WATER STORAGE

The industry standard calls for ***1 gallon per person per day for 14 days*** for your water storage needs. That boils down to 14 gallons per person. A family of six would require 84 gallons. However, this number should be modified for your area. For example, people living in desert areas are advised to store 1 ½ gallons per person per day. A family of six now requires 126 gallons. These recommended amounts cover drinking, cooking, and basic (limited) washing and sanitation needs. Every household should have water storage. There are a variety of ways to store water that accommodate large families, small families, individuals, people with plenty of storage as well as those with limited storage space. Find what method works for you and get started. It is possibly one of the most life saving items you will store.

Water Barrels

Water barrels come in these three standard sizes: 55-gallon, 30-gallon, and 15-gallon. The most economical size is the 55-gallon barrel and stores the most water at the least cost per gallon. The 55-gallon barrel is also the most space efficient and is highly recommended for most people. The 30-gallon barrel is slightly smaller in diameter than the 55-gallon barrel and shorter. However, if you have room for the 55-gallon, you most likely have room for the 30-gallon, so purchase the 55-gallon barrel instead as there really is no advantage to storing a 30-gallon barrel (it may be slightly less expensive but certainly not worth 25 gallons *less* water). I only know of a handful of situations where the 30-gallon barrel is a better option. The 15-gallon barrel, on the other hand, is a wonderful option for two reasons. They are small enough to fit in almost any closet making it a great alternative for people living in tight quarters. The other advantage is that it comes with handles and can be moved. Please note that once you fill a 30-gallon or 55-gallon barrel, you most likely will never move it. In fact, I often tell people to fill it where they want to store it. However, the 15-gallon can be transported from place to place and even lifted into a vehicle if you had to evacuate. I encourage people, where possible, to store a combination of both the 55-gallon barrels and the 15-gallon barrels. And remember, it never hurts to have more water than the industry standard calls for.

55-gallon barrel	36″ high x 24″ in diameter
30-gallon barrel	30″high x 20″ in diameter
15-gallon barrel	24″ high x 15″ in diameter

Bung Wrench and Siphon Pumps

Water barrels have two plugs on top that are used to fill and empty the barrels. These plugs require a bung wrench to be removed and replaced. If you store water barrels you must have a bung wrench. Keep your bung wrench by your barrels. You should even consider duct taping it to one of the barrels (you only need one bung wrench no matter how many barrels you have). I promise, if you do not keep your bung wrench by your barrels, you most likely will not find it when you need it. And you will need it.

Also, for the larger barrels, you ***will*** need a siphon pump to remove the water. The water barrels are too heavy when they are full to simply pour out the water. There are many siphon pumps on the market each pumping water out at different rates. Select one, and again, store it next to your water barrels. The 15-gallon barrel does not require a siphon pump. It actually is light enough when full to pour out the water. However, you may want a siphon pump for convenience.

Preparing water for storage in your water barrels

You can fill your water barrel with regular tap water or hose water. You can even use your water heater to fill your barrels if it is convenient. However, storing water for long periods of time does require an additive. If you choose to use bleach (non-scented only), use 1 teaspoon per 5 gallons of water (i.e. a 55-gallon barrel would need 11 teaspoons of bleach). If you choose to use bleach you should plan to rotate your barrels every year.

Also on the market is a water preserver (different from water purification tablets – people often get them confused). Water preserver is a liquid that is added to your barrel as you fill it with water. It preserves your water for ***five years***. Now, if you are like me, once a year comes around much too quickly for chores and maintenance that I really don't like to do. Once every five years is awesome! The up front cost of using the water preserver is more expensive (usually about $12-$15 per bottle which preserves

one 55-gallon barrel). However, I believe you make up the cost over time when you calculate your time in dumping and filling the water barrels as well as the cost of the water each year to refill the barrels.

Always label your barrels with the date you filled it! I recommend writing or printing the date you filled your barrel on a label and adhering the label directly to the barrel itself. It will be easy to see and there will be no question when it needs to be rotated.

