



Kendall County Health Department

Environmental Health Unit

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COMMON WATER QUALITY PROBLEMS

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

WATER HARDNESS: Water hardness is caused by the presence of calcium and magnesium salts. Iron also contributes to this condition.

- **Common Characteristics:** (a) a sticky curd forms when soap is added to water. This is commonly referred to as the bath tub ring; (b) more soap is needed when washing; (c) glasses appear streaky and murky after washing; and (d) hard white scaly deposits are found on pipes.
- **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, please consult with your physician concerning the use of water softened with a water softener. Also, totally soft water (near zero hardness) is corrosive to galvanized 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 Characteristics:** (a) freshly drawn water appears clear at first, but after exposure to air becomes cloudy or rusty in appearance, with rust particles settling on the bottom of the container; (b) red stains appear on clothes and porcelain plumbing fixtures; and (c) water may have a metallic taste.
- **Solution:** For low levels of iron, a zeolite (ion exchange) water softener should help. For higher levels of iron, an oxidizing (manganese-zeolite) 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 well via shock chlorination of the water source, pump, and piping. Directions for well disinfection can be obtained from the Kendall 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:** (a) disinfection of the well via shock chlorination of the water source, pump, and piping. Direction for well disinfection can be obtained from the Kendall County Health Department. (b) 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 in the water 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. These catalysts accelerate 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 that the problem is in the water heater only. Follow the disinfection process suggested in #4. Be sure the heater is turned up to maintain 140 degree F. water. If the odor recurs (hot water only) shortly after completing the initial disinfection then:
 - a) Remove the anode rod. If it is a magnesium rod, replace it with a zinc anode rod. This rod gives off fewer electrons than the magnesium rod does and does offer protection against corrosion. Because electrons are still released, the offensive odor may still exist, but it should not be as bad.
 - b) 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. Removing the anode may negate the warranty. If the odor recurs over a period of time (say 3 months), then refer to periodic disinfection. This recurrence is most likely to be a result of bacteria population levels reaching the point in which they will affect both hot and cold water.