

## EMERGENCY WATER

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To the surprise of many, the need for water is much higher than for food. Many people have lived for 30 days with no food, but without water, after three or four days you are in serious trouble.

People tend to underestimate how much water is actually needed to perform normal, routine tasks of daily living.

Drinking water is the primary need, but you may need additional water for baths, cooking, flushing toilets, cleaning eating utensils, washing clothes and other chores.

Water availability is affected in natural and man made disasters. In every disaster, the majority of the general population is totally unprepared for even a small interruptions in normal utility and food distribution services. In most disasters, the victims expect and sometimes demand that "someone" provide needed protection, water, shelter and food.

There are myriad ways the water supply can be disrupted. The most common way is due to lack of electricity. With no electricity, there will be no water from water purification plants or your well--unless it is a non-electric well.

The second most common way is a water main rupture. Recently, more than 10,000 people in the southeastern United States were out of water for over two weeks due to such a rupture.

Wells can be contaminated by flooding, and well pumps can become damaged by flooding. Freezing weather also takes its toll on well and city water lines.

Local streams are never safe during disasters because raw sewerage and polluted surface water can enter the streams.

During a recent hurricane, the wind blew an excessive amount of leaves into the affected area's reservoirs. The water turned yellow for three weeks and acquired an objectionable taste due to the abnormal amount of leaves that were decomposing.

Container storage -- certain plastic containers such as drywall buckets and plastic trash containers are not intended for food contact and may leach undesirable chemicals into stored water. These containers should be used for transporting water or for storage of water not used for consumption.

Although the 5 gallon drywall bucket is not good for storing drinking water, it is an excellent choice for transporting water and for storage of water not used for consumption.

Any container used for transportation or for storage needs a top. during transportation, the top reduces spillage. Tray transporting water in the car trunk in a bucket without a top and you will see how much sloshes out. During storage, the top keeps out dirt, dust, insects, etc.

The 5 gallon buckets used by restaurants for food products are

excellent for storing drinking water. If no containers are available, plastic sheets or bags can be used to line porous containers for storing water in emergencies. A depression can ever be dug in the ground and lined with plastic to hold water temporarily.

In storing water for emergency uses, most authorities recommend a minimum of 2 gallons per person per day. This should include one half gallon for drinking and the balance for other uses. It is preferable not to ration water in a survival situation because this may have adverse affects on the health of people involved.

I store non-drinking water for dishwashing, toilets, washing clothes, etc. in 5 gallon plastic drywall buckets. My drinking water is stored in out bleach bottles and plastic milk jugs. I add 16 drops of liquid bleach (4-6 percent sodium hypochlorite) per gallon of clear water to protect it during storage form the growth of micro-organisms. I suggest storing an extra jug of bleach to purify any new water that is of questionable quality.

Be careful not to misidentify bleach bottles as containing drinking water if you also have bleach on hand. This is especially dangerous where children are involved. Always remove the bleach label and replace it with the word "WATER" in large indelible letters on the jugs in which the water is stored.

The Utah State University Extension Service offers the following instructions for heat sterilization when using glass containers to store water: "fill clean fruit jars with water, leaving one inch of head space at the top of the jar. Place clean sterilized lids on the jar and process the water in a boiling water bath as fruit juice is processed. Quart jars should be processed 20 minutes. Two quart jars 25 minutes."

Whatever the container used, it is probably a good idea to date each container with a large magic marker or other marking instrument. I'm glad I did mark my first water storage jugs because I now have water that is 8 years old. Water is used on a first-in first-out basis. My water supplies have been used many times in the last 8 years.

Since I do own a generator, a power outage will shut down my well. No electricity, no electric well pump. On several other occasions, my well pump had maintenance problems and the stored water came in very handy while the pump was being repaired.

Don't store plastic containers near fuels, pesticides or similar materials. The vapors from these can penetrate the plastic and contaminate the water. Also, store water in the dark to protect the plastic from sunlight.

One problem commonly encountered in water storage is inventory control. You must be diligent in replacing the water you use and rotate your inventory at least every several years. Use the oldest inventory first. Any questionable water you have in storage can be used for non-drinking purposes.

The local county extension service will test your water for purity. This is a good idea when you have water supplies that have not been rotated for several years.

If you have enough advance notice of a coming water emergency or possible emergency, fill up extra empty milk cartons, jars, bathtubs, sinks, wading pools, trash cans and or any other available container. Obviously water in garbage cans would be used for non-drinking purposes unless filtered and purified.

**OTHER WATER SOURCES --** You can use the water for the toilet tank (not the bowl) and it will offer several gallons. You may want to look in your tank right now to see if it needs a good cleaning.

Trapped water in house plumbing lines offers several gallons of clean water. As soon as the water pressure goes off, be careful to shut off your house lines from the street. This action will insure you do not draw in contaminated water or allow your trapped water to flow back into the connecting municipal system. Next, turn off the heat sources to your water heater. To gain access to trapped water in the house line, crack the faucet at the lowest level and drain the lines. I have installed a faucet in my basement to insure I can collect the water from the lines that run under my house. The basement is where I plan to be during a weather alert.

Your water heater tank holds 30 - 40 gallons. Check your water heater tank because it may have a foot or more of sediment in the tank bottom. Sediment removal is a good reason to drain the tank every year. In addition, the removal of sediment will improve the water heater's efficiency. The hot water tank can be drained by opening the faucet at the bottom of the tank. You may need to open the hot water faucet elsewhere in the house to allow the release of the vacuum to allow a free flow of water. The water inlet valve (faucet) should be turned off if you doubt the quality of the inlet water. If the inlet valve is turned off, you may need to vent the water tank by opening the "pop off" valve lever that is used to allow over heated tanks to vent excessive pressure. The faucet at the bottom is threaded to receive a regular garden hose.

