system.

Case #3. In an Idaho Falls operation, while a chemical tank was being filled with water through a hose stuck in the tank, a booster pump was turned on in another part of the facility. Since the booster pump had a greater water demand, the chemicals were backsiphoned from the tank and carried into the water distribution system.



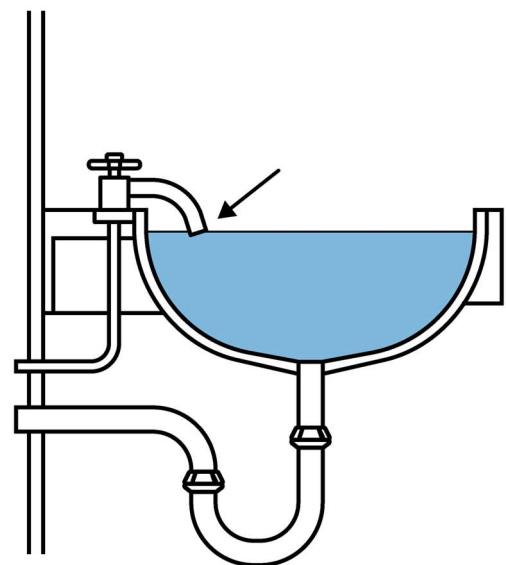
Manual or mechanical spray or injecting units comprised of dishwashing pre-rinse spray units, wash-down stations, power spray cleaning units, dishwashing soap and chemical injecting units, etc. These units connected to the water supply system without a backsiphonage device are potential cross-connections.

Submerged inlets in running water dipper wells, steam tables, garbage grinders and other equipment are cross-connections. In Boise, a submerged inlet in a toilet tank resulted in the toilet tank water being sucked into the water distribution system when the water supply was turned off.



Direct connections between potable water and unsafe water supplies constitute cross-connections. A direct connection between the potable water supply and a boiler in a northern Idaho facility resulted in pink chemical-laden boiler water being carried into the water distribution system and to a water fountain.

Indirect connections such as dishwashing sinks and lavatories in which the faucet inlet does not have an **air gap** at least twice the diameter of the inlet above the fixture's or equipment's flood level rim.



WATER-SUPPLY SAFETY

With improved water system technology, monitoring and regulatory control, water supplies are safer than ever. However, contamination does occur as a result of system failure or cross-connections. Give special attention to the following:

Water Status Notices. Be alert to public notices that pertain to your water supply. To ensure a safe water supply for food establishment operations and for drinking purposes during such notices, contact your local health district for assistance.

Changes in Water Quality. Be aware of changes in water quality such as taste, odor, or clarity, or changes in water pressure. Such changes may be an indicator of a possible cross-connection.

Cross-connections. Check your establishment for cross-connections mentioned above.

Repairs and alterations to the water system or equipment connected to a water system must be done **only** by a licensed plumber who is familiar with cross-connection prevention.

SPECIAL WATER SYSTEMS

Because custom water systems, portable water systems and bottled water operations require additional water management outside of the distribution system and can present greater risk to contamination, special requirements for equipment design and protection are necessary. Water haulers, bottled water processors, mobile food establishments and other businesses with such operations or independent water systems should be familiar with additional requirements of the *Idaho Food Code* for protecting the water supply.

SEWAGE AND LIQUID WASTE DISPOSAL

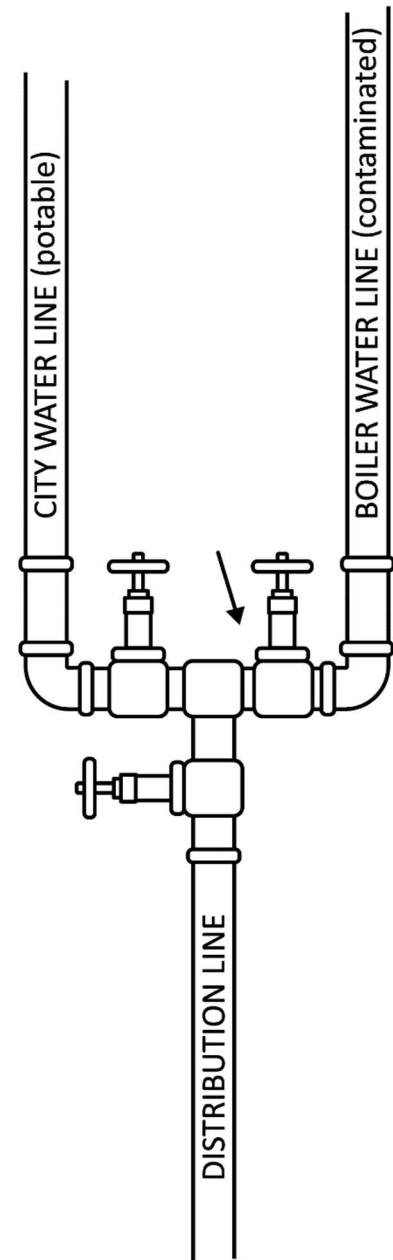
Sewage is solid or liquid waste containing human, animal, vegetable or chemical matter in suspension or solution.

