CONSERVATION OF WATER BY PROACTIVE METHODS OF LEAK DETECTION

Water is a very precious commodity that most people take for granted. Water is naturally occurring liquid which can be found almost everywhere. North America usually receives enough rain in most parts of the country to keep underground aquifers well stocked with this life sustaining substance. Whether your water comes from a well or from a public water system, you should practice good stewardship of this life sustaining commodity.

Most people see their drinking and cooking water coming from a spigot in a sink. Few people ever think about what is involved in getting that water to the sink. A myriad of systems are involved in this process that are never seen or thought about.

In this particular article I will write about the public water system with source water coming from some sort of Lake Impoundment which is fed by springs, creeks, and surface runoff from rain events. When this water is treated at a treatment plant either small or large and then delivered through a system of pipes to more than one person then it becomes governed by DHEC. The regulations that govern public water systems are available to the public, so I won't dwell on them.

Public Water systems deliver to most people through a meter either individually or through a master meter. This meter defines the boundary of most water companies ie. they will handle problems up to and including the meter but not beyond the meter.

Some of the issues that come up about the water meter are as follows: water in the meter box, high readings, and inconsistent readings.

Water in the meter box is something that is seen after rain events or on occasion a leak at the meter which is commonly a washer which has not been tightened properly on installation or that is loosened after someone or something moves the meter and causes the coupling to loosen on the washer thereby resulting in a leak in the box. If this leak is on the customer side of the meter then they are being charged for this water that is leaking, however if the leak is on the sellers side then it becomes "unaccounted for water" which is not measured. If water is standing in the meter box and not flowing out of the box then this is normally due to a rain event, irrigation sprinklers in the area, or in some cases someone has washed a car or boat uphill of the meter box.

High readings in meters are something that most people don't think about until it happens to them. High Readings are the result of water going through the meter beyond the amount that the customer normally used. The water company uses meters that are tested and come with a test result showing their percent accuracy (normally 98% to 100%) and most meters only lose accuracy over time (older meters may be 10% slow by the time they are replaced). The meters that we use are the types that have what looks like a speedometer face with a dial that usually measures a set amount per revolution with numbers around the dial telling how many gallons have passed through the meter. There is also a total amount in thousands in the lower part of the dial. In the center of the dial is a triangle with red sides which is the leak detector. This can be used to detect very small leaks. Sometimes it takes five minutes or more to detect extremely small leaks. By taking readings over several days and observing the meter and leak detector you

can determine if you have any leaks and then you can determine if the leak is inside or outside by turning off the valve just outside your house (having one installed if the builder didn't provide one might be worth the effort) and observe the meter with the house isolated from the meter. If the leak detector turns then the leak is outside and will need to be found and repaired. We also have seen people with new houses with high readings sometime with irrigation systems in their yards with as many as ten zones with ten or more heads per zone capable of dispensing seven gallons per minute per head that ran for thirty minutes per zone per day ask why they had high water bills! This situation results in 21,000 gals. per day being used and even if it is on a timer to only run every other day, it could result in 315,000 gallons per month plus normal usage.

Inconsistent readings would happen because something changed such as having a regular bill in November and then a high bill in December when family has come to visit. This can involve more than one month if the visitors used a guest bathroom that hadn't been used in some time and then the toilet continues to run because the flapper valve has developed a tear and is steadily dropping water to the sewer slowly and quietly. This can be found by dropping a few drops of cake coloring, leak detector tablets, or other non-toxic coloring into the tank and observe the bowl for a color change (this won't work if you are using a bowl sanitizer). It is important also to watch those dripping spigots, because even with a drip of two milliliters per second, this would amount to approximately forty-five gallons per day over normal usage. Below is a representation of spigot leaks and their respective results.