



## ALL ABOUT WATER - Water Sources and Purification

What if I don't have enough stored water, and run out when I need it? If supplies run low, never ration drinking water. Drink the amount you need today, and try to find more for tomorrow. You can minimize the amount of water your body needs by reducing your activity level.

### HIDDEN WATER SOURCES IN YOUR HOME:

Drain your household water pipes (2 to 10 gals.)

The water in your hot-water tank (20 to 100 gals.)

The water in your well's pressure-tank (2 to 100 gals.)

Ice cubes (not the frost in your freezer) (1 to 2 qts.)

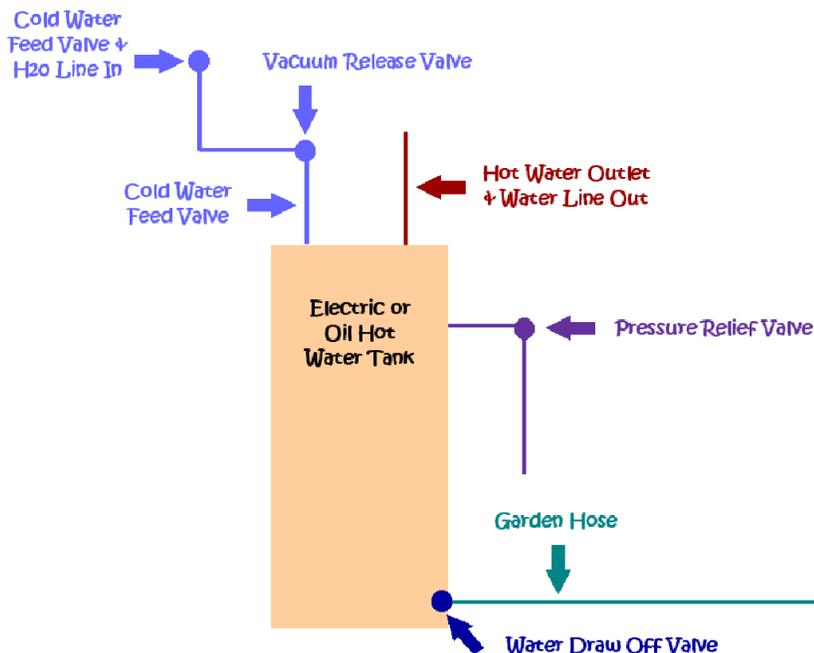
The water left in your garden hose (if its been used in the previous two days) (qts./gal)

Water in the reservoir tank of your toilet (not the bowl) (5 gal)

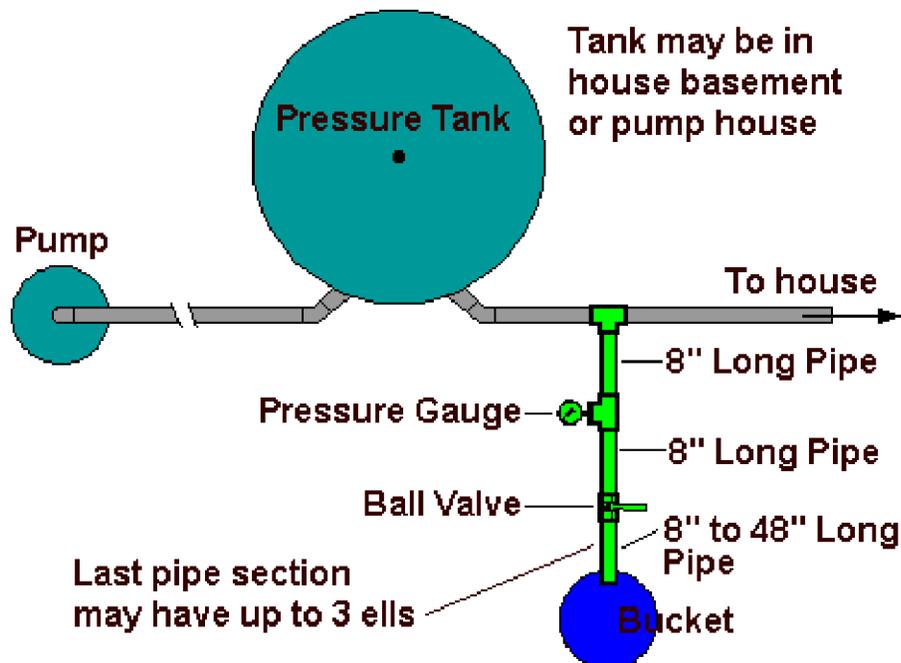
The water in your water-bed \*(see serious warning under water bed info) \* (400 gals.)