Liquid waste is the discarded fluid discharge from any fixture, appliance, equipment, utensil, etc., **which does not contain human body waste**.

Sewage disposal is strongly regulated because many disease organisms are found in human feces. Also, improper disposal of liquid waste contributes to insect, rodent and other pest problems and water pollution.

The septic tank of on-site sewage disposal systems must be pumped regularly to ensure adequate performance. Failure to do so will result in system malfunction which contributes to sewage backup, ponding at the disposal site and/or drainage into a nearby watercourse.

Plumbing for sewage and liquid waste in all types of food establishments must be sized,



installed and maintained in accordance with the **Uniform Plumbing Code** and all installations, repairs and alterations must be done **only** by a licensed plumber.

DIRECT CONNECTIONS

One of the greatest problems pertaining to sewage and liquid waste disposal in food establishments is **direct connections** between the sewage plumbing system and drains originating from equipment. The following are examples of equipment requiring **indirect** connections:

- Refrigerators
- Steam kettles
- Potato peelers
- Ice machines and ice storage bins
- Food preparation sinks
- Dipper wells
- Warewashing machines, etc.

All such equipment must have an indirect connection consisting of a **physical break** in the drain line (it does not require an air gap). The public health significance of this requirement is supported by the following situations:

Patrons of a western Idaho tavern complained about dirty mixed drinks. An investigation revealed that the ice storage bin was directly connected to the drain for the glass washing and dump sinks. Whenever the sinks were drained, the dishwater and waste flowed into the ice storage bin and contaminated the ice.

A rag packed around the dipper well drain line in the sewer hub to prevent the occasional overflow of waste water resulted in the contamination of the dipper well. The situation was found during the investigation of an outbreak in which ice cream was incriminated as the cause. Laboratory tests confirmed that water in the dipper well was grossly contaminated.

An eastern Idaho restaurant operator complained to the health district that the dishwasher often smelled bad. An investigation revealed that a direct connection was allowing sewage to back up the drain line into the dishwasher.

LIQUID WASTE DISPOSAL

Liquid waste must be properly disposed. Mop water, waste water from equipment cleaning (for equipment that does not have drains), liquid waste water from food preparation, slop, etc., must not be poured out the back door or otherwise be disposed in any manner other than through the sewage disposal system. Utility sinks, floor sinks and the occasional use of the toilet should be used for the disposal of liquid waste. A rural Treasure Valley restaurant created a significant fly breeding problem from the disposal of liquid waste at a convenient place behind the restaurant.

The disposal of mop water and similar liquid waste in food preparation sinks, handwashing facilities and warewashing facilities is not acceptable.

WASTE WATER SAFETY

Food establishment owners, operators and supervisors must ensure that:

- Sewage and liquid waste generated in their facilities are properly disposed of in an approved sewage disposal system;
- Equipment with drains are not directly connected to the sewer;
- Food preparation sinks (also includes warewashing sinks when the health district allows such facilities to be used for food preparation) are not directly connected to the sewer;
- Modifications and alterations **are not** made to equipment or drains to create direct connections; and
- Mobile food establishments, temporary food establishments, and vending machine operations have approved liquid waste disposal methods in accordance with the *Idaho Food Code*.

SUMMARY

- Two important regulations pertaining to water and sewage systems are **Idaho Regulations for Public Drinking Water Systems** and **Uniform Plumbing Code**.
- By regulation, only an Idaho licensed plumber can legally repair and make alterations to the water and/or sewage system in a food establishment.
- Cross-connections are of major public health concern because they contribute to backflow and backsiphonage of contaminated water into the water supply systems.
- Hoses connected to faucets without backflow prevention devices, submerged inlets, and direct connection between potable water and unsafe water supplies are examples of cross-connections.
- Sewage contains human body waste; liquid waste does not.
- Direct connections between the sewage plumbing system and drains originating from equipment are of major public health concern.
- Direct connections can be prevented by a **physical break** in the drain line.
- Disposing of liquid waste out the back door of a food establishment is not acceptable.
- Idaho examples of cross-connections, submerged inlets, and direct connections confirm their public health risk.

Reference: *Idaho Food Code*, Chapter 5