

Emergency Disinfection of Drinking Water

EPA 810-F-93-002

July 1993

In times of extreme crisis, local health departments may urge consumers to use more caution or to follow additional measures. If local public health department information differs from this advice, the local information should prevail.

When the home water supply is interrupted by natural or other forms of disaster, you can obtain limited amounts of water by draining your hot water tank or melting ice cubes. In most cases, well water is the preferred source of drinking water. If it is not available and river or lake water must be used, avoid sources containing floating material and water with a dark color or an odor.

When emergency disinfection is necessary, examine the physical condition of the water. Disinfectants are less effective in cloudy water. Filter murky or colored water through clean cloths or allow it to settle, and draw off the clean water for disinfection. Water prepared for disinfection should be stored only in clean, tightly covered, containers, not subject to corrosion.

There are two general methods by which small quantities of water can be effectively disinfected. One method is boiling. It is the most positive method by which water can be made bacterially safe to drink. Another method is chemical treatment. If applied with care, certain chemicals will make most water free from harmful or pathogenic organisms.

METHODS OF EMERGENCY DISINFECTION

Boiling: Vigorous boiling for one minute will kill any disease-causing microorganisms present in water (at altitudes above one mile, boil for three minutes). The flat taste of boiled water can be improved by pouring it back and forth from one container to another (called aeration), by allowing it to stand for a few hours, or by adding a small pinch of salt for each quart of water boiled.

Chemical treatment: When boiling is not practical, chemical disinfection should be used. The two chemicals commonly used are chlorine and iodine. Chlorine and iodine are somewhat effective in protecting against exposure to *Giardia*, but may not be effective in controlling *Cryptosporidium*. Therefore, use iodine or chlorine only to disinfect well water (as opposed to surface water sources such as rivers, lakes, and springs), because well water is unlikely to contain these disease causing organisms. Chlorine is generally more effective than iodine in controlling *Giardia*, and both disinfectants work much better in warmer water.