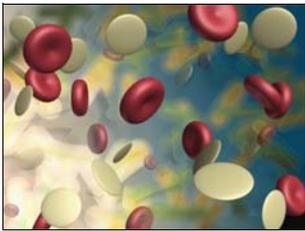


PRIVATE DRINKING WATER IN CONNECTICUT

Publication Date: April 2009

Publication No. 11: Iron and Manganese Bacteria in Private Well Water (Part 2)

Introduction



Iron and manganese bacteria are not commonly tested for in private well systems, but they can add to water quality problems by creating taste, odor, and visual concerns. More importantly they can render treatment systems inoperable because of their slime buildup in the resin/filter media units. The presence of iron and manganese can promote bacteria with scientific names including Crenothrix, Leptothrix, Sphaerotilus, and Gallionella. In this document they will simply be referenced as iron and manganese bacteria. The iron/manganese bacteria may impact water appliances, such as the water heater and dishwasher. The appliances utilizing hot water are more impacted. These bacteria form heavy, jelly-like stringy masses that congregate in piping limiting the carrying capacity of the water distribution system.

Health Impact

Keep in mind that drinking water is not sterile. Drinking water contains microorganisms, some of which can cause taste and odors, but for the most part, are harmless. Iron/manganese bacteria utilize iron and/or manganese to grow and thrive and, as a result, they create water quality problems. Iron/manganese bacteria are normally considered non-pathogenic, that is, they are not associated with causing disease.

Problems

The presence of iron and manganese does not necessarily mean that iron and manganese bacteria are present, but it is likely if you have any of the following problems:

- Well loss of yield
- Poor pump performance
- Encrustation of water line/pump
- Turbidity
- Red water
- Objectionable Taste/odor
- Water quality intermittent changes
- Poor performance of hot water appliances (water heater, dishwasher, clothes washer, etc.)



Also, check the inside of your toilet tank. If you notice reddish, slimy, gelatinous, stringy masses and an oily sheen on the water surface, it is likely that iron/manganese bacteria are responsible for the problem. You cannot determine the potential seriousness of the problem based on the amount of iron/manganese bacteria until action is taken to reduce these organisms and improved water quality is realized.

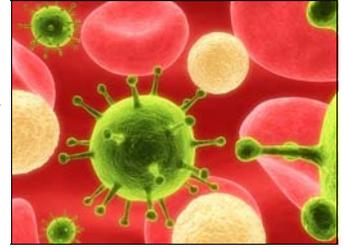


Produced by The State of Connecticut Department of Public Health
Environmental Health Section, Private Well Program
450 Capitol Avenue, MS#51REC, PO Box 340308, Hartford, CT 06134
Phone: 860-509-7296 Fax: 860-509-7295



Methods of Corrections

It is important to remove the iron/manganese bacterial growth and reduce or eliminate the population of those organisms in the well and distribution system. This is best done by a competent well driller and/or plumber, because oftentimes a high level of disinfection of the well and water supply system is needed to improve the water quality. Also, in addition to disinfection, acidification may be necessary to get a higher efficiency of removal. Back to back disinfection may need to be done several times in order to reduce the accumulated mass of iron/manganese bacteria.



Maintenance

Because it is almost impossible to eliminate all iron/manganese bacteria, it may be necessary to rehabilitate the well semi-annually or annually. This will be dependent on the effectiveness of the efforts made in eliminating these organisms. For example, in the Midwest, some wells require treatment every six months to one year because of iron-related bacterial plugging and mineral deposit problems.

Additional Information

It would be wise to reduce iron/manganese bacteria regardless of whether there is other treatment being contemplated, particularly iron and manganese removal (see Publication #27 for more information on well disinfection procedures).

References

Mansuy, N. "Water Well Rehabilitation. A Practical Guide to Understanding Well Problems and Solutions." (Layne Geosciences, Inc.) Lewis Publisher 1999 by CRC Press, LLC.

Manual of Individual Water Supply Systems, Office of Drinking Water EPA 570/9-82-04 October, 1982. US EPA Washington, DC 20460

Salvato Jr., Joseph. Environmental Sanitation, New York: John Wiley & Sons, Inc. 1958

For more information please click on the following links:

EPA Office of Groundwater and Drinking Water

<http://www.epa.gov/ogwdw/>

EPA New England

<http://www.epa.gov/region01/>

Adapted from *Healthy Drinking Waters for Rhode Islanders*, University of Rhode Island Cooperative Extension, April 2003.