



Cross-Connections

Dear Reader:

The following document was created from the MTAS website ([mtas.tennessee.edu](https://www.mtas.tennessee.edu)). This website is maintained daily by MTAS staff and seeks to represent the most current information regarding issues relative to Tennessee municipal government.

We hope this information will be useful to you; reference to it will assist you with many of the questions that will arise in your tenure with municipal government. However, the *Tennessee Code Annotated* and other relevant laws or regulations should always be consulted before any action is taken based upon the contents of this document.

Please feel free to contact us if you have questions or comments regarding this information or any other MTAS website material.

Sincerely,

The University of Tennessee
Municipal Technical Advisory Service
1610 University Avenue
Knoxville, TN 37921-6741
865-974-0411 phone
865-974-0423 fax
www.mtas.tennessee.edu

Table of Contents

Cross-Connections	3
-------------------------	---

Cross-Connections

Reference Number: MTAS-1894

A cross-connection is an actual or *potential* connection between a potable (safe to drink) water supply and a non-potable (unsafe to drink) source, where it is possible for a contaminant to enter the drinking water supply.

In the residential setting, a cross connection is a direct link between a household water line and a contaminated source such as a garden hose, toilet tank, laundry tub, swimming pool, lawn sprinkler system, etc. The most common contaminants, such as pesticides, sewage, and detergents, can enter the public drinking water system through cross connections in home water lines. Most household cross connections are created by hoses. Under certain conditions, the flow in household water lines can reverse and siphon contaminants into the water supply. For example, using a garden hose to spray pesticides is normally harmless, but if the city's water supply is interrupted during the spraying, the potential for contamination exists. If water main pressure is reduced due to a water main break or nearby firefighting operations, a back siphonage effect is created. This can draw pesticide from the sprayer through the garden hose into the household water lines and possibly the water main. The contamination may be localized (the home), or spread through the water mains to other areas.

The public water system can also be contaminated by an effect called backpressure. Backpressure results when the water supply is connected to a system under high pressure such as a hot water boiler for home heating or a portable pressure washer. Since the pressure in these devices is higher than the normal home water supply, water can sometimes be forced backwards. Contaminants in these systems, such as cleaners or soaps in a pressure washer, can enter and contaminate the public drinking water supply.

In the fire department setting, cross-connections occur when a garden hose or fire hose is submerged into the water tank when filling a fire truck, when pulling the residual pressure too low on a fire hydrant, and even when a fire engine is being filled directly from a fire hydrant. An on-board foam system, such as a CAFS system, can introduce firefighting chemicals into the water system. These are only a few examples, and many more exist. As in the residential setting, a fire department created cross-connection or backpressure problem can contaminate the public water system.

DISCLAIMER: The letters and publications written by the MTAS consultants were written based upon the law at the time and/or a specific sets of facts. The laws referenced in the letters and publications may have changed and/or the technical advice provided may not be applicable to your city or circumstances. Always consult with your city attorney or an MTAS consultant before taking any action based on information contained in this website.

Source URL (retrieved on 01/17/2020 - 2:44pm): <https://www.mtas.tennessee.edu/reference/cross-connections>



Municipal Technical Advisory Service
INSTITUTE for PUBLIC SERVICE