

Chapter 13

Water

Your NPP Medical Section should be well versed in poison neutralization, control and treatment procedures. In a worst case scenario after a Catastrophic Event, thirsty and starving people will drink and ingest fluids and try to eat items that our imaginations can't 'wrap our minds around.' Bad water and fluids that are harmful and poisonous, items that are dangerous or flat out poisonous to eat will be consumed.

The 13th Baktun unit of time at the end of the Mayan Calendar was frightening to the Mayans... Thirteen individuals, including Christ and Judas the betrayer, were present at The Last Supper... And on Friday the 13th of October in 1307, King Philip IV of France arrested hundreds of the Knights Templar, almost all of the present day 'Crusaders' and Free Masons, then hideously tortured and killed them all. Friday the 13th. Oh, that unlucky number thirteen!

What's that have to do with this book? This Chapter is 'Number 13' '...thirteen' if any of you Readers are superstitious and fear black cats, walking under ladders and buildings with 'Floor 13,' It was 'As the cards were dealt' so it just happened that this Chapter number was assigned to the subject of Water. I'm not superstitious, so I didn't leave Chapter 13, or Water, out of this book like they leave the 'unlucky' floor number 13 off some buildings.

The H₂O molecule... two Hydrogen atoms married to an Oxygen atom...Water. Without water, you and your CDM Neighborhood Protection Plan™ (NPP) will be more than unlucky... your existence will abruptly end and then, whether you are or are not superstitious, your existence and that of your NPP on this planet, will be of no further significance to you or others.

Water... the most important of the Critical Life Supplies and Services. You need water first.

Most of the world's people can drink what you can't...

As a friend of mine who lived in the 'Third World' recently reminded me... and as I witnessed in Third and Fourth World countries in Africa, Central America, Southeast Asia and I imagine much of the rest of the world... most of the world's population can drink water from a mud puddle and they will generally be okay. Maybe some upset stomach and probable parasitic organisms from this, but they don't flat-out die. We carry around water in bottles that has been disinfected for drinking when in those countries... you don't want to use their ice cubes either. I advise so.

I am a beacon of testimony to what the American and Industrialized World intestinal system is like... with regard to ingesting water that has not been disinfected. And this is what **your** intestinal system is like. I drank water, after I treated it with 'purifying tablets,' from a cattle watering trough that had a decomposing monkey under the pump float cover of it in Mozambique, Africa. Within the day I had amoebic dysentery. My jumpsuit and my sleeping bag were both full of shite by morning. I had this amoebic dysentery for two months, even with taking powerful medicines.

The black soldiers with me were happy and just peachy after they drank their fill and topped off their canteens. They'd been born and raised using these water sources. But me!? ...I wish I'd seen the submerged, decayed carcass of this monkey first. My American born and raised intestinal system was not accustomed to any of this bacteria, even as long as I'd been in Africa and even after treating the water with purifying tablets... as yours is not.

Dictionary Definition

potable

adjective

po·ta·ble / 'pōdəb(ə)l /

Definition of potable: Water that is fit to drink; Safe to drink; drinkable.

Origin: From the Latin 'Potare,' to drink.

Most untreated water has the equivalent of a dead and decomposing monkey in it... and some water that looks really good will be worse than if you did have a dead monkey in it. Regardless, my intestinal system revolted violently. My Commando wouldn't put me on medical leave, because you had to be shot full of holes and bleeding to death, before they'd take you out of the action. And I decided I would rather die than fail to complete parachute school. I met my wife and her parents about a month into this ordeal. Touchy. Think... fearing the smell.

I fashioned a diaper out of a kitchen terry cloth type thin towel and stuffed it with toilet paper and I refrained from eating around my wife and her parents. It's an 'interesting experience' going through firefights and then later to parachute school with crap sliming down the inside of your legs... on down my jumpsuit pant legs and drizzling on into my socks and boots. Squishy. A fit and muscular young man wearing a green beret... and a diaper. It takes any romanticism out of being a soldier.

I impatiently waited for this affliction to pass. My ring piece was sore from constant wiping. I was in a virtual constant state of dehydration and secondary complications of rashes and infections followed. A Doctor going through parachute school with me, finally put me on the path to a cure for this with his unconventional 'bread plug' and more medicines. I will spare you the ghastly details.

Sounds like a war story? Well it is... but to get a point across. Because this, and probably worse, is how you and yours will suffer if you don't have clean, potable, bacteria and parasite free drinking, cooking and bathing water and when you have little or no medical attention. Bacteria laden water will appear here after most Catastrophic Events. Americans and peoples of the Industrialized World would die from one teaspoon of what most people in the world drink for water, or at the least become violently ill.

Why? Because our intestinal systems are not accustomed to the bacteria and organisms in such water. In addition to over use of antibiotics, everything Americans ingest is so devoid of bacteria as a result of chemical treatment, preservatives and refrigeration, that even slightly spoiled food gives us diarrhea or worse. This is food that most in the world would voraciously, hungrily and with an ear to ear smile on their faces, consume with little or no ill effect. Think...

recalls of food for salmonella bacteria, E. Coli (Escherichia coli) etc.. Never used to be as prevalent.

Diarrhea can kill faster than just about any affliction... have the drug Loperamide and Oral rehydration solution DripDrop on hand to control it.

These are common bacteria that Americans were not as sensitive to in the past. Americans do not have the bacteria and parasite resistance that our ancestors had. ‘Bad water,’ that our ancestors could drink with minor gastro-intestinal issues, will kill most Americans after they drink it. If it doesn’t kill you... you’ll probably be so miserable that you wish you were dead. My experience was one of the most miserable times in my life that I recall.