Used vs. New Barrels

I always recommend using NEW barrels. They should be rinsed before filling for the first time. Used barrels, typically those that have had food grade material in them, can potentially contaminate your water. Plastic is porous which allows the food content (fruit juice, soft drink, etc.) to leach into it. You cannot adequately remove these food materials from the container. When you fill the barrel with water you provide an environment for bacteria growth and contamination. As the water sits for long periods of time, the food material can actually leach from the plastic container back into your water thus contaminating it with bacteria. Water preserver companies typically will only guarantee their products with new barrels. However, if you choose to use a used barrel that has had a food product in it, rinse it well with water and bleach before filling. Then empty it within the first six months. Rinse well again with bleach and water and then refill for storage.

Where to Store Your Water Barrels

Water barrels can easily be stored in the garage or the basement. It is recommended to NOT store your barrel directly on cement. Place barrels on a wooden pallet or two 2x4 pieces of wood. It is also recommended to NOT store your barrels outside in direct sunlight. If you must store them outdoors, cover your barrels with a tarp and secure well.

Convenient Use of Water in Water Barrels

If we find ourselves in a position where we are living from the water in our barrels, it would certainly be nice to have that water convenient for use. We won't need our water in the storage room or garage where it is typically stored . . . we will need it in the kitchen and bathrooms. The solution? Store a couple of empty 5 - 7 gallon containers that have a spigot. Simply siphon the water from your water barrel into the smaller container and transport to your destination. Because the container has a spigot you now have "running" water at your kitchen or bathroom sink. When you run out of water, simply refill it again from your water barrel. These smaller containers can be found at most emergency preparedness stores or places that carry camping equipment (usually plentiful at stores like Target and Wal-Mart in springtime when camping is at its peak). The bonus is that these smaller containers are usable throughout the year for things like camping, beach outings, or long road trips, etc. Furthermore, in the event of an evacuation, if time allows, you could fill them and take them with you. It is an excellent product to have in your emergency arsenal and certain brands even have a water filter that attaches to the spigot so if you have to fill your container with rain water or river water, it is filtered as it is dispensed.

OTHER WAYS TO STORE WATER

Several companies offer water in smaller containers than the water barrels. I particularly like the boxed water. The water is contained in a 5-gallon mylar bladder and then placed in a box with a spigot. Store at room temperature, in a dry environment, away from chemicals and other toxic materials. Properly packaged and stored water has a very long shelf life, some even indefinitely. However, it is always good to keep it rotated and fresh. Water in smaller containers comes in handy for "urgencies" as well as "emergencies". If your water is off for a day due to construction or such, it is easy to use the smaller containers of water rather than to dip into your water barrels. Also, the smaller containers are great for transportation if you need to evacuate or if you are just going camping. Find the method that works for your family. The important point is to make sure that you store enough water. Once again, the recommended amount is one gallon per person per day for 14 days (i.e. 14 gallons of stored water per person).

Never store water in milk containers because they leak. Never store water in glass containers because they break. And never store water in old bleach containers because the water can become toxic. You can store water in used two-liter soft drink bottles but that water is best used for sanitation and not for drinking.

WATER PROCUREMENT

There are many areas in your house that contain water that is suitable for drinking and use. Do not count on this as part of your water storage. It is still vitally important that you have water storage sufficient for every member of your household. However, not knowing how long it will be before water is restored, you should be aware of other places to find water in your own home.

Hot Water Tanks

First, hot water tanks and/or boilers usually contain many gallons of water. Locate the drain at the bottom of the tank. It is typically a hose bib similar to those found on the exterior of your home. Connect a hose and drain as needed. Be sure to turn off the gas or electricity powering your hot water tank and DO NOT turn it back on until the tank is once again filled with water.

Toilet Tanks

Water can also be obtained from the toilet tank. The water in the toilet *bowl* is NOT suitable for use. However, the toilet tank can provide yet another source of water. If you have a toilet deodorant or cleanser in your toilet tank, only use that water for cleaning and NOT for drinking.

