

*The City of Grant is providing information to the public on cross-connection and backflow prevention.*

Anyone needing more information on cross-connection and backflow prevention is urged to contact City of Grant Water Superintendent Gary Beckler at 352-2100.

### **What is back siphonage?**

Back-siphonage is the reversal of normal flow in a system caused by a negative pressure (vacuum or partial vacuum) in the supply piping.

### **What factors can cause back-siphonage?**

Back-siphonage can be created when there is a stoppage of the water supply due to nearby fire-fighting, repairs or breaks in the city main, etc.

The effect is similar to the sipping of an ice cream soda by inhaling through a straw, which induces a flow in the opposite direction.

### **What is backpressure backflow?**

Backpressure backflow is the reversal of normal flow in a system due to an increase in the downstream pressure above that of the supply pressure.

### **What factors can cause a backpressure-backflow condition?**

Back pressure-backflow is created whenever the downstream pressure exceeds the supply pressure which is possible in installations such as heating systems, elevated tanks, and pressure-producing systems.

An example would be a hot water space-heating boiler operating under 15-20 lbs. pressure coincidental with a reduction of the city water supply below such pressure (or higher in most commercial boilers). As water tends to flow in the direction of least resistance, a backpressure-backflow condition would be created and the contaminated boiler water would flow into the potable water supply.

### **What is the most common form of a cross connection?**

Ironically, the ordinary garden hose is the most common offender as it can be easily connected to the potable water supply and used for a variety of potentially dangerous applications.

### **What is dangerous about an unprotected sill cock?**

The purpose of a sill cock is to permit easy attachment of a hose for outside watering purposes. However, a garden hose can be extremely hazardous because they are left submerged in swimming pools, lay in elevated locations (above the sill cock) watering shrubs, chemical sprayers are attached to hoses for weed-killing, etc.; and hoses are often left laying on the ground which may be contaminated with fertilizer, cesspools and garden chemicals.

### **What protection is required for sill cocks?**

A hose bibb vacuum breaker should be installed on every sill cock to isolate garden hose applications thus protecting the potable water supply from contamination.

### **Should a hose bibb vacuum breaker be used on frost-free hydrants?**

Definitely, providing the device is equipped with means to permit the line to drain after the hydrant is shut off. A "removable" type hose bibb vacuum breaker could allow the hydrant to be drained, but the possibility exists that users might fail to remove it for draining purposes, thus defeating the benefit of the frost-proof hydrant feature. If the device is of the "non-removable" type, be sure it is equipped with means to drain the line to prevent water freezing.

### **Can an atmospheric, anti-siphon vacuum breaker be installed on a hose bibb?**

Theoretically yes, but practically no. An anti-siphon vacuum breaker must be elevated above the sill cock to operate properly. This would require elevated piping up to the vacuum breaker and down to the sill cock and is normally not a feasible installation. On the other hand, a hose bibb vacuum breaker can be attached directly to the sill cock, without plumbing changes and at minor cost.

### **Are check valves approved for use on boiler feed lines?**

Most jurisdictions require backflow protection on all boiler feed lines.

Some will allow a backflow preventer with intermediate vent as minimum protection for residential boilers. A reduced pressure backflow preventer is generally required on commercial and compound boilers. However, low cost, continuous pressure backflow preventers are now available which will perform with maximum protection; thus check valves are not recommended.