Accessing and Purifying Water During Disaster Emergencies

CANNOT SURVIVE WITHOUT WATER!

Plan for one gallon (1 gallon = 4 quarts or ~4 liters or 128 oz or 16 eight-oz bottles) per person per day: Drink ½ gallon of water per day—more if you are in a hot climate, sick, or pregnant. Use the rest for hygiene. **Only use water that has been disinfected for drinking, cooking, making any prepared drink, washing dishes, and brushing teeth**. Below are five ways of ridding the water of pathogenic bacteria, viruses, and protozoa. Water that has been contaminated with chemicals cannot be purified and should not be used.

ACCESS

1. **Store 10-14 day supply of water, 1 gallon per person per day**. Don't forget water for pets. You can either:
   - Store commercially bottled water and/or
   - Store your own tap water
     - Use 2-liter soda bottles. Rinse well in clean water. Do not use plastic jugs that have had milk or milk products in them.
     - Fill with tap water. Date the bottle. Store the bottle.
     - Keep for 6 months then repeat procedure.
2. **Access water from your hot water heater**. Now, *before the disaster*, make sure that the water heater is secured to the wall. If it falls, the water will be lost. (See separate handout on accessing water from the hot water heater.) A 40-gallon hot water heater will supply a family of 4 for ~10 days.

PURIFY

3. **Use bleach**.(Parts of this section were adapted from the Environmental Protection Agency, EPA, https://www.epa.gov/ground-water-and-drinking-water/emergency-disinfection-drinking-water)
   - Another source of fresh water could be Lake Washington or Lake Union or Lake Sammamish. Water from rain barrels can also be used, although generally, flowing water is a better choice than still water. Do not use water that is salty—from Puget Sound or the Pacific Ocean. Avoid grossly contaminated water.
   - Disinfection does not work as well if water is cloudy or colored. If there are particles in the water, let the water sit for 30 minutes so particles can settle to the bottom. Next strain the water using a cloth or paper towel, or a coffee filter, or an article of clothing, like socks or hosiery, into a clean container.
   - For each gallon of water, add chlorinated bleach (like Clorox), 8 drops of regular-strength bleach or 5 drops of concentrated bleach. Accurately measuring drops may be difficult without an eye dropper, so you can:
     - Use a straw—put straw in bleach; cover end of straw with your thumb; remove straw from bleach; slowly release thumb so that individual drops fall and are collected into a separate container; add those drops of bleach to the water container. *Note*: The size of the straw may alter drop size.
     - Use a 1/8 teaspoon measure: Fill the 1/8 teaspoon nearly full to equal 8 drops; fill it about half full to equal 5 drops. If your smallest measuring spoon is ¼ teaspoon, then estimate a half amount for directions for 1/8 teaspoon. (1 milliliter = 15 drops; 1 teaspoon = ~ 5 milliliters; 1 teaspoon = 75 drops; 1/8 teaspoon = ~9 drops).
     - If you have neither straw nor measuring spoon, estimate as closely as you can and go by smell and taste.
   - Allow treated water to stand for 30 minutes. Properly treated water has a slight chlorine odor. If there is no chlorine odor, add the same amount of bleach wait 15 minutes, and recheck for chlorine odor. If the chlorine taste is too strong, pour the water from one clean container to another and let it stand a few hours before use.
4. **Use commercial products**. Travel or outdoor recreation stores have iodine tablets, ultra-violet purifiers, pump- and gravity-filters, all of which would be useful in an emergency kit. Follow specific instructions for each.
5. **Boil water if you have a power source**. If the water is cloudy, or if there is particulate matter, filter it first. Bring to a rolling boil for at least one minute. Above 5,000 feet, boil the water for 3 minutes. Let water cool naturally and store in clean, covered containers. To improve the flat taste of boiled water, add a pinch of salt, or pour it from clean-container to clean-container several times. (From https://www.epa.gov/ground-water-and-drinking-water/emergency-disinfection-drinking-water)