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Treating Drinking Water for Emergency Use

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Washington State Department of Health
Environmental Public Health
Office of Drinking Water

When do you need to treat drinking water?

Normally your water is safe to drink, but you may need to treat it if your usual water supply is interrupted or becomes unsafe for drinking. Conditions that may require treatment of drinking water include:

- Disasters that interrupt your water supply, such as floods, earthquakes, and power outages.
- Water supply system disruption or loss of pressure due to line breaks or repairs.
- Special conditions when your water system, local health department, or the state Department of Health advise you to boil or treat the water before drinking.

Preparing for emergencies

The best way to ensure a safe supply of drinking water is to store enough water to last through an emergency. Although most emergencies are unexpected, you may be able to anticipate situations by watching or listening to weather reports. You should also pay attention to notices from your water system about planned water disruptions or other conditions that could signal a problem with your water supply.

Even if you don't store a supply of water, keep the following items on hand to treat water during an emergency:

- Fresh supply of liquid bleach and kitchen measuring spoons or a medicine dropper. You can get a dropper with teaspoon and milliliter markings at a drug store.
- Equipment to boil water, such as propane or gas stoves or an outside barbecue grill. Remember, your usual source of energy may not be available during an emergency.

Storing drinking water for emergencies

To prepare for a drinking water emergency, the American Red Cross recommends storing **one gallon of water per person per day—enough for at least three days** (two quarts for drinking and two quarts for food preparation and sanitation).

Very warm temperatures and intense physical activity can double that amount; children, nursing mothers, and ill people will need more.

- **Collect the water from a safe supply.** If you get your water from a private well or a water system serving fewer than 15 homes or businesses, ask your local health department how to have it tested.
- **Use proper storage containers.** Store the water in containers made for water storage, or glass and plastic jugs previously used for soft drinks or bottled water. Clean the containers thoroughly before using and make sure the caps fit tightly. Never reuse a container that held toxic substances, such as pesticides, chemicals, or oil.
- **Add 1 or 2 drops of liquid bleach per gallon** to maintain water quality while in storage. Seal the container tightly and label with the date.
- **Store in a cool place,** safe from flooding, freezing, and damage from earthquakes. We recommend that every six months you use or discard stored water and replace it with a fresh supply.

Treating water during an emergency: Boil or add bleach?

If you are informed or have reason to believe your tap water is unsafe, you should treat the water before using it for drinking, preparing food, or brushing teeth.

There are two primary ways to treat water: boil it or add bleach. If the supply is unsafe because of untreated surface water (from floods, streams or lakes), boiling is the better treatment.

If the water is cloudy, you should filter it before boiling or adding bleach. **Filter cloudy water** with filters designed for use when camping, coffee filters, paper towels, cheesecloth, or a cotton plug in a funnel.

Boiling

Boiling is the best way to purify water that is unsafe because of viruses, parasites, or bacterial contamination. Don't boil the water if the contaminants are toxic metals, nitrates, pesticides, solvents or other chemicals. Boiling won't remove chemicals or toxins

- **Bring the water to a roiling boil for one full minute.** Boiling is the best way to treat water from—or affected by—surface water.
- Keep boiled water covered while it cools and then store it in the manner described in "Storing Drinking Water for Emergencies" (see prior page).

Purify by adding liquid chlorine bleach

If boiling is not possible, add household liquid bleach to water contaminated with viruses, parasites, or bacterial contamination. Bleach won't remove chemicals or toxins.

Household bleach, such as Clorox or Purex, is usually 5.25 to 8.25 percent chlorine. Don't use bleaches that contain perfumes, dyes or other additives. Be sure to **read the label.**

- Filter cloudy water before adding bleach.
- Place the water in a clean container. Use the table below to add the right amount of bleach. Mix thoroughly and let it stand for 60 minutes before drinking.
- Purifying tablets or chemicals designed for camping or backpacking can also treat water effectively. Always follow the directions on the package.

Treating water with household bleach 5.25 to 8.25 percent chlorine

Water to be treated	Bleach to add
1 quart, 1 liter	5 drops
½ gallon, 2 quarts, 2 liters	10 drops
1 gallon	¼ teaspoon
5 gallons	1 teaspoon
10 gallons	2 teaspoons

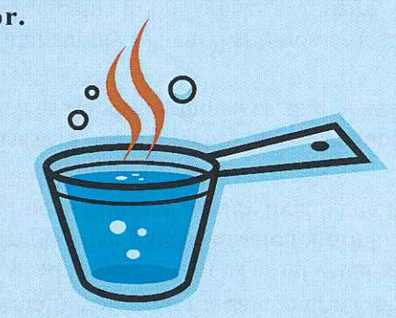
The treatments described here only kill bacteria or viruses.

If you suspect the water is unsafe because of chemicals, oils, poisonous substances, sewage or other contaminants, do not drink the water.

A few words of caution

Bleach will not remove chemical pollutants or kill some disease-causing organisms commonly found in surface water supplies, such as *Cryptosporidium*. This protozoan parasite can cause gastrointestinal illness. For a person with a weakened or compromised immune system, it can cause prolonged illness, even death.

Avoid water that contains solid materials, has an odor, or a dark color.



When water is hard to find

When tap water and bottled water are unavailable, you can find water in some unexpected places.

Hidden water sources in your home

Safe water sources in your home include:

- Water from the drain spout of a water heater. Be sure the electricity and gas are off before opening the spout. Drain the water into a clean storage container.
- Water drained from the pipes inside your home. Open a faucet on the top floor of your home. Next, go to the faucet at the lowest point in your home. Open the faucet and drain the water you need into a clean storage container.
- Water placed in ice cube trays in the freezer.

Don't use water from toilet flush tanks or bowls, radiators, waterbeds, swimming pools, or spas.

Sources of water outside your home

Before you drink water from these surface water sources, boil it for one full minute:

- Rainwater
- Lakes
- Rivers and streams
- Natural springs
- Ponds