

Iron & PRIVATE WELLS



What is iron?

Iron is a natural element found in rocks deep underground. Iron is found in the environment as iron compounds joined to other elements like sulfur, carbon, and oxygen.

Iron is used for constructional material and pipes. Iron compounds are used as pigments in paint and plastics. Iron compounds are also used in water-treatment plants as a coagulant.

How does iron get in my private well water?

Iron compounds can enter your private well water from erosion of rocks underground. Iron can also enter groundwater from industrial practices. Acidic water (water with low pH) can make iron compounds more soluble.

How can iron affect my health?

Iron is an essential element, meaning your body needs it in small amounts. It helps with oxygen transport, electron transport, and deoxyribonucleic acid (DNA) synthesis. However, drinking high levels of iron may cause adverse health effects. You can't smell iron. Iron may have a detectable taste or have a rusty color.

High levels of iron can cause gastrointestinal problems. For people with preexisting conditions, like hemochromatosis, drinking high levels of iron may cause heart, liver and pancreas toxicity.

What level of iron should I be concerned about?

The **NC Department of Environmental Quality** calculated a health based value of **2.5 milligrams of iron per liter of water (mg/L)**. This calculation was developed with consideration of health effects in 2017.

The **US Environmental Protection Agency** and **NC Department of Environmental Quality** developed an aesthetic standard of **0.3 mg/L**. This standard was developed to prevent staining, rusty color and metallic taste.

How do I test for iron in my private well?

Use a certified lab to test your well water for iron every two years, as part of the inorganic panel screen. Contact the private well program at your county health department to assist you with getting your water tested. Pricing of testing varies from county to county.

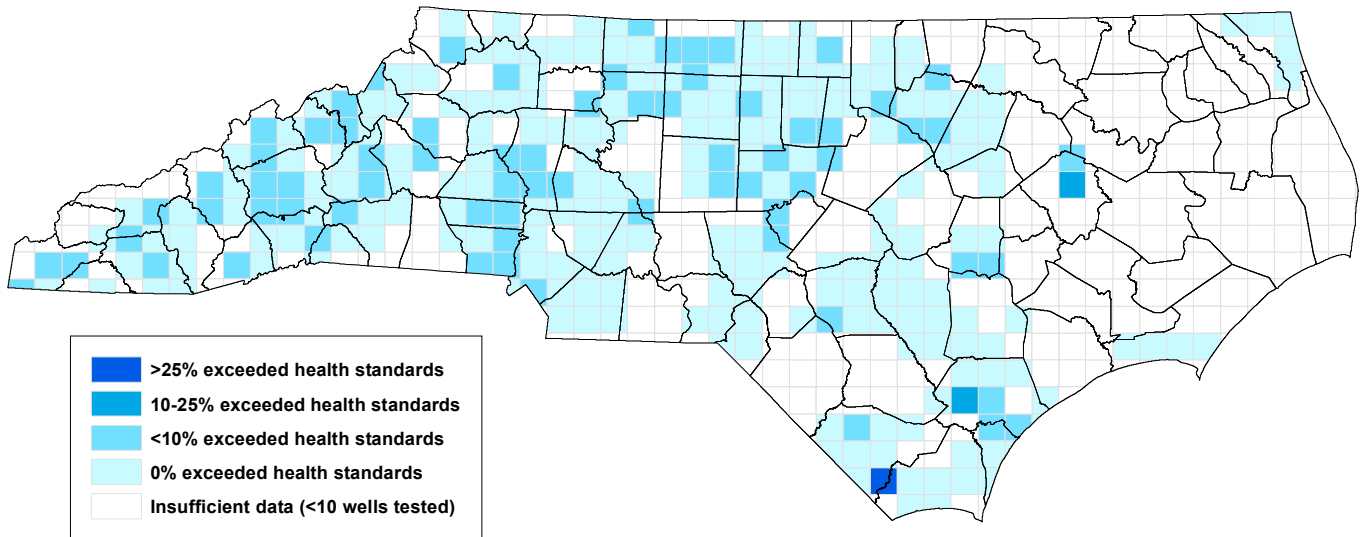
What if my iron levels are high?

You can install a treatment system to reduce the levels of iron in your private well. Treatment systems that reduce the levels of iron in your well water include:

- Oxidizing filters
- Cation exchange, also known as a Water Softener

You can also reduce your exposure by using bottled water or connecting to public water supply, if possible.

Percent of Private Wells Tested Exceeding Federal Standards for Iron, 2011-2013



Where is iron found in NC?

Iron is found at low levels (0.1-62 mg/L) throughout NC. **About 6%** of wells sampled for iron in NC from 2011 to 2013 exceeded the state health-based value (2.5 mg/L). Yet, there are several areas in NC with at least 10% of wells exceeding the state health-based value. See map for areas with elevated iron.

Where can I find more information about iron and my well?

Visit the NC Division of Public Health's Private Well and Health Program website: <http://epi.publichealth.nc.gov/oeep/programs/wellwater.html>.

There you can find:

- Contacts for your county private well program
- Iron in well water maps
- A guide for selecting a treatment system
- Other private well resources

You can also call the Private Well and Health Program at 919-707-5900.

Where did this information come from?

World Health Organization: www.who.int/water_sanitation_health/dwq/chemicals/iron.pdf

Nazanin Abbaspour et al. Journal of Research in Medical Sciences Review on iron and its importance for human health 2014: www.ncbi.nlm.nih.gov/pmc/articles/PMC3999603/