Plumbing System

Within the walls of your home, your plumbing system is full of water. To access this water, turn off the main water valve in your home. This serves two purposes. First, it will seal the water already in your pipes and, second, it will stop contaminated water from entering into the system. Starting with the top floor, turn on faucets (reserve water that comes out). This will allow air to enter into the pipes forcing the water to drain to the lower faucets. Continue turning on each faucet, reserving the water, and work your way down to the lowest part of your home.

Water Filtration Systems

It is a good idea to own a water filter. There are many excellent filters on the market. I especially like the Aqua Rain Model 400 which works with gravity using carbon, silver, and ceramic to filter bacteria from the water. There may be situations where we rely on collected rain water, river water, etc. to use as our drinking water. Of course, we will want to make it suitable for consumption. First, collected water from the outdoors should be pre-filtered to remove any dirt, moss, bark, sand, sediment etc. from the water. You can do this quite easily by pouring the water through a coffee filter, dish cloth, paper towel, or water sock. Next, run the water through your filtration system. The Aqua Rain takes out 99.9% of the bacteria. Most filters do a great job filtering out bacteria. However, water filtration systems cannot filter out viruses. If you suspect viruses in your water you must treat it.

TREATING WATER FOR PURIFICATION

If you are unsure of the safety and purity of the water before using it for drinking you should treat it. Always strain the water through a cheese cloth or clean linen, water sock, paper towels, or coffee filters to remove any particles. Then treat it in one of following ways:

1- **Boil vigorously for 10-12 minutes, or**

2- **Add liquid chlorine bleach** (never use color safe or scented bleach) The amount of bleach used depends upon how strong the active ingredient of sodium hypochlorite is. Clorox Liquid Bleach uses a 6% ratio of sodium hypochlorite and has been thoroughly tested for water purification for drinking purposes. Use:

- 4 drops per quart
- 16 drops per gallon
- 80 drops per 5 gallons

ALWAYS allow the treated water to stand for 30 minutes before drinking. Properly treated water should have a slight chlorine odor. If not, you may repeat the dosage and let stand an additional 15 minutes. Chlorine dissipates somewhat as it sits. You can also agitate the water or pour it back and forth between two containers to help the chlorine dissipate. For further information on disinfecting water using Clorox Liquid Bleach, call 1-800-292-2200.

3- **Add dry chlorine** (swimming pool chlorine)

Very little dry chlorine is needed to purify water. For one gallon, add just 1/8 teaspoon of dry chlorine. Mix well and let water sit for 24 hours with the lid or cap ajar. Once again, chlorine dissipates as it sits. Because dry chlorine is so potent, you should test the water before drinking. High levels of chlorine intake can make you ill and can even be fatal. If you store dry chlorine and plan to use it to purify water for drinking, store chlorine test strips. After adding the initial dosage of chlorine, let the water sit for 24 hours before testing using a chlorine test strip.

- **If chlorine is indicated on the test strip** this means that living organisms have been killed and excess chlorine is in the water. Allow the water to sit for another 12-24 hours for chlorine to dissipate before drinking.
- **If *no* chlorine is indicated on the test strip** this means that the chlorine was used up killing organisms and there may still be more living organisms in the water. Add another 1/8 teaspoon of dry chlorine to the water and again let it sit for 12-24 hours before retesting. Repeat this process until chlorine levels are left in the water. Allow the water to sit another 12-24 hours for chlorine to dissipate before drinking.

Dry chlorine and chlorine test strips can be purchased at any swimming pool supply store and are very inexpensive. One pound of dry chlorine will purify hundreds of gallons of water.

Please note that a good water filtration system will filter out chlorine (check with the manufacturer and yes, the Aqua Rain does indeed filter out chlorine). However, people often make two mistakes:

1) The water must sit for a period of time after the chlorine is added for the chlorine to kill the living organisms (in other words, don't run the water through your filter too soon).
2) Do NOT add more bleach than necessary simply because you plan to run your water through you filtration system to remove it. You don't want to clog up your filters with chlorine. Remember, it is not necessary to run the water through your filter because the chlorine will dissipate over time making the water safe to drink.