Water Treatment
NOTES

Cornell Cooperative Extension, College of Human Ecology

Dealing with a boil water order

ANN T. LEMLEY AND ANNELIES J. HEIDEKAMP
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Flooding, water treatment plant failure or a number of other causes can lead to potentially unsafe drinking water. For your safety, a boil water order will be issued by your local water district or public health authority as a precaution. This fact sheet will inform you about what to do when a boil water order has been issued in your area.

For what uses should water be boiled?

In all following cases water should be boiled before use.

- Water used in beverages such as coffee, tea or lemonade
- Water used as an ingredient in food products (i.e. sauces, desserts, dressings, etc)
- Water used for making ice
- Water used for hand washing
- Water used for washing and sanitizing of food surfaces (i.e. dishes, counter tops, etc)
- Water used for washing produce

It is not necessary to boil tap water used for other household purposes, such as showering, laundry, or bathing. Adults, teens, and older children can wash, bathe, or shower; however, they should avoid swallowing the water. If the dishes are washed by a dishwasher, make sure the water temperature reaches 180 F. This temperature combined with the dishwasher detergent will give sufficient disinfection. When washing dishes by hand, the water should be chlorinated by household bleach. Use the amounts mentioned in the next segment

How to boil/purify your water

- Bring all water to a rolling boil, and let it boil for at least three (3) minutes. Boiling will kill bacteria and other organisms present in the water. Let the water cool down before use. Store boiled water in a disinfected container in the refrigerator. Use boiled water for the above mentioned uses until the boil water order has been lifted.
- If there is no gas or electricity available to boil the water you might use fresh liquid household bleach. Add eight (8) drops (or ¼ teaspoon) of liquid bleach to one gallon of clear water, or sixteen (16) drops (or ½ teaspoon) per gallon of cloudy water. Mix this thoroughly and let it stand for thirty (30) minutes before use. The odor and taste of chlorine indicates that the purification is working.
- Other solutions can be the use of bottled water or water purification tablets.

Water treatment devices

Water that is treated by devices that improve water taste and odor such as carbon filters and water softeners still must be boiled before use. Devices designed to disinfect water such as UV light, may be used as an alternative to boiling. When using UV light as a disinfectant treatment, be sure that the water is clear, because UV light cannot penetrate cloudy water and it will not be disinfected.

NB

- Some boiled water can be dangerous for pregnant women and small children due to a higher concentration of nitrates
- If you are boiling water in a microwave, be careful of the formation of super heated water. Therefore, add a glass rod or wooden or plastic stick to the container for prevention
- Filters alone will not disinfect water
- Make sure to boil water longer at higher altitudes, because water boils at a lower temperature
- Boiling or chlorinating your water will also deactivate protozoa like *Cryptosporidium* and *Giardia*

References:

Wagenet, L., Darling S. and Lemley A. Factsheet 10: Ultraviolet radiation for disinfecting house hold drinking water. http://www.cce.cornell.edu/factsheets/wq-fact-sheets/FSpdf/Factsheet10.pdf

How long should you boil water to make it safe to drink? *Commun Dis Intell*. SEP 3 1998 22(9):191.

Krasner S.W., Wright J.M. The effect of boiling water on disinfection by-product exposure. *Water Research* MAR 2005 39 (5): 855-864.

Negret, J.P. Boiling water and the height of mountains. *Physics Teacher* MAY 1986 24 (5): 290-292

http://www.metrokc.gov/health/disaster/watersafety.htm

http://www.dhs.ca.gov/epo/TimeSite/BoilWaterOrder.pdf

http://www.fw-ac-deptofhealth.com/PDF/Food_Protection/BoilWaterOrderAdvisory.pdf

http://www.in.gov/isdh/regsvcs/foodprot/boil_water.htm

For disinfecting wells:
http://www.cce.cornell.edu/factsheets/wq-fact-sheets/faq/question1.html

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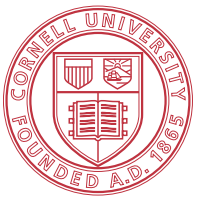

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