



Private Well Owner Tip Sheet

September, 2016

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888-395-1033 FREE

Treating iron and manganese in well water



Both iron and manganese are metals found naturally in the environment. Iron makes up about 5 percent of the earth's crust while manganese comprises about 0.1 percent of the earth's crust. In a 2009 study of principal aquifers across the country, the U.S. Geological Survey found iron and manganese in about half the wells sampled.

What problems do manganese and iron cause?

Manganese is an essential nutrient at low

Oxidation and filtration involves oxidation of iron and manganese into forms which can then be filtered out.

Work with a qualified water treatment service provider to decide if ion exchange technology or oxidation and filtration is the best approach to treat iron and manganese in your water.

Consult qualified water well system professionals and water treatment service providers in deciding whether to address iron and manganese problems through well construction or through water treatment. Depending on the situation, the costs can vary.

When pursuing options, always have water test results from a certified drinking water testing laboratory. Such results are important, particularly in comparing the treatment ranges for water treatment systems.

For more information on treatment, contact two organizations that certify home drinking water treatment systems: the National Sanitation Foundation (NSF) at www.nsf.org and the Water Quality Association at www.wqa.org.

doses. Recent research indicates (1) a possible link to cancer from over-exposure to manganese, and (2) lower performance on tests measuring intellectual functioning among children exposed to high manganese levels in groundwater-supplied drinking water.

The U.S. Environmental Protection Agency has not established a Maximum Contaminant Level for iron and manganese as a human health risk. The agency has established a Secondary Maximum Contaminant Level (SMCL) for these metals—the level at which iron and manganese tend to cause taste and staining problems.

For iron, the SMCL is 300 micrograms per liter, which is the same as 300 parts per billion. For manganese, the SMCL is 50 micrograms per liter, the same as 50 parts per billion.

At the SMCL level or above, iron can cause an unpleasant metallic taste and cause rusty colored stains in laundry, toilet bowls, sinks, and other surfaces.



Manganese levels at or above the SMCL level also can produce unpleasant tastes and cause black staining.

Addressing problematic levels of iron and manganese

Three basic options are to:

1. Explore with a qualified water well system professional the feasibility of retrofitting the well to bypass the metal-producing zones
2. Construct a new well system that isolates the likely zones of problematic groundwater

Recorded and live webinars



Five free webinars will take place through October on topics related to the quality of water for household water wells.

[Click here](#) to register and to view recordings of other webinars that already have taken place.

Scheduled webinars/FREE:

- September 27—*Perchlorate: What It is and How to Remove It from Drinking Water*
- October 6—*Methane: How it Gets into Drinking Water and How to Remove It*
- October 13—*Removing Iron and Manganese to Improve Water Quality in Residential Wells*
- October 18—*Removing Problematic Fluoride from Residential Water Wells*
- October 25—*Water Treatment System Maintenance Basics*

Recorded webinars/FREE:

- *Water Well Disinfection*
- *The Importance of Water Well Inspections to Health and System Operation*
- *Protecting Your Drinking Water from Lead*
- *Uranium in Drinking Water and What to Do About It*

Well owners' e-manual and app

3. Install appropriate water treatment technology.

Treatment technologies effective for iron and manganese

The two most common methods include:

- Ion exchange
- Oxidation and filtration.

Ion exchange is a physical-chemical process in which ions are exchanged between a solution phase and solid resin phase. A standard household water softener may remove iron and manganese of up to 2000 micrograms per liter.



If you haven't already, check out this free downloadable [well owner app](#) and [free e-version of a well owner's manual](#). Both these nifty tools allow well owners to easily check the basics of water testing, well maintenance, and groundwater protection at their fingertips.



www.wellowner.org

Informing consumers about groundwater and water wells.

National Ground Water Association

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