# THE WATER YOU NEED FOR EMERGENCIES

### How to Keep a Clean and Safe Water Supply

Santa Barbara County, California, residents lost power, gas and potable water services when a deadly mudslide scoured their community in January. Many neighborhood residents left their homes or waited to be rescued when massive flooding inundated or destroyed their neighborhoods. In the Montecito Water District, authorities advised everyone to boil potentially contaminated tap water before drinking it.

On the other side of the country, Canton, North Carolina, residents went without water service for five days when aging water pipes broke during freezing temperatures. Exacerbating the outages was when a local paper mill spiked its water usage at 320,000 gallons – up from its average daily usage of 100,000 gallons – when freezing temperatures hit.

People in those unfortunate communities had to scramble to find safe drinking water. They also experienced the extended inconvenience of other mandated water conservation measures – no baths or showers, to name two.

## HOW DISASTERS AFFECT COMMUNITY CLEAN WATER SUPPLIES



Floods and other disasters can damage drinking water wells and lead to aquifer and well contamination. Floodwaters can contaminate well water with livestock waste, human sewage, chemicals and other contaminants, which can lead to illness when used for drinking, bathing and other hygiene activities. Before an emergency or a temporary problem with a community water system, a community drinking water treatment facility will have an emergency plan in the event that service is disrupted. Listen to emergency broadcast notifications and safeguard your water supply accordingly.

# WHAT YOU NEED TO KNOW

Before drought or disaster shuts down potable water service in your community, you need to know four important facts about storing and maintaining an emergency water supply:

- 1. How much water is needed for you (individual) and your family (including pets).
- 2. How to ensure the water is safe.
- 3. If you run out of water, where to find emergency water solutions.
- 4. How to store water.

# HOW MUCH EMERGENCY WATER IS ENOUGH?

FEMA and the Red Cross recommend storing a three-day supply of at least 1 gallon (about 4 liters) of water per person, per day. A healthy, normally active person requires at least ½ gallon just for drinking.

When determining how much water to store, consider the following:

- Caffeinated drinks and alcohol dehydrate the body, which increases the need for drinking water.
- Individual needs vary, depending on age, physical condition,

A minimum of 6 ounces of water per day is required for survival. activity, diet and climate.

- Children, nursing mothers and ill people need more water.
- Very hot temperatures can double the amount of water needed.
- A medical emergency might require additional water.
- Pets will consume varying amounts of water. A 70-pound dog, for example, will need nearly as much drinking water per day as an adult human.

#### WATER REQUIREMENTS FOR BASIC SURVIVAL VS. EMERGENCY DISASTER RECOVERY

### Survival minimums

Coast Guard studies on water requirements in survival conditions found that:

- A minimum of 6 ounces of water per day is required for survival.
- This 6-ounce figure is just a base number and can be affected by the size, age and weight of an individual.
- Without water, an average person can survive between three to five days.
- There have been documented cases where a human has lasted longer than five days under the right conditions, but they are rare.



WATER SUPPLY PREPAREDNESS

#### EMERGENCY DISASTER RECOVERY REQUIRES MORE WATER

The foregoing survival figures are based on survival tests during which the subjects sat motionless in life rafts with no other goals past survival. Emergency disaster conditions, on the other hand, are completely different.

Emergency survivors are not sitting on a life raft or a beach. They are involved in the strenuous activity of evacuating, digging through wreckage, walking long distances and many other physical activities that require hydration, hence, the 1/2 gallon (at least) recommendation at the beginning of this section.



# TAPPING ALTERNATIVE EMERGENCY WATER SOURCES

In an emergency, and lacking access to a stock of bottled or packaged water, you can find alternative sources both inside and outside your home. Before you drink that water, take the precautionary steps discussed in the next section. DO NOT DRINK water that has an unusual odor or color or that you know or suspect might be contaminated with fuel or toxic chemicals.

# EMERGENCY POTABLE WATER SOURCES INSIDE THE HOME:

- Water stored in your home's hot water tank before the contamination event.
- Melted ice cubes made with water that was not contaminated.
- Water from your home's toilet tank (not from the bowl), if it is clear and has not been chemically treated with toilet cleaners such as those that change the color of the water.

- Liquid from canned fruit and vegetables (make sure the can is intact and undamaged).
- Listen to reports from local officials for advice on water precautions in your home. Locate your master water shut-off valve. It may be necessary to shut off the main water valve to your home to prevent contaminants from entering your piping system.

