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Information: New Hampshire Water Well Association

Information in this document is provided in good faith to inform the public about groundwater and water wells. Well owners should ensure that their well contractor has obtained permits (if required) and has referred to local codes, rules, regulations and laws for site selection, construction, maintenance and operation of water wells and water system equipment.

BACKFLOW

Backflow is simply water flow in pipes/plumbing/hoses in the opposite direction from its normal flow. If the direction of flow in a hose and the plumbing system to which it is connected is reversed because of a change in pressures then backflow could allow contaminants to enter the plumbing (and drinking water) system. A similar contamination risk can occur from cross-connections. A cross-connection exists when plumbing systems are configured in such a way that any source of non-drinkable water or other substances can enter the piping system of a drinking supply. [Plumbing and building codes in New Hampshire prohibit the cross-connection of well and utility supply.]

Pressure changes in pipes and water distribution systems can result from breaks in electrical supply, pipe failure or excessive use of water from fixtures connected to the same piping system, (especially if there are down-gradient uses that may cause a siphon-effect). For example, if a pipe-break or appliance failure occurs in a home water system that is also connected to a hose pipe that is filling a fish-pond, then the change in pressure could cause the pond water to flow back into the house plumbing. Although this may seem to be a highly unlikely scenario there are numerous instances of this type of failure occurring; especially on smallholdings and farms where chemicals may be mixed or livestock water troughs filled.

Backflow risks can easily be avoided by installing simple plumbing fittings. There is plenty of information on the subject that can easily be accessed by homeowners on-line. First ask yourself the following questions:

1. Have you ever used a hosepipe to:

- Fill a swimming pool?
- Flush a car radiator?
- Fill a fishpond?
- Fill a container to shampoo your dog?
- Supply water to horses or farm animals?
- Flush out a blocked drain or septic line?
- Mix garden chemicals in a bucket?

2. Do you recycle your home's gray-water (from laundry or shower) to irrigate shrubs or garden beds?

3. Do you have a water well and are you connected to a utility supply?

4. Do you have a lawn sprinkler system?

If the answer is **yes** to any of the above questions you should check that you have a backflow prevention device between your hose and hose bib (spigot or outside faucet/ tap). The basic means of preventing backflow is by creating an air gap, which provides a barrier to backflow. Probably over half of the reported backflow and cross-connection problems involve garden hoses. Without a backflow prevention device, the contents of the hose and anything it is connected to, have the potential to backflow into the piping system and contaminate your drinking water.

A hose-bib vacuum breaker is a simple, inexpensive device that can be purchased at plumbing or hardware stores. Homeowners should check that all taps (faucets, spigots) to which a hose may be connected are fitted with hose bib vacuum breakers. They are inexpensive and can easily be installed by a home owner. If you want to be sure the installation is done correctly than a well contractor will be able to install the device in a few minutes. A more effective backflow prevention device called an atmospheric vacuum breaker costs about \$60 and should be installed by a qualified person who understands water flow hydraulics.

Virtually all water well pump installations have check valves which prevent any risk of back siphoning directly to the aquifer if there is a power failure while a hose is connected.

If you don't have a backflow prevention device – talk to a well contractor or water system installation specialist. For examples of backflow occurrences and for more information about prevention you can visit the website (and links page) of the American Backflow Prevention Association.

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