- **WATER PIPES: Do you know the location of your incoming water valve?** You'll need to shut it off to stop contaminated water from entering your home if you hear reports of broken water or sewage lines, or a failure at the water treatment plant. Your water shutoff is usually located where your water service enters the house, but it can also be shut off at the water meter outside if you are on a municipal water supply. After shutting off the water source to your house, let air into the plumbing by turning on the faucet that is at the highest point in your home. A small amount of water may trickle out, so be prepared to capture that water in a cup. Next, obtain water from the lowest faucet in the house (often an outdoor faucet), or disconnect the fitting that is closest to your shut off valve (on the house side of the valve, not the street side).
- **HOT WATER HEATER:** To use the water in your hot-water tank, be sure that plumbing fixtures and the water heater are not submerged by flood. Turn the electricity or gas off. **Do not turn on the gas or electricity to the hot water heater when the tank is empty, this will destroy the tank and could start a fire.** For an electric tank, turn the circuit breaker to the OFF position, or remove the fuse. For an oil burning hot water heater, locate the red wall switch, and turn it off. For a gas burning hot water heater, turn off the gas to the heater. Turn off the cold water intake valve on the top of the tank. Connect a garden hose to the valve at the bottom of the tank. Start the water flowing by opening the drain at the bottom of the tank (turn counter clockwise) and then turn on a hot-water faucet. Make sure you have containers to collect the water in as the flow starts. **BE CAREFUL – THIS WATER MAY BE VERY HOT!!** You may also get some sediment out with the water (rust, sand, mineral deposits), you can filter this out, or just let the water sit and this will settle to the bottom of the container. This won't hurt you.

**Electric Hot Water Tank Diagram**



- **WELL WATER PRESSURE TANK:** Turn off the power to the well pump and pressure tank and open up the highest faucet in your house. Place a container under the drainpipe after the pressure tank ball valve and open it up. This will also drain the house pipes.



- **ICE CUBES:** Melt the ice and drink it up. (Keeping plastic jugs  $\frac{3}{4}$ 's full in the freezer will also save \$ on your electric bill, plus help your frozen food to last longer in the event of a power outage, and will serve as emergency drinking water if necessary)
- **GARDEN HOSE:** The water in the hose will have a taste but if its not too hot and less than 2 days old it will do in a pinch. Do not make a habit of drinking out of garden hoses, many of them are made with lead and leach lead into the water. This can cause serious health problems with lead poisoning, especially for children.
- **TOILET RESERVOIR TANK:** Turn off your water-main shut-off valve and the toilet tank valve. Disconnect the inlet side of the toilet tank shutoff valve, which may be your wall or floor side of the valve. Open the tank valve to fill a jug, or scoop out the tank water (mop up & ring out the remainder) and run it through a coffee filter and boil it or treat it with chlorine. **Never ever drink the bowl water!** The water in the bowl could be purified with chlorine and provided for your pets, if you have no other source of water for them.
- **WATER BED:** \***Make sure to follow the warnings!** Drain it & boil it for 10 minutes. \*Some waterbeds contain toxic chemicals that are NOT fully removed by purifiers. If used as an emergency water resource, drain it yearly and refill it with fresh water containing two (2) ounces (1/4 cup) of bleach per 120 gallons of water. Do not add algacides or other additives (with the exception of chlorine bleach) if this water is to be used as a water reserve. Before use, water should be boiled. Then retreated with chlorine again. *I RECOMMEND THAT WATER BED WATER should be used as a LAST RESORT in your home, instead use for sanitation and washing, before consuming!!*

### **EMERGENCY OUTDOOR WATER SOURCES: Always purify outdoor water!!**

Be sure to treat the water according to the instructions on page two.

