How to purify drinking water in emergencies (like hurricanes)

by Marshall Brain | June 7, 2010

Hurricane season is upon us, and if you live along the East coast you have been hearing about hurricane preparedness. It is recommended that a family have up to a two-week supply of non-perishable food and drinking water on hand to ride out a bad hurricane situation. This means something like a gallon of clean water per person per day. Since I have a family of six plus a dog, a two week supply is heading toward 100 gallons of water for me. If I bought that in the form of bottled water, I would need to have 800 half-liter bottles of water on hand for my family. Or imagine 100 milk jugs of water sitting in the garage. It's a lot of water.

The problem is that many people don't prepare and then the hurricane strikes. In Raleigh, when a big hurricane struck several years back, it uprooted thousands and thousands of trees, cutting off all the electricity in the city, closing every store and gas station and making travel nearly impossible until the trees could be cleared.

So let's imagine that you are stuck in your house, the emergency radio is telling you the water is bad or completely cut off, and you forgot to stick a hundred jugs of water in the garage to ride it out. What are you going to do to find clean drinking water?

The best known technique for purifying contaminated drinking water is to boil it. Boiling will kill any bacteria, parasite or virus living in the water, so it is definitely effective. And you don't need to boil it for long. Water at 200 degrees F (well below boiling at 212 degrees F) will kill everything in just a minute. So if you take the water all the way to boiling for one minute and then turn the heat off, you are fine.

The only problem with boiling is that it requires a lot of energy – either electricity or gas or firewood. If you have a propane burner on your BBQ grill and a full tank of propane, you can boil a lot of water even if the power is out.

Let's say you have no way to boil water. The next best thing is regular, unscented 5% chlorine bleach that you would find in the laundry room. Preferably you have a fresh, unopened bottle you have been saving for the occasion. You can add 8 drops (1/8 of a teaspoon) of bleach per gallon of water, or 2 drops per liter of water, cap it, shake it and

let it sit an hour. It won't kill some parasites, but it will kill most everything else in the water.

If you have an unopened bottle of iodine tablets, you can use them to clean contaminated water as well. The directions on the bottle will tell you what to do. Iodine tablets spoil in a few months after the bottle is opened.

If you have one available, a LifeStraw is a simple and effective water purification system. It looks like a big plastic cigar. The LifeStraw uses a very fine filter along with iodine and charcoal to clean contaminated water. You simply suck the water through the straw and it comes out clean. There are many similar devices for backpackers, including the SteriPen and purifying water bottles.

You simply need to think ahead and buy one of these systems so you have it on hand in an emergency.

But let's say that none of these options is available. You didn't buy water ahead of time (or have run out). You have no way to boil water, no chlorine or iodine on hand, and no sterilizing equipment like a LifeStraw. There is one option left if you have some clear, empty soda bottles or water bottles available.

Let's say that you have several half-liter water bottles made of clear PET plastic, with caps. Half fill the bottles with clear water. If your available water is not clear, run it through a coffee filter, paper towels or something similar to clear the muck out of the water. Cap and shake the half-filled bottles for a minute. This moves oxygen into the water. Then pour the contents of the one half-filled bottle into another to fill a bottle with oxygenated water, and cap it. Fill all of your bottles in this way. Now lay them out in bright sunlight for an entire day (at least 6 hours).

The ultraviolet light in the sunlight will kill many of the pathogens in the water. It is not perfect, but like chlorine it is better than nothing.