

# wellcare® information for you about Iron Bacteria & Well Water

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## What is Iron Bacteria?

Iron bacteria are small living organisms that naturally occur in soil, surface and groundwater. These nuisance bacteria combine iron or manganese with oxygen to form deposits of "rust," bacterial cells, and slimy materials that stick to well casings, pumps, pipes, plumbing fixtures, and water appliances often damaging them.

Iron bacteria can be orange, brown, or red in color. Sometimes it floats in the water like orange algae and sometimes you may notice an orange slime that coats the inside the toilet tank that can be wiped off with a finger. You may also notice an oily sheen on the water surface.

Iron bacteria often produce unpleasant tastes and odors commonly reported as: "swampy," "oily," "cucumber," "sewage," "rotten vegetation," or "musty." The taste or odor may be more noticeable if the water is stagnant for some time. Iron bacteria does not produce hydrogen sulfide, the "rotten egg" smell, but can create an environment where sulfur bacteria can grow and produce hydrogen sulfide.

## What are the health effects of Iron Bacteria?

Although iron bacteria can affect how water tastes and smells, there are no associated health risks. However, iron bacteria can clog filters and screens reducing well yield and the effectiveness of some water treatment devices.

If you suspect contamination or experience illness, stop drinking and cooking with the water immediately, and do not resume use until testing has proven it to be safe to use. Always seek the advice of your medical doctor if you have any health concerns.

## How do I test for Iron Bacteria?

The Environmental Protection Agency (EPA) has not set a maximum contaminant level (MCL) for iron bacteria in drinking water. Too much iron bacteria in water will cause the water to be too unpleasant to drink. So if you suspect that you have iron bacteria, contact your state or local health department or the wellcare® Hotline for a list of state-certified laboratories in your area that can perform iron bacteria testing. The characteristics listed are typical of iron bacteria. However, objectionable stains, tastes, or odors may be due to other causes including iron, sulfate, hydrogen sulfide, or manganese. Testing for these contaminants is also recommended to determine proper treatment.

## What are the treatments for Iron Bacteria in drinking water?

Treatment techniques which may be successful in removing or reducing iron bacteria include physical removal, pasteurization, and chemical treatment. Treatment of heavily infected wells may be difficult, expensive, and only partially successful.

Physical removal is typically done as a first step in removing iron bacteria from heavily infected wells. The pumping equipment in the well must be removed and cleaned, which is usually a job for a well contractor or pump installer. The well casing is then scrubbed by use of brushes or other tools. Physical removal is usually followed by disinfection. For more information on “Disinfecting Your Well” view our information sheet on our website at [www.watersystemscouncil.org](http://www.watersystemscouncil.org).

Pasteurization has been successfully used to control iron bacteria. Pasteurization involves a process of injecting steam or hot water into the well and maintaining a water temperature in the well of 140°F/60°C for 30 minutes. Pasteurization can be effective, however, the process may be expensive.

A chemical treatment and filtration system is effective and may be used after the well has been cleaned to maintain the water quality in your home. These systems have 3 stages: disinfectant injection, retention (time to kill bacteria), filtration. Disinfectants that may be used like ozone and chlorine need time to kill bacteria. A retention tank (also called a detention or oxidation tank) is used to mix the water and disinfectant. The filter should be a backwashing media filter and should be rated at 10 micron filtration. All components of the treatment system are sized based on your flow rate requirement. The more water needed, the bigger the filter and retention tank must be.

For more information on how to treat your well and well water for iron bacteria, contact your water well professional.

## **Preventing Iron Bacteria During Construction or Repair**

Iron bacteria can be introduced into a well or water system during drilling, repair, or service. Iron bacteria can be extremely difficult to remove once a well is heavily infested. Standard treatment techniques may be only partially effective. For these reasons, preventing contamination is key. Take these steps to help prevent introducing iron bacteria into a well or water system during drilling, repair, or service:

- Only use disinfected water during drilling, repair, or priming of pumps; never use water from a lake or pond.
- Ensure that the wellhead is watertight, properly capped, and extend 12 inches or more above ground. Check local or state regulations for exact height requirements.
- When well pumps, pipes, and equipment are repaired, they should not be placed on the ground where they could pick up iron bacteria. Instead, place them on a clean, dry drop cloth.
- The well, pump, and plumbing should be disinfected after repairs are made.

## For more information on Iron Bacteria

Minnesota Department of Health, Well Management Program. *Iron Bacteria in Well Water*.  
<http://www.health.state.mn.us/divs/eh/wells/waterquality/ironbacteria.html>

New Hampshire Department of Environmental Services. *Environmental Factsheet: Iron Bacteria in Drinking Water*.  
<http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/documents/dwgb-3-21.pdf>

St. Croix County Government. *Iron Bacteria in Drinking Water*.  
<http://www.co.saint-croix.wi.us/vertical/sites/%7BBBC2127FC-9D61-44F6-A557-17F280990A45%7D/uploads/%7BB2FB58C9-5F9A-470C-92A8-B5D9689EA1A9%7D.PDF>

PennState Extension, Water Quality. *The Facts on Iron Bacteria*.  
<http://extension.psu.edu/natural-resources/water/news/2010/iron-bacteria>

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## FOR MORE INFORMATION to help you maintain your well and protect your water supply



**wellcare®** is a program of the **Water Systems Council (WSC)**. **WSC** is the only national organization solely focused on protecting the health and water supply of the 43 million people nationwide who depend on household wells for their water supply.

This publication is one in a series of **wellcare®** information sheets. There are more than 90 information sheets available **FREE** at [www.watersystemscouncil.org](http://www.watersystemscouncil.org).

Well owners and others with questions about wells or groundwater can also contact the **FREE** wellcare® Hotline at 1-888-395-1033 or visit [www.wellcarehotline.org](http://www.wellcarehotline.org).

### JOIN THE WELLCARE® WELL OWNERS NETWORK!

By joining the **FREE** wellcare® Well Owners Network, you will receive regular information on how to maintain your well and protect your well water.

Contact us at 1-888-395-1033 or visit [www.watersystemscouncil.org](http://www.watersystemscouncil.org) or [www.wellcarehotline.org](http://www.wellcarehotline.org).

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