

# TerranearPMC Safety Share

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## Week of December 2, 2019 – Non-Potable Water

Having an ample supply of potable water is always necessary – but especially important when working in the field. This is mandated through the OSHA regulation, 29 CFR 1910.141, “Sanitation.” Potable water is defined as “...water that meets the standards for drinking purposes of the State or local authority having jurisdiction, or water that meets the quality standards prescribed by the U.S. Environmental Protection Agency's National Primary Drinking Water Regulations (40 CFR 141).”

Thus, potable water is safe and acceptable for human consumption. Then what is non-potable water? Non-potable refers to any water that has not been treated or tested, therefore determined unsafe to consume. Non-potable water should not be ingested due to the risk of contamination.

Non-potable water should never be used to wash food or food ingredients. Nor should non-potable water be used for cooking food and preparing drinks. This includes cleaning surfaces where food may be contacted, as well as washing / rinsing food containers. Dishes made of plastic, wood, and other porous materials like clay, should not be washed with non-potable water because bacteria can remain in these surfaces if they do not dry properly.

The quality of non-potable water varies greatly from the source in which it comes from. Some water sources are deemed unsafe only because of their high mineral content. In those cases, you could just filter the water or boil it to make it safe for human consumption. Other water sources might contain a virus or bacteria that can cause serious illness. However, when a source of water comes from rainwater tanks, ground water, or surface water (lakes or rivers), it is important to test it as well as treating it prior to consumption. The following contaminants (i.e. impurities) can enter our water supply in different ways as they can be found in the environment through natural and man-made chemicals.

**Lead:** Can be leached into the water by the corrosion of a plumbing system that contains lead. Lead is an odorless, colorless, and tasteless metal that can cause cancer, birth defects, brain damage and a myriad of other health problems.

**Copper:** Can be found in water with corroded copper pipes, or in the environment of mining or manufacturing operations. Copper can cause stomach problems, diarrhea, vomiting, kidney disease and liver damage.

**Arsenic:** Can be leached into the water due to agricultural and industrial pollution. Arsenic has been linked to cancer and many other health problems. It should also be mentioned that arsenic cannot be removed from the water by boiling it or by adding chlorine.

**Nitrates:** Found in private well water that has been improperly built as well as improper disposal of animal and human waste. Nitrate cannot be removed through boiling or chlorination.

**Protozoan Parasite:** A one-celled organism that can live in animals and insects but will reproduce quickly when ingested

**Giardia and Cryptosporidium:** Both of these protozoans are found in water that has been contaminated by the poop of an animal or human that is ill with the parasite. The effects can cause vomiting, fever, dehydration, and gut problems. The recovery process can take several months because your intestines take time to heal.

**Bacteria:** These are organisms smaller than protozoans and are present in wild and domestic animals. Common bacteria found in water are cholera, dysentery, typhoid, and paratyphoid.

**Viruses:** Viruses are so small that they can easily pass through a filter. This is a huge health risk, especially for people with a weak immune system, because there is no treatment for a water-related viral infection.



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A virus or bacteria in the water can become deadly, whereas a high mineral content or a pollutant found in your rain catchment system might not affect you too much in the short run. In any given situation, it's always better to be safe than sorry.

And don't forget that even brushing your teeth with non-potable water - even if you're not swallowing the water - bacteria can still get inside your mouth and travel to other parts of your body. Or taking a bath or shower; water will get into our mouth, ears, eyes, and genitalia. If bacteria enter any of these entry-points, we can become susceptible to illness.

Meanwhile our hands are consistently around our face, especially eyes and mouth. These are two huge entry-points for bacteria. Therefore, we should always wash our hands with potable water, or in extreme cases, following the washing routine with alcohol wipes or hand sanitizer to prevent the spread of bacteria.

That's quite a of things that non-potable water shouldn't be used for. Can non-potable water be used for any safe purposes? The answer is a definite "yes," and below is a description of some things for which we can use non-potable water.

- Water your garden. An herb or vegetable garden can be watered with non-potable water so long that it doesn't come into direct contact with the edible part of the plant. The water you use should not contain chemicals (like soap or detergent- not even oil) or other toxic substances.
- Do your laundry. Hanging the clothes to dry in the sun can sanitize them even more.
- Toilet and urinal flushing.
- Cleaning non-food contact surfaces, such as floors.

Ceramic and metal dishes can be washed with non-potable water (such as rain catchment water) but they must dry out completely. There must be NO residual moisture to prevent the further growth of bacteria. If you're able to dry them in the sun, that's even better. Bacteria and viruses cannot survive on dry surfaces when humidity levels are 10% or less

Some people live in a place where potable water is accessible anytime, but realistically, most of the world doesn't have this luxury. Wherever we may be, it's a good idea to learn the proper use of potable and non-potable water so that we can be better consumers. This can also help while preparing for a water crisis such as a community emergency or natural disaster.

In many developing countries and large cities, you will find that the tap water is not potable, but is still being used for bathing, washing dishes and personal hygiene. While the locals may have become accustomed to the bacteria present in their water supply throughout their life, as a foreigner you have a higher chance of getting sick.

So, when visiting another country, it may be necessary to use bottled water for brushing your teeth and keeping your mouth closed in the shower. When washing dishes, make sure they're thoroughly dry (for several hours, and in the sun if possible) before using them again. After washing your hands, make sure to allow them to dry completely before touching food or touching your eyes or mouth. Some bacteria will die as the air dries them out. You may have to take extra precautions if you're pregnant or have small children.

**The greatest derangement of the mind is to believe in something because one wishes it to be so - Louis Pasteur**