### OUTSIDE THE HOME:

- Rainwater accumulated in a rain barrel.
- Streams, rivers and other moving bodies of water.
- Ponds and lakes.
- Natural springs.
- NOTE: Water from sources outside the home MUST BE TREATED as described in the following section.

BEFORE YOU DRINK THAT WATER, TAKE THE PRECAUTIONARY STEPS DISCUSSED IN THE NEXT SECTION.



### MAKING YOUR WATER SAFE TO DRINK

Water often can be made safe to drink by boiling, adding disinfectants or filtering. If the water is contaminated with fuel or toxic chemicals, you cannot make it safe to drink.

### BOILING



 If you don't have safe bottled or packaged water, you should boil drinking water to make it safe. Boiling kills disease-causing

organisms, including viruses, bacteria and parasites. Allow the water to boil for at least 1 minute (3 minutes at altitudes above 6,500 feet).

• Boiled water can be used for drinking, cooking and washing. You can improve the flat taste of boiled water by pouring it from one container to another and then allowing it to stand for a few hours, or by adding a pinch of salt for each quart or liter of boiled water. for water storage. Do not use containers previously used to store chemicals or other hazardous materials. Filter the disinfected water through a clean cloth, paper towel or coffee filter, OR allow it to settle. Draw off the clear water.

- Special disinfecting instructions:
- Using chlorine bleach:
- Add 1/8 teaspoon (or 8 drops; about 0.625 milliliters) of unscented liquid household chlorine (5-6%) bleach for each gallon of clear water (or 2 drops of bleach for each liter or each quart of clear water).
- Add 1/4 teaspoon (or 16 drops; about 1.50 milliliters) of bleach for each gallon of cloudy water (or 4 drops of bleach for each liter or each quart of cloudy water).
- Stir the mixture well. Let it stand for 30 minutes or longer before you use it.
- Using iodine or chlorine dioxide tablets:
- Follow the manufacturer's instructions.
- Store the disinfected water in clean, disinfected containers with tight covers.

### FILTERING



 Carefully read and follow the manufacturer's instructions for the water filter you intend to use. Many portable water filters can remove diseasecausing parasites from drinking water. If you choose a portable water

filter, pick one that has a filter pore size small enough to remove both bacteria and parasites.

• Most portable water filters do not remove viruses. After filtering, add a disinfectant such as iodine, chlorine or chlorine dioxide to the filtered water to kill any viruses and remaining bacteria.

### DISINFECTING



 If you don't have clean, safe bottled water and boiling is not possible, you often can make water safer to drink by using a disinfectant. Use unscented household chlorine

bleach, iodine or chlorine dioxide tablets. These products can kill most harmful organisms, such as viruses and bacteria. However, only chlorine dioxide tablets are effective in controlling moreresistant organisms, such as the parasite Cryptosporidium.

• To disinfect water, clean and disinfect the containers properly before each use. Use only containers that are approved





### TREATING CLOUDY WATER

Allow the water to settle. Alternatively, filter the contaminant-free water through a clean cloth, paper towel or coffee filter and draw off the clean water. Bring the clear water to a rolling boil for 1 minute (or 3 minutes at elevations above 6,500 feet). Allow the boiled water to cool and store it in a clean, sanitized container with a tight cover.

### STORING YOUR EMERGENCY WATER SUPPLY

Water storage drums are one of the most economical ways to store large amounts of safe drinking water for emergencies. They come in a variety of sizes; 5-, 15-, 30- and 55-gallon drums. Based on the previously mentioned FEMA recommendations that the average person needs 1/2-gallon a day for consumption, 1/2-gallon a day for cleaning, hygiene, etc., a 55-gallon drum would accommodate a family of four for just over 13 days.

Make sure you purchase the Water Preserver Concentrate to sterilize the water to have up to five years of shelf life. For complete instructions and information on how to use water barrels safely, please visit our "How to Use a Long-Term Water Storage Drum" guide.

### SUMMARY

You should have a three-day supply of emergency water on hand. Your stock should be at least 1 gallon of water per person per day, and allow for more, depending on varying needs. Don't forget pets. Bottled water will suffice in emergencies, but it does not have a long-term shelf life. You can tap into additional supplies of water inside and outside the home, but be careful to make the water safe to drink by boiling, disinfecting or filtering it. Store your water supply in safe containers and use a water preserver concentrate to sterilize it for a five-year shelf life.

Sources for this article are listed and linked in the text.