The water in a water bed can also be used. Only use this water for non-drinking purposes because of the possibility of algacide chemicals in the water and plastic chemicals being leached into the water.

A swimming pool offers a large volume of stored water for non-drinking use. In one case a swimming pool provided a whole neighborhood with water after a hurricane. The neighbors set up a temporary shower in the backyard next to the pool. Others who lived nearby carried the water back home in any containers they could find.

If it rains, place buckets or barrels under rain gutter down spouts. You may have to cut or disconnect them so the water can flow into the container. If your container is not clean, you can

line it with plastic such as a clean garbage bag. Plastic sheets can be placed on a hillside or be strung between trees to funnel water into your containers.

**PURIFYING WATER** -- Pollution can affect ice, snow, water in streams and in shallow wells causing these water sources to be unsafe. Even clear streams can have parasites in them. Unpolluted water must be boiled to assure complete destruction of any dangerous organisms.

Properly stored water is the safest in an emergency. If you have to use water from an unknown source or of unknown quality, be aware that the following methods of purifying water do not guarantee the safety of the water but will reduce the risks involved.

Boiling water is one of the safest methods of water purification. It should be boiled for at least 20 minutes to insure that bacteria are killed. Boiling does not remove pollution. The boiling process will make the water taste flat since some air has been driven out. To add back the oxygen and to improve the taste, pour the water several times from one container to another. Another method is to pour the water into a closed container and vigorously shake it. A small piece of wood or a pinch of salt can be added to the boiling water to improve the taste.

Learn how to start an outdoor fire to be used in boiling water. Do not depend on electricity or gas for your heat source.

Only use chemical purification for questionable water if boiling is not possible. Understand that organic matter in the water increased the amount of chemical needed. The colder the water, the more time needed for the chemical to work.

Add 16 drops of bleach per gallon of water for clear water and double that amount for cloudy or sediment-filled water. Mix well and wait for 30 minutes before using. You should be able to smell the bleach after 30 minutes. If not, repeat the process until you smell the bleach, otherwise do not use the water. If you leave the container uncovered for several hours, the chlorine taste will be reduced and the water will be more palatable.

Always use fresh liquid bleach because it will lose its strength over time. Double the recommended amounts if the bleach is over one year old and do not use it if over two years old.

Water purification tablets can be used to purify water. They are readily available from sporting goods stores and military surplus outlets.

Use fresh tablets. Normal shelf life for iodine tablets is 3 to 5 years if unopened. Iodine tablets work better than bleach or halazone tablets for certain intestinal parasites. In addition, halazone tablets have a shelf life of only 2 years.

Commercial filters combine a filter substance and active ingredients to filter and treat the water at the same time. Some brands are not as effective as they claim.

Clear water should be used whenever possible when purification is needed. If sediment is present, it will settle out in time and the clear water can be poured off or the water can be poured through a cloth or coffee filter to speed up the process.

A novel method to clear up water is to use a cloth siphon arrangement. Place the full cloudy water container higher than the empty clean water container. Roll up a clean dry piece of cloth and put one end in the upper container and the other end in the lower clean container. If the cloth in the lower container is several inches below the cloudy water's water line, then a siphon effect will begin and the water will be filtered. This is a very, very slow process, but is good to know about.

In the distilling process, questionable water is boiled and allowed to condense into safe water.

One method is to allow the water vapor escaping out of a tea kettle to enter an inverted milk jug. The water vapor will condense in the milk jug and run out into a pan set nearby to collect it.

Another method is to run the water vapor through copper tubing (same as used in your house) to condense the vapor into pure water. For quantity production, try to visualize a moonshiners still. Use a larger closed container heated over a fire with copper tubing coiled several times to make such a still.

**CONSERVATION** -- The more you conserve your water in an emergency, the less you will use or need from storage. For example, toilets use 3-4 gallons per each flush. Add several bricks in the tank to reduce usage (be careful not to have too much waste for each flush). And toilets need not always be flushed after each use. You might also want to build an outdoor toilet trench such as is described in "The Boy Scout Handbook" or other publications.

Stretch out the periods between your baths or showers, or use a Navy type shower procedure, where you turn on the water to wet down, turn off water, soap up and then turn on the water to rinse off. If water is very limited, take a sponge bath when ever practical.

Do not waste water washing clothing other than under clothing. Before you wash, leave clothes outside over night and they will pick up additional moisture reducing the amount of wash water needed. A heavy dew will make a wash towel moist enough to use for a sponge bath. It is even better to roll the clothes in the dew to make them very wet before beginning the wash.

Never throw water away without figuring out other uses for it. For example, use the tub water for flushing a toilet. Save the water when you wash your hands and use it for the initial clothes washing water.

Do not dispose of dirty water just because it has sediment in it. You will be surprised how much sediment in dirty water will settle out over night or in several days if left undisturbed. The clearer surface water can be used again for non-drinking purposes.

Finally , it is very important to wash hands when preparing food. Intestinal problems can rapidly dehydrate the body and cause severe health problems.

As you can see, water storage is very simple to accomplish. A little advance preparation can add a great deal of security in our current water-sensitive and highly technological times as well as in any emergency situation.