- 1.) Rainwater
- 2.) Streams, rivers
- 3.) Ponds and lakes
- 4.) Natural springs
- 5.) Ground
- 6.) Vegetation
- 7.) Ice & snow

Avoid water with floating material, an odor or dark color. Use saltwater **only if you distill it first**. You should **NEVER DRINK FLOOD WATER!!** All outdoor water sources including crystal clear cool spring water and fresh

rainwater can and probably do carry pathogens, chemical contaminants, heavy metals, parasites and bacteria. **All outdoor sources** should be purified before consuming.

Most of us have never experienced serious water deprivation. If we let the powerful forces of thirst drive us to violate survival water protocol we will find ourselves in even greater need, deathly ill, or worse. In other words not only will our survival be challenged by whatever disaster we are facing, we will also be too sick to come to our own aid or the aid of our love ones.

### **THREE OUTDOOR WATER RULES:**

1. Unmelted snow and ice dehydrate
2. Salt water will kill you.
3. Harvested water from poisonous plants, contaminated surfaces and unknown sources is TOXIC.

Seek better water sources when available. If not,

1. Melt snow & ice, and then purify it.
2. Distill first, then carbon filter salt water.
3. Don't EVER use poisonous plants as a water source – EVER!!
4. Filter polluted or unknown water sources through a DEEP carbon filter and 0.2 micron silver impregnated filter, then distill. CLEAN the filters and repeat this procedure a number of times until the water appears clear and doesn't have a foul odor.

### **DIFFERENT WAYS TO PURIFY WATER:**

- **CHLORINE BLEACH:** Filter water to remove solids – use coffee filter, cheesecloth, or layered paper towels. Boil the water for at least 10 minutes. Then let water cool for 30 minutes. Put 16 drops of liquid chlorine bleach per gallon of cool water, 8 drops per 2 liter bottle. DO NOT USE bleach with fragrance, thickeners, etc. Active ingredient should be 6% hypochlorite ONLY. Let water sit for 30 minutes, smell water and drink only if it smells of chlorine. If it does not smell of chlorine, repeat step # 3 again. If it still doesn't smell of chlorine, DO NOT drink this water. Boiling the water kills bacteria, viruses and parasites. Chlorine kills viruses, but not all bacteria, so it is necessary to do both to be sure of having purified drinking water. Neither of these methods removes heavy metals, salts or other chemicals. Cloudy and clear water are both treated the same way.
- **CHLOR-FLOC:** A combination of *chlorine*, *flocculation*, and *coagulation agents* that clear the water allowing the chlorine to purify the water to a greater degree. Stir in **one tablet** for **one liter** and strain through a cloth or filter to remove the sediment. (One teaspoon for **20 liters** and or **30 tabs** for **8 gals.**)
- **DISTILLATION:** Distillation involves boiling water and then collecting the vapor that condenses back to water. The condensed vapor will not include salt and other impurities.
  1. To distill, fill a pot halfway with water. Tie a cup to the handle on the pot's lid so that the cup will hang right-side up when the lid is upside-down (make sure the cup is not dangling into the water) and boil the water for 20 minutes. The water that drips from the lid into the cup is distilled.
  2. If you have to draw your water from outside water source including salt water and can acquire (a.) a tea kettle (b.) 20 inches of copper tubing (wrapped in a coil) and (c.) a 16 inch length of food grade plastic tubing you can make a simple portable distiller. Just jamb the copper coil into the kettle spout and press the plastic tubing onto the end of the copper. At the beach, start a fire and boil some seawater. The steam will travel through the tubes, cool and into a container. Use the charcoal from your fire to filter the water.
  3. With out any equipment: dig a hole 15 to 20 feet back from the shore line and wait until it fills up with water. Start a fire, heat some rocks up, and add them to the water. Cover the hole with a towel. When the towel soaks up the steam wring it out into a container (be careful not to burn yourself). Repeat the process until you have the desired amount. Filter the distilled water with a charcoal filled cloth and let stand for 40 minutes for taste.
- **FILTERING:** As with all the water purification processes take care not to cross contaminate. One drop will spoil the lot. Don't touch clean water outlets or splash the unfiltered water. Filters start out as

