



Municipal Technical Advisory Service
INSTITUTE *for* PUBLIC SERVICE

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A Matter of Public Health

Dear Reader:

The following document was created from the MTAS website ([mtas.tennessee.edu](http://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,

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A Matter of Public Health

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So what does the fire department do: let the house burn down, or risk contaminating the water system? Either way, it is a matter of public health.

These are very good questions and should be decided before responding to a house on fire. A coordinated effort between the fire department and water utility is essential in protecting public health in these situations. In many cases, this cooperation has not always existed between the two departments. Issues related to locating fire hydrants have caused problems in many communities for years. One problem is locating fire hydrants strategic to fire department operations. The fire department's view is typically not the same as the water utility's view, especially in allowing for water system flushing. Who has the authority for properly locating fire hydrants? Different jurisdictions have different interpretations of this question. The answer should be that the fire department and water utility work together on these issues.

As required by Rule 0400-45-1-.17(18), the water purveyor must, at least once every five years, notify by certified mail every fire department served by that water system that certain fire hydrants cannot be used for firefighting. Most fire chiefs would say that this is pretty strong language but in the event of an emergency, decisions to use or not to use fire hydrants must be made. Who will assume the liability at the time of a fire where a fire hydrant is available but the fire department is not allowed to use it? Who will assume the liability if the water system becomes contaminated? Water officials can be held personally liable for allowing the system to become contaminated. Many fire service leaders believe the restriction on using Class C fire hydrants is too unreasonable especially in the event of a possible rescue of a trapped victim.

Can people actually get sick from the fire department connecting to a Class C fire hydrant? Will this actually contaminate the water system? According to several recognized articles by the Federal Environmental Protection Agency, there have been documented cases where water contamination occurred due to something that a fire department did or did not do. This way of contamination is quite difficult to pinpoint although a backpressure situation can occur anytime fire apparatus is connected to almost any fire hydrant.

In most cases where waterborne disease outbreaks have occurred, they have resulted in nausea, diarrhea, and cramps, however it is possible in some cases to result in very serious illness and even death. Experts believe that most waterborne disease outbreaks are not recognized, so in truth, there may have been many times more than what is reported. According to the American Water Works Association (AWWA), "Cross-connection contamination can provide an opportunity for large amounts of biological material to enter the distribution system. These events generally result in noticeable change in water quality, including turbidity, increased content of solids, and undesirable tastes and odors." However, in a report released by TDEC entitled "Tennessee Rural Water Needs Report" it states that only a very small percentage (less than 1%) of the domestic water used in a typical household is for drinking purposes. Therefore, if contamination does occur, there is a small chance that people will be adversely affected.

Fire officials have stated that fire departments seldom connect hard suction hose to fire hydrants, and therefore the possibility of causing a backpressure in a water system is minimal. Most fire departments use a soft vinyl hose to connect the pumper to the fire hydrant rather than the rigid hard rubber hose that was common many years ago. Unlike the hard suction hose, the vinyl hose will collapse as the residual pressure is dropped. Occasionally there could be a need for hard suction hose on a large fire but most fire departments do not carry hard suction hose any more. The exception to this is in rural areas where drafting from ponds or other surface sources is necessary or in tanker shuttle operations where a fire engine is used to draft from a dump tank. Regardless, using hard suction hose is a last resort operation for most fire departments.

The response to the observation that hard suction hose is seldom used is that it is still possible for the fire department, regardless of the type of suction hose used, to reduce the water pressure in the water mains to a point that results in back siphonage. The civil engineering definition of back siphonage is, "The flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel into the

pipe which feeds it; caused by reduced pressure in the pipe.” The possibility of back siphonage and potential contamination negates the argument that fire departments seldom use hard suction hose.

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