Chemicals in the Water

The recent train derailment in Ohio has created an interesting situation for the people living there, especially those living in East Palestine. At first, officials evacuated them over concern about chemical spills. But as state and local officials concluded their testing, determining that the chemical levels were lower than those the EPA had established and therefore the area was safe for human habitation, they were allowed to return to their homes. Concerns about safety still remain though, as animals are being affected and even killed by chemicals in the air or surface water.

I'm not a big fan of the EPA, but I have to say they have a nearly impossible task when it comes to determining the maximum safe levels of thousand of chemicals in the air, water and other parts of the environment. From the purely environmental viewpoint, I'm sure that the ideal level would be zero; but that's not what they are tasked with determining; they are tasked with determining what is the maximum safe level, to prevent harm to humans and animals. They make their decisions based on the best scientific data available; but sometimes there just isn't enough data to make a properly-informed decision.

Historically, we've had a number of different cases of chemicals that were thought to be safe, such as DDT, but were later found to be dangerous. I'm not blaming that on the EPA, as much of that happened before their existence. I'm merely using it to be illustrative. My main concern here, is that the EPA might not always get it right, meaning that what they consider to be "acceptable levels" could end up causing long-term serious health issues to those who are exposed to the contaminants.

What that means for you and I, is that we should treat any chemical spill as potentially dangerous, regardless of what

officials say. If there's a chance of harm to our families, I'd rather play it safe, being overly-cautious until such time as we have reason to believe that everything really is safe.

I'd also like to say that we should never fully trust the information that is given to us by government officials. We all saw what happened during COVID and how confused the information was. A large part of that was due to it being a new virus, which they knew very little about. Even so, they didn't do a good job of conveying the information that they had. The disease became politicized, causing scientific information to be suborned to "the science," which is nothing more than a political expression made to sound scientific.

We must make our own decisions in these cases and those decisions must fall on the side of our family's safety. Let everyone else think you're paranoid, if they must; make sure you take care of those closest to you. When push comes to shove, you're the one responsible for your family's safety.

Treating Contaminated Water

The water purification methods and systems that we use in the prepping community are basically intended to remove microscopic pathogens from the water; bacteria and protozoa. Most have limited ability to remove viruses, at best, due to the smaller size of the viruses. They are not designed to remove chemical contaminants or metals from our water supply.

The only water treatment methods available to us, which can be trusted to remove chemicals are either distillation or reverse osmosis. Most preppers ignore these two means of water purification, mostly because they are difficult to work with. However, we might want to rethink that, just to make sure that we're ready in case some such accident happens in our areas.

Distillation

Of these two methodologies, the more common one to encounter in the prepping community is distillation. Making and operating a still is actually very easy; and they can be made from easy to find materials. The big drawback to distillation though, is that it is limited in how much water it can provide. A still made from a pressure cooker (a common prepping adaptation) can only hold and distill about a gallon of water. Then it needs to cool down to be refilled.

Increasing the size of the retort, producing something closer to what the moonshiners used back in the time of the Prohibition, would increase the amount of water a still could produce. A five gallon still should be able to distill all the water it can contain within a couple of hours, if it has a good heat source. Adding a second tank, filled with cold water, to act as a heat exchanger, will cool the water vapor faster, making for more efficient operation.

The other option for a still is a solar still. These are essentially the same as a solar oven, with the exception that the case needs to be sealed. A pan of water is placed inside and the rising water vapor condenses on the glass, rolling down the glass to a catch tube, so the water can be collected. It’s a lot slower than a normal still; but you don’t have to keep feeding it fuel.

Reverse Osmosis

Few preppers even consider reverse osmosis (RO) as a viable option for survival water purification. The basic reason for this, is that we all expect the power to go out when a disaster happens. While it’s not uncommon for the power to go out, that doesn’t always happen. It didn’t happen during COVID and it sure hasn’t happened with this train wreck. For that matter, there were a lot of places in Texas which lost water during winter storm Uri, but didn’t lose power.

The problem with reverse osmosis is that it requires the input water to be at a minimum of 40 PSI, although 60 PSI is preferred. Without sufficient pressure, it won't do anything at all. This isn't an issue, as long as there is electricity to run the pump; but what do you do if there's no power?

Actually, it's still possible to run a RO system without electrical power, if you have a manual pump that will produce sufficient pressure. It would require a lot of physical work to pump the water; but such manual pumps do exist, making it possible to use RO anytime, even without electricity.

The good thing about reverse osmosis as a water treatment system, is that it removes pretty much everything from the water, just as distillation does. Reverse osmosis will remove almost all chemicals, as well as dissolved minerals, all biologicals and even salt; making it some of the purest water you can find. That makes it something that we, as preppers, should be looking at.

Harvesting Water

We are accustomed to thinking in terms of harvesting water to take care of our needs. There's nothing wrong with that; but this situation shows just how fragile such methods can be. Anyone in that area, who was counting on getting water from the local rivers and streams was left without a water source. There are reportedly more than 3,500 dead fish in the area, which have apparently been killed by the chemicals spilling into surface water.

Contamination of this sort can get into our underground water sources as well, making our well water unsafe to drink. This is one area where local officials can help, as they have much better capabilities for telling if the ground water is safe than we do. If they say that it has been tested and is free of contamination, chances are that it is safe. Just make sure you know where their wells are, so that you can make sure that

you’re not closer to the spill than they are.

Rainwater capture should be safe, no matter what; but that might not even be true for the people in Ohio. There was a temperature inversion at the time that they were trying to burn off the chemicals, keeping the poisonous smoke from rising as it normally would. That smoke spread to cover a large area. If anyone was gathering rainwater at the time, it would probably not be safe to drink. Water gathered before that time would be fine, but not water during the burn or for a few days afterwards.

Stored Water

This sort of situation shows us why stored water is so important. Even with all other water sources contaminated, water that was harvested or stored before the accident would still be safe to drink. That goes for both commercially packaged water and whatever you harvest yourself.

Because of the potential for situations like this, your stored water should be your source of last resort, not your first choice to use. While that stored water is convenient to use, it will keep just fine for another year or two. The water you’re getting from other sources, on the other hand, could run out at any moment. When that happens, you’ll want to have that water that’s been sitting in your basement.

If you find that you have to use some of your stored water, especially at the beginning of a disaster or during a short-term survival situation, make sure that you replenish it as quickly as reasonably possible. You never know when that water will be needed again and unlike other things we stockpile, water is cheap.