simple as survival straws for under twenty dollars, filter bottles for under fifty dollars, to 0.2 micron silver impregnated ceramic filters for a couple hundred dollars.

- 1.) Charcoal filters clean up chemicals, metals, and taste
- 2.) Ceramic filters (0.2 microns & smaller) clean up bacteria, viruses, and parasites.
- 3.) A combo charcoal/0.2 micron is best.
- 4.) There are hand pumped, straw/bottle drinking, and gravity fed filters.
- 5.) Pick the one that best meets your usage, budget, and physical preference

## **WATER COLLECTION, TRANSPORTATION and STORAGE:**

- **CISTERN COLLECTION:** Rigging your house for water collection is the most secure way to deal with your emergency water supply. Not only will you have a sizeable reserve of water but its constantly topping off your tanks either by dew or rain. Even if your house suffers damage in an earthquake you will still have all the necessary supplies to construct a makeshift collection system. A metal roof is required for a permanent setup but any roof can be covered with a tarp so as to collect clean water. An EMERGENCY HOUSE CISTERN KIT contains the following:
  1. A tarp or tarps large enough to cover your roof.
  2. Rope to tie the tarp down.
  3. Gutters/down spouts.
  4. A debris trap barrel.
  5. A length of pipe to fill the tank.
  6. A tank or cheap plastic swimming pool w/tarp cover.

*A TARP CISTERN is the same as the house cistern except the tarp is strung between some trees, or trees and poles.*
- **TRANSPORTATION:** Pumping is the way to go when moving water around. There are small gas, ac/dc electric pumps, hand pumps and even a hose pump that's run by a drill (cordless works well). If your going to be moving any amount of water around it will save your back, water's very heavy. They can double up for fire protection, flood control and agricultural. They range in price from under twenty dollars for the drill pump to a couple hundred dollars for a portable gas pump. If your just going to be moving small amounts there are containers on carts.
- **STORAGE:** There are many ways to store your water, the simplest being water bottles or soda bottles. DO NOT USE GLASS bottles, they break too easily. Canteens, special bags made for carrying water and water bottles are the easiest for carrying personal amounts of water. Camp or day use containers with faucets work very well for general use in an emergency. These come in one to seven gallon sizes and are relatively inexpensive. Storage tanks range from 50 gallons to 1000's and go for around a hundred on up to several thousand dollars depending on the size. There is however a cheap and effective alternative to expensive tanks - plastic swimming pools you see at larger department stores. They range from kiddy pools holding a few hundred gallons to ones holding 1000's of gallons. They cost anywhere from under twenty dollars to over a thousand dollars. With a tarp stretched over their tops, these are the cheapest large volume cistern tanks available. You can also purchase collapsible portable water bladders, which range from 73 to 800 gallons and cost in the hundreds of dollars.

*This document may be reproduced and used by individuals and groups in order to prepare themselves to deal with emergencies and disasters and their aftermath. Permission granted by Get Emergency Prepared. [www.getemergencyprepared.com](http://www.getemergencyprepared.com)*