What to do About Water Quality Problems

Homeowners who use private well water as their water supply often experience problems that public water supplies reduce or eliminate altogether. A quick trouble-shooting guide is presented here to help identify and resolve some of the more troublesome quality problems commonly associated with well water systems.

Water Hardness

Water hardness is caused by the presence of calcium and magnesium salts. Both mineral salts are commonly found in well water throughout DuPage County. Iron also contributes to this condition.

Common Traits

1. A sticky curd forms when soap is added to water ("bathtub ring").
2. More soap is needed when washing.
3. Glasses appear streaky and murky after washing.
4. Hard white scaly deposits are found on pipes and fixtures.

Solution

Provide a water softener to soften the water. You may rent or purchase such a unit. There really is no other economical way of eliminating this condition.

Caution: For those people who have a heart condition or are on a restricted salt diet, consult with your physician concerning the use of a water softener.

Caution: Totally soft water is corrosive to metal pipe and fittings.

Yellowish-Orange, Rusty Looking Water

This condition is caused by the dissolving action water has on iron as it passes through underground iron deposits or comes in contact with iron or steel surfaces. Manganese in the water can worsen this condition.

Common Traits

1. Freshly drawn water appears clear at first but after exposure to air becomes cloudy or rusty with rust particles settling on the bottom of the container.
2. Red stains appear on clothes and porcelain plumbing fixtures.
3. Water may have a metallic taste.

Solution

For low levels of iron (.3-1.0 mg/l), a water softener should help. For higher levels of iron (greater than 1.0 mg/l), an oxidizing (catalyst) filter supplementing the water softener will help. This filter should be installed upstream from the water softener and serviced frequently for optimal performance.

Red Slime Develops in Toilet Tanks

The red slime found in toilet tanks is caused by harmless living organisms (iron bacteria) that live on iron already in the water. This condition is also often associated with rusted pipes.

Solution

Disinfection of the water distribution system by chlorinating may help, although this procedure is not designed to be a long-term or permanent solution. Directions for water system disinfection can be obtained from the DuPage County Health Department.

Water Stinks: Rotten Egg Odor - Hot & Cold Water

This condition is caused when harmless sulfur and sulfate reducing bacteria produce hydrogen sulfide gas as a by-product of their metabolism. It is this gas that causes the water to stink. When manganese, iron, and sulfur are all present in the water, very small particles develop causing a condition commonly referred to as "black water". Silverware is frequently tarnished by hydrogen sulfide.

Solution

1. Disinfection of the water distribution system by chlorinating. This procedure is not designed to be a long-term or permanent solution. Directions for water system disinfection can be obtained from the DuPage County Health Department.
2. A manganese treated green sand (oxidizing) filter can be used when the problem is found to be constantly recurring. Continuous chlorination is an alternate method of controlling the problem

Water Stinks: Rotten Egg Odor - Hot Water Only

The same bacteria cause this problem as in the above-mentioned condition, only the level of bacteria is low enough that it does not pose a problem in cold water. Hot water heaters have anode rods in them to neutralize the corrosive action softened water and oxidizing organic matter have on water heaters. While neutralizing the corrosive action these rods give off electrons which act as catalysts for the bacteria while they reduce sulfur to hydrogen sulfide. This catalyst accelerates the reducing process. The odor then becomes noticeable. Anodes made of magnesium tend to be more troublesome than some of their counterparts. Zinc anodes do not produce a noticeable odor.

Solution

Be sure the problem is in the hot water heater only. Disinfect the water distribution system by chlorinating per directions obtained from the DuPage County Health Department. Be sure the water heater is turned up to maintain 140°F water. If the odor recurs (hot water only) shortly after completing the initial disinfection then:

1. Remove the anode rod. If it is a magnesium rod replace it with a zinc anode rod. This rod gives off less electrons than the magnesium rod and offers protection against corrosion. Because electrons are still released, the offensive odor may still exist but it should not be as bad.
2. The other option is to eliminate the anode rod altogether. Doing this might shorten the life of the hot water heater but will most likely bring the problem down to a tolerable level. Note: removing the anode may negate the warranty. If the odor recurs over a period of time (ex: three months), then periodic disinfection may be necessary. This recurrence is most likely due to bacteria population levels reaching the point in which they will affect both hot and cold water.