

Point-Of-Use Water Treatment Units for Lead

Two common types of water treatment units effective in removing lead from water are reverse-osmosis (RO) devices and distillation units. An RO unit uses a membrane with pores tiny enough to screen out contaminants. A distillation unit removes contaminants by boiling the water and then condensing the steam, leaving the lead behind in the original vessel.

Effectiveness, efficiency, and costs are considerations in buying a home water treatment unit. Cost considerations should include not just the purchase price, but long-term costs of operation and maintenance.

With any type of point-of-use unit, regular maintenance is essential. Failure to properly maintain a unit will reduce its effectiveness and, in some cases, make the water quality worse.

Other Testing of Your Well Water

Private wells should be tested at least once a year for **bacterial safety**. It is also wise to test well water for bacteria any time the water changes in taste, odor, or appearance.

Well water should be checked every two or three years for indications of **nitrate** contamination, more frequently if nitrate has been found before. Water exceeding the state health level for nitrate (10 parts per million as nitrogen) must not be given to infants under six months of age.

Arsenic occurs naturally in about half the wells in Minnesota, and about 10 percent of wells produce water which exceeds 10 micrograms per liter (parts per billion), the federal drinking water standard. Arsenic is more prevalent in western Minnesota, but can occur almost anywhere in the state. Long-term consumption of arsenic above the drinking water standard may increase the risk of health problems of the skin, circulatory system, nervous system, lungs, and bladder, including some forms of cancer. Every private well should be tested at least once or twice to determine if arsenic is present in the water.

Other contaminants sometimes occur in private water systems, but much less frequently than bacteria, nitrate, arsenic, or lead. If the well is located close to fuel tanks or to a commercial or industrial area, a test for **“volatile organic chemicals” (VOCs)** is a good idea. A brochure, VOCs, is available from the MDH. **Agricultural chemicals** are sometimes found in wells located near cropped fields or handling areas for agricultural chemicals. Shallow wells are more vulnerable to pesticide contamination than are deep wells. If your well is located in an agricultural area, and especially if it is a shallow well, testing for several of the pesticides most commonly used in the area may be warranted.

If children or adolescents are drinking the water, a test for natural levels of **fluoride** will give your dentist useful information when considering fluoride supplements. A small number of wells in Minnesota (primarily northeastern Minnesota) do have naturally-occurring levels of fluoride that exceed the health standard.

For more information contact a well specialist at your local MDH district office.

MDH District Offices

625 North Robert Street
P.O. Box 64975
St. Paul, Minnesota 55164-0975
651-201-4600 or 800-383-9808

705 Fifth Street Northwest
Bemidji, Minnesota 56601
218-308-2100

320 West Second Street
Duluth, Minnesota 55802
218-723-4642

1505 Pebble Lake Road
Fergus Falls, Minnesota 56537
218-332-5150

3333 West Division Street
St. Cloud, Minnesota 56301
320-223-7300

1400 East Lyon Street
Marshall, Minnesota 56258
507-537-7151

18 Wood Lake Drive Southeast
Rochester, Minnesota 55904
507-206-2700

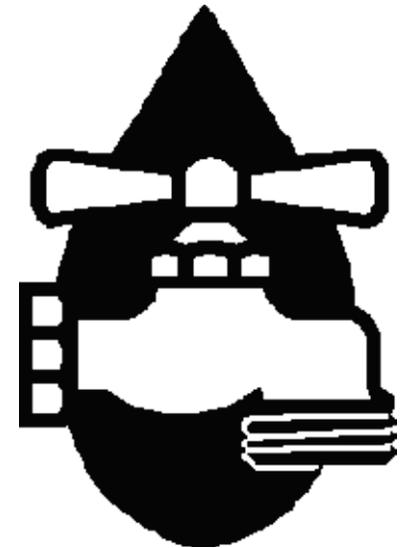
Visit the MDH Well Management Section Web site at:
www.health.state.mn.us/divs/eh/wells.

To request this document in another format, call 651-201-4600.
Deaf and hard-of-hearing: TTY 651-201-5797.

IC# 141-0550

origs/brochures/lead 11/9/2010R
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Lead in Well Water Systems



Well Management Section
Environmental Health Division

Why Is Lead A Health Risk?

