Emergency Water Summary

Why?

Water is more essential than food in sustaining life. Natural disasters such as floods or earthquakes may pollute or disrupt water supplies. Unexpected disturbances in water quality may also make the water delivered to your home unsafe or unpleasant to drink at times. It is wise to have an emergency storage or treatment method for at least 14 gallons per person. Stored water must be pure, treated to prevent microbial growth, and stored in food-grade containers. Commercially packaged water can be stored for about 5 years, home filled stored water should be changed annually.

Possible Contaminates

There are several possible contaminates that you need to consider when making a selection for emergency water. Bacteria, protozoa, viruses and chemicals are all possible contaminates that make water unsafe for consumption. Debris and color in the water are not of themselves harmful but may carry bacteria that render the water unsafe. Aesthetic components such as taste, odor, and hardness are not detrimental to health at all, but they may be a large consideration in your choice for providing water.

Storage Options

Storage containers should be airtight, resistant to breakage, and heavy enough to hold water which weights 8.6 pounds per gallon. They should have a lining that will not rust or affect the flavor. Stored water should be protected against light and heat to prevent algae growth. If the water source is not chlorinated, household bleach (5% sodium hypochlorite) should be added. Add 1 teaspoon (16 drops) of bleach per gallon of water if the water is cloudy and ½ teaspoon (8 drops) if the water is clear. No bleach needs to be added if you are storing chlorinated water from a public water supply. If you don't know if your tap water has been chlorinated, you can call your water provider or test your tap water with a spa kit. Water should also be stored in areas that will not cause damage to the home if leakage were to occur. Stored water will go flat but can be aerated prior to consumption by pouring it between two containers a few times. The table on page 2 describes some suitable options for water storage.

Treatment Options

Contaminated or suspect water can be treated for safe consumption. Selecting a treatment method over storage will save in space and has less shelf life considerations (tablets still need to be rotated every 5 years) but assumes that water in some form will be available for treatment. If the delivery of water to your home is interrupted having a treatment method available will not help you out. However, if water is still available and the safety and quality of the water is suspect, then these alternatives will be useful is making that water safe to drink. Since some of these are so easy to have available and you never know the nature of the disturbance that will necessitate the need for water, I recommend selecting one of these treatment options in addition to storing some water. The table on page 3 describes the easiest and simplest treatment alternatives. There are more elaborate options such as distillation units or tabletop treatment units but these are complicated to set up and operate so they are not discussed here.

STORAGE ALTERNATIVES

Container	Description / Pros	Cautions / Cons
Plastic Juice or Soda Bottles	Use clear plastic containers made of PETE plastic. Used containers should be thoroughly cleaned and rinsed. They are inexpensive and readily available. Do not use milk bottles.	Used containers often taint the flavor of the water. Storage area needs to consider bottle shape and size. These containers need to be protected against light and leakage as they are typically thinner plastic.
Heavy Plastic Buckets or Drums	These should be food grade and also made of PETE or HDPE plastic. Can be purchased new at emergency supply stores and sometimes used ones are available (such as from soda syrup).	More expensive than used bottles. Larger drums are heavy when filled and often bulky for storage. You also need to consider how you will get the water out for use and rotation.
Commercially Packaged Water	You can purchase water that has been commercially bottled. This water will keep for up to five years. You can also get five-gallon containers (typically in boxes or bags) at emergency supply stores.	These are convenient, clean, you can pick the taste you prefer, and they are sealed for longer storage. They will be more expensive per gallon than storing your own and they are not reusable.
Water Heaters	You may close the inlet valve immediately after the water supply is disrupted and use the water in your water heater.	This will not protect against contamination of the water supply but would be a good source of water for non-potable needs.
Water Beds	A double water bed holds about 2000 gallons of water. This water contains an algaecide. Do NOT drink it.	Not usable for potable water but may be used for sanitation needs.
Bleach Bottles	These are made from good plastic for storage but are not considered "food-grade".	Since it is hard to determine whether you have cleaned out all of the bleach these are technically not suitable for potable water but may be used for sanitation needs.

TREATMENT ALTERNATIVES

Method	Description / Pros	Cautions / Cons
Hand Pump Filtration Devices	Outdoor/Recreation stores have a variety of different small hand operated backpacking filters. Most are now able to remove each of the possible harmful contaminates. They range in price from $40 to $200.	These are effective but slow and are typically intended for just one person's use. Therefore, you may find them difficult to treat enough water for a whole family.
Point of Use Filtration Devices	These filtration units are typically installed at your kitchen sink and are intended for continuous use. Make sure you look closely at what the system will and will not remove and what maintenance is required when purchasing. *ALL* units require regular maintenance to function properly.	Units that remove harmful contaminants, not just change the flavor, are typically expensive. Some systems will come with a service contract if they do not then it is your responsibility to perform the required maintenance on these units.
Chemical Addition	Iodine tablets can be purchased from outdoor, recreation or emergency supply stores. They are easy to use but vary in dose depending on the brand. They typically cost around $1 to $2 per gallon treated. Chlorine dioxide tablets are also now available. They cost about twice as much as the iodine tablets.	Iodine treatment is effective against microbial and virus contaminants but only marginally effective against protozoa. They will discolor the water and often creates an objectionable flavor. Some brands now come with a neutralizer tablets to correct the color and taste at an additional cost. Chlorine dioxide is also effective against most contaminants and generates less taste complaints.
Boiling	Boiling water for 3 to 5 minutes will kill pathogens. The higher the elevation the longer (as much as 12 minutes) you should boil the water. Since power disruptions may accompany water emergencies, additional fuel storage should be considered.	Most people do not like the taste of boiled water and it takes a long time for the water temperature to reduce to consumable levels. Since much of the water is lost to evaporation, this is not a good option if water supply is limited.