

## **Safe Drinking Water**

A private water supply is just that - private. The quality of the private water supply is the responsibility of the homeowner. State laws do not require the testing of private domestic water supplies and regulatory agencies do not monitor private water supplies. Therefore, the only way a homeowner can be certain that well water is safe to drink is to have it tested periodically.

### **What Should Water be Tested For?**

#### **Bacteria**

While it is possible to test for every waterborne disease-causing bacterium and virus, the cost of such comprehensive testing is high. Unless you have reason to suspect a specific contaminant, a test for total coliform bacteria should be adequate. Most coliform bacteria do not cause illness but they are present in the intestines of all warm-blooded animals. If they are present in a water supply, sewage or manure may be contaminating the water.

#### **Nitrates**

Nitrate contamination of drinking water can affect human and animal health. Excessive concentrations of nitrate can cause methemoglobinemia (blue baby syndrome) in infants and ruminant livestock. A water quality standard of 10 milligrams per liter nitrate nitrogen has been established for human consumption and ten times that amount (100 mg per liter nitrate nitrogen) for livestock. Sulfates and total dissolved solids Excessive concentrations of sulfates and other dissolved salts can cause gastrointestinal problems in humans and animals. Water quality standards of 250 mg /l of sulfate and 500 mg /l total dissolved solids have been set for drinking water supplies.

#### **pH**

Water with a pH of less than 6.5 or greater than 8.0 can cause corrosion problems in plumbing. Corrosion not only shortens the life of a pipe but also introduces dissolved metals into the water which can stain fixtures and pose a potential health hazard. Pocono Plateau residents should note that local well water tends to be quite acidic, with a pH well below 6.5.

## **Other Water Problems**

In addition to obtaining a water supply that is safe to drink, it is also desirable to have water that is tasteless, odorless and non-staining. To select the appropriate treatment equipment to eliminate these problems, the level of a number of minerals must be determined.

### **Iron**

High concentration of iron gives water a metallic taste, stains clothing and fixtures and promotes the growth of iron bacteria in the water system.

### **Hardness**

Water hardness causes scaling problems in hot water pipes and water heaters and interferes with the cleaning action of soaps and detergents.

### **Hydrogen Sulfide**

Hydrogen sulfide gives water a "rotten egg" taste and odor. Because hydrogen sulfide is a gas, it comes out of solution very quickly. This makes it difficult to send a water sample to a laboratory for testing. Measurements for the concentration of hydrogen sulfide must be made on site.

### **Manganese and Iron**

Manganese and iron are naturally occurring elements found in well water. They are particularly prevalent in the ground waters of the Pocono Plateau. Neither one is considered harmful to health but the Pennsylvania Department of Environmental Protection and the EPA have established maximum contaminant levels of .05 mg per liter for manganese and .3 mg per liter for iron. The primary problem with these two elements is esthetics. Excess manganese turns well water gray and iron gives it the characteristic rust color. If a discoloration problem appears suddenly, it may prove temporary. Often, it can be corrected by running water through an outside hose for an hour (do not run the water in a sink or bathtub as this will fill the septic tank). During the time that discoloration is evident, hot water should not be used since this will cause contamination of the hot water tank. If the problem persists, water treatment systems may be required.

## **How Often Should a Water Supply Be Tested?**

To assure that well water is safe, it should be tested for bacteria at least once a year and for nitrate once every three years. Other chemical tests for sulfates, total dissolved solids and Ph should be made regularly, at least every three years. The water supply should also be checked if you have drilled a second well or changed the pump or plumbing. Also have the well tested if there is new mining in the area or any other activity that may pollute water. Be aware of any change in appearance, taste or odor.

Directions for collecting a water sample should always come with the sample containers obtained from the testing lab. These instructions should be followed carefully to ensure a representative sample. Remove the aerator from the faucet, sterilize the faucet nozzle with the flame from a match and allow the water to run for several minutes before filling the sample container(s). Take care not to touch the inside of the sample container. Refrigerate the sample and deliver it to the lab as quickly as possible.

## **Where Can Water Be Tested?**

Penn State's [Agricultural Analytical Services](#) Lab offers drinking water testing of a variety of test packages

Many private laboratories in Pennsylvania analyze water from private water supplies. Visit [DEP's list of accredited drinking water laboratories](#) for Pennsylvania, and scroll down to "Search Environmental Laboratories."

The Penn State College of Agricultural Science's Cooperative Extension [Drinking Water website](#) provides useful information for understanding drinking water.