Lead is a common metal which has been used over the years in many consumer products. It can still be found in lead-based paint, some imported consumer products, and, under some conditions, in air, soil, household dust, pottery, food, plumbing pipes and components, and drinking water. If it is inhaled or swallowed, lead can build up in the body over time. If too much lead enters the body, it can damage the brain, nervous system, red blood cells, and kidneys. Lead in drinking water can be a particular problem for infants who drink formula made with tap water. Pregnant women and nursing mothers also need to be concerned about lead levels in drinking water, since it can be passed on to unborn children and breast-fed babies.

How Can Lead Get In Your Well Water System?

Lead exists throughout our physical environment. We are exposed to very small amounts each day, usually with no bad health effects. Well water in Minnesota usually does not contain detectable levels of lead. However, the pipes and other components (such as faucets, valves, or fittings) in the household plumbing may contain lead. If they do, lead may dissolve into the water. The longer the water stands idle in the plumbing pipes and components, the more lead that can dissolve into the water.

How Much Lead Is Too Much?

Our bodies accumulate lead from many sources, including air, food, and water. The more we learn about lead, the more we realize that our exposure should be as low as we can reasonably make it. Current state and federal guidelines call for a maximum amount of lead in drinking water of 15 parts per billion.

The most common causes of elevated lead levels in drinking water are:

- Lead pipes, which are typically the worst contributor to elevated lead levels.
- Lead solder, which was used in the past to join copper pipes, but has been illegal in Minnesota since 1985.
- Brass components such as faucets, coolers, and valves. Although brass usually contains low lead levels of 8 percent or less, it can still dissolve lead into the water, especially during the first few months of use. If you have new brass plumbing components installed in your plumbing system, be sure to flush the water before drinking.

Wells drilled over 20 years ago may contain lead “packers” above the well screen. Some brands of submersible pumps manufactured before 1995 may contain leaded-brass components. Since January 1995, all submersible pump manufacturers in America have agreed not to use leaded-brass components in submersible pumps. Some trade agreements with foreign nations allow them to export plumbing components for sale in America that are not lead free, and that in fact can contain significant amounts of lead.

How Can You Protect Yourself From Lead In Drinking Water?

Flush the system before using water for drinking and cooking.

The simplest method to reduce lead exposure from drinking water is to **turn on the cold water tap each morning and let it run for a minute or two**, until the water gets cold. This will “flush” the water that is standing in the plumbing pipes and components. You should do this for all faucets used for drinking and cooking. Flushing will remove much of the lead that may have dissolved into the water overnight. Flush the system any time the water has not been used for six hours or longer. After an extended absence, such as a vacation, flush the system for twice as long as you normally do.

Never use water from the hot-water tap for cooking or drinking.

Hot water dissolves lead from pipes and fixtures faster than cold water. Don’t use hot water for drinking or preparing food items such as instant mix cereals, and **especially baby formula**. Draw water from the cold water tap that has been flushed, and then heat it.

Have the water tested for lead.

To get a complete picture of how much lead is dissolving into your plumbing system, have a laboratory test your water for lead. Testing your household water for lead will require one or more water samples, depending on how much you want to learn about your situation. Be sure to use a laboratory certified by the Minnesota Department of Health (MDH) to test drinking water for lead. To find an appropriate laboratory, look in the yellow pages under “Laboratories-Testing,” or choose a laboratory from the MDH Web site at: www.health.state.mn.us/labsearch. The laboratory can give you information on how to collect samples and ship them to the lab.

First Sample

To learn how much lead dissolves into your water overnight, collect the first water out of the faucet that the family uses most for drinking and cooking water. This first “unflushed” sample will usually give the highest lead level. If this sample does not indicate more than 15 parts per billion of lead, it is likely that a short morning flushing will remove most of the dissolved lead in your water. A word of caution: your situation may not be typical. For example, if your house has a mix of older and newer plumbing components, the lead levels may not be their highest when you first open the faucet. To be sure of your plumbing system components, take a little time and evaluate the plumbing system in your home.

Flushed Sample

If the laboratory test results show elevated lead levels, flush the faucet for a minute or two and collect another sample for testing. The test results from this sample will tell you if the water was flushed long enough. If the test sample still comes back with elevated lead levels, flush longer and test again.