

Camping at Home, May 23, 2018

## **Water Storage**

Miles Merwin

*"You don't miss your water 'til your well runs dry"*

Water is most important need for survival. We can do without food for a few days but our bodies need daily hydration. We'll talk in this section about ways to store and treat water for use when you can't pump water from your well.

### **Water Needs**

How much do you need to store?: for both potable and non-potable uses

Basic recommendation for emergency supply is 1 gal/person/day

Daily water intake (Mayo Clinic): 15 cups/day average male, 11 cups average female. So 1 gal/person/day is just enough for drinking

Actual need can vary by seasonality, age, health, physical exertion & stress

Do you have pets or livestock? Dogs 1 oz/lb body weight/day, Cats 1 cup/day, plus water to mix with dry food.

Use potable water for drinking, food prep, bathing, brushing your teeth, animals

Use non-potable (untreated) for clothes washing, dish washing, garden irrigation, etc.

Suggest you plan to store 3-5 gallons/person/day to cover all needs. Adjust this according to your own situation

### **Water storage options**

If need 3-5 gal/person/day, then need to store 42-70 gal/person to get by for two weeks, or 84-140 gallons/person for a month

Variety of containers designed for potable water storage: bathtub bags, 5-gal plastic jugs, 55-gal drums, outdoor tanks

Show examples but we're not endorsing any particular products.

### **Bathtub Bladder**

"WaterBOB" bathtub bladder. Plastic bladder that fits in bathtub. Can fill from pressure tank if well not operating. Includes siphon pump. Holds 60-70 gallons (up to 100)



### Stackable Containers

3-5 gallon stackable containers for indoor storage. Opaque, high-density polyethylene, BPA free  
3 gal AquaBrick \$16-22 each (PrepperWaterStorage.com); 5 gal jugs \$17-23 each (ReadyStore.com)



### 55-Gal Drums

55-gallon drum. Food-grade, high density polyethylene, BPA free, “tight head”. Need bung wrench and pump or siphon to extract water. Retail prices \$75-120. Possible wholesale supplier in Portland



### Outdoor Tanks

Outdoor tanks. FDA approved for water storage, UV-stabilized plastic, BPA free. Usually have large threaded lid and two threaded ports. Sizes from 165-5000 gallons available from local manufacturer (Norwesco) in Camas. Tall tanks take less space but might be more susceptible to tipping over in an earthquake than low tanks.



Water is heavy: about 8 lbs per gallon. Think about weight bearing and support whether inside or outside. For outdoor tanks, need to create level & elevated surface, e.g. octagon base made out of 2X8 cedar & filled with pea gravel. Elevated enough so can fill containers from lower outlet. Can paint black plastic tanks with elastomeric (roofing) paint.

### **Tank Tied to Well**

One neighbor on Newberry Rd. tied an above-ground storage tank into well. Fresh water from well circulates through tank as long as well is operating. See article in Ridge Runner Oct. 2015. Could also do with underground cistern.



### **Replacement Interval: Cleaning & Pre-Treatment**

Govt. recommendation to replace stored water that's not commercially bottled every 6 months. But taking steps to carefully clean containers before filling and reduce possibility of contamination could extend shelf life of stored water to 12 months or more.

Important to clean & sanitize containers before filling. Rinse with dishwashing soap. Then sanitize the containers with a solution of 1 teaspoon of non-scented liquid household chlorine bleach to a quart of water. If storing water in large barrels or tanks, use a drinking water-safe hose for filling.

Chlorine dioxide treatment to add to water containers to protect against bacterial growth. E.g. Aquamira 2 oz solution treats up to 60 gal.



### Potable Water Treatment

If uncertain that water you've stored is safe & ready for drinking when you need it, there are several ways you can treat it to make it potable.

- Boiling for one minute, if you have fuel.
- Iodine tablets. Use 1 tablet/qt. Not practical for large quantities
- Chlorination with household bleach. Info from Ready.gov. Use only regular, household liquid bleach that contains 5.25 to 6.0 percent sodium hypochlorite. Do not use scented bleaches, color safe bleaches or bleaches with added cleaners. Add 16 drops (1/8 teaspoon) of bleach per gallon of water, stir and let stand for 30 minutes. The water should have a slight bleach odor. If it doesn't, then repeat the dosage and let stand another 15 minutes. If it still does not smell of chlorine, discard it and find another source of water.

### Water Filters

Carbon filters. Removes larger microorganisms like giardia & cryptosporidium. Most chemical contaminants but not minerals, salts or heavy metals. Improves taste. E.g. Brita filters



Combination filters. Combines ceramic membrane with activated carbon. Pump style (1-2 liters/minute) or drip style. E.g. Katadyn Vario or Gravidyn

Non-potable water may only need simple filtration, e.g. if sand or sediment is present.



## Practical Use

Small containers for transferring water from drum or tank. Dispensers at kitchen & bathroom sinks. Plastic tubs for washing clothes, dishes, hands, etc.

Camping showers, either solar or propane heated. 12V pump models can be powered by car battery but need a reservoir of heated water to pump from. Average shower under normal circumstances is 8 minutes long & uses about 17 gallons, but could abbreviate that if water & heat source are limiting.



## Online Resources

### General Info

<https://www.ready.gov/water>

<https://www.artofmanliness.com/2014/04/01/hydration-for-the-apocalypse-how-to-store-water-for-long-term-emergencies/>

<https://theprepared.com/homestead/reviews/best-two-week-emergency-water-storage-containers/>

### Online Retailers

<https://beprepared.com/water-storage.html> Utah

<https://www.thereadystore.com/water-storage> Utah

<https://www.prepperwaterstorage.com/> Texas

<https://www.practicalpreppers.com/water-solutions/water-storage>

### Bathtub bladder

<https://waterbob.com/>

### Large Outdoor Tanks

<https://www.ntotank.com>

### Water Filters

<https://www.katadyn.com/us/us/405-8014931-katadyn-vario-usa>

<https://www.katadyn.com/us/us/254-2110080-katadyn-drip-gravidyn> \$295  
<https://www.iconlifesaver.com/product/lifesaver-jerrycan-10000uf/>

Rainwater harvesting, filtration & storage

<http://www.oregon.gov/bcd/Documents/brochures/3660.pdf>  
<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/em9101.pdf>

Camp Showers

<https://www.gearweare.com/review/best-portable-camping-showers/>

Dehydrated Water

<https://www.thereadystore.com/saratoga-farms-dehydrated-water>