Water from streams and other sources of ‘unprocessed’ water can contain contaminants from sewer systems, heavy metals, animal and human fecal matter, pesticides and chemicals, petroleum waste, crop nitrates run-off and human and animal urine. When an Extraordinary Catastrophic Event occurs... water will also soon contain all the goodies from dead bodies leaching into above ground water sources.

Single cell protozoa called Cryptosporidium and Giardia Lamblia will also mostly likely be in your raw untreated water source. Outbreaks of these still occur frequently in the modern industrialized world because chlorine, the common swimming pool disinfectant, does not kill these ugly, stubborn little hard shelled parasitic buggers. They can live over 12 hours in strong solutions of chlorine. These parasites create severe intestinal problems accompanied by diarrhea.

Either bad water... or the lack of it... will be the first item to kill millions of the Industrialized World within days of an Extraordinary Catastrophic Event.

One of the most important Critical Life Supplies and Services, actually the most critical, that is taken for granted... is water. We just turn the faucet on, right? Think of the gallons of water you use just to rinse dishes, wash your car, bathe, shower and to clean with. Think... the next time you turn on a water faucet how simple and abundant it is. Water.

Whatever your source, water in addition to food, is critical in your NPP succeeding. Most people can go without food for up to maybe two weeks, however, lack of water under the best of conditions, will incapacitate most people after a few days, and all certainly within one week.

There is also clean potable water for a few days in your water heater and your toilet tanks. When you have access to a swimming pool full of water, you’re in luck. Other than that, it is critical that your NPP have a water source that is reliable and fairly secure to access. If not... again, you must look at relocating your NPP.

Keep in mind also that in addition to drinking water, you will need water for cooking, hydrating food and bathing. You won’t be able to eat the dehydrated food you are storing, keep yourself hydrated, wash cookware and dishes or clean yourself... without water.

What do you need to treat your NPP water source?

You have to test your NPP renewable water source beforehand to fully understand what type and how much treatment of the water from this water source is necessary. Water contains chemicals, heavy metals such as arsenic and lead, contains calcium, magnesium, iron and protozoa. Take a sample of your water to your municipal water treatment facility, the county agriculture office or have it tested from the many companies on the internet that will do this for a reasonable charge.

When a real Shite Hits The Fan scenario develops and potable water sources shut off... people will be drinking from ditches, mud puddles, rivers and lakes without treating this water... many will die within days and the rest will be miserable and incapacitated until they get over the intestinal convulsions and associated problems... if they do.

Rainfall and snow are not reliable water sources

For a supplemental source of water, that is generally safe to drink if process treated like storage water, when you live in an area with sufficient rainfall, use your home's roof surface or extend tarps to catch rainwater. If you don't have gutters on your home, get them installed to be able to divert the flow from your roof, that goes out on the ground... into barrels. But do this only as a supplemental water source.

Generally, thirteen inches of snow equals one inch of rain. To make snow a much more unreliable water source, the amount of equivalent rain from snow can vary from a few inches of sleet type snow to an inch of rain... to fifty inches of dry snow for an inch of rain. The lighter and 'drier' the snow... the more snow it takes to convert to the comparable inch of rain. It might be fun to lay down in, move your arms and legs to make 'snow angels' in, but as a dependable source of water... snow doesn't work.

Potable Water means safe drinking water. In all areas, whether it is a public water system or not, water has to be treated. Water has to be filtered to take out sediment and to remove lead, arsenic and heavy metals, further filtered or bathed with chemicals or distilled or boiled to kill microbes and water borne organisms dangerous to your health. It is questionable what actually comes through your municipal water system. Think... Detroit and Lead. For years.

You must have a renewable water supply source

Assuming that the water is not the potable, safe to drink kind... you must learn how to make it safe. You need it to hydrate your body and dehydrate foods and to cook and bathe in... since the current water source you have during Normal Civility may not be available. Again, your water source must be within one mile of your CDM Neighborhood Protection Plan™.

Get a well bucket

Is there a private well? Get a well bucket from Lehman's. Go to Lehman's.com for the Lehman's Own Galvanized Well Bucket. They have butt-loads of other 'back to the basics' items also. You need to supply the 3/8' polypropylene, hemp or nylon rope enough to get to the water at the bottom of the well plus another 100 foot. This little jewel is about 3 1/2' in

diameter so will fit down just about any well casing. Holds 1.9 gallons of water that you pull up after letting it fill at the bottom of the water well casing.

Can this private well pump be run on emergency power or the water drawn by hand pump, can you dig a water bore hole or an open well... is there a river, lake, reservoir, or stream nearby? Are they polluted... or will they be, in your estimation? Will upstream rotting flesh and bodies pollute them after there is a severe Catastrophic Event? I have tested an open water source close to my area. I know in advance what needs to be done to the water and I have the supplies, equipment and chemicals necessary to treat it.

Bore Holes

In most areas where the water table is close to the surface, a simple ‘bore hole’ well or open well can be dug. I have seen areas in the arid desert where water will start to accumulate in a hole dug two feet into the ground around tree growth. ‘Bore Holes’ are a forgotten water source to people and source for your NPP. This is how our ancestors provided water for themselves.

Dig down 8 to 20 feet inside your subdivision in the lowest areas and you’ll most likely have a water source. It may fill slowly, but it will fill. You can use a pail and rope to fetch water or buy a hand pump and piping to draw it out. Consult with well drilling people and explore digging a well in your neighborhood as your water source. Some well drilling people will poo-poo this idea and say it won’t work. Wrong. But they make their money sinking well pipe into the ground.

If digging a bore hole well, you must be aware of progressively shoring up the sides of the hole as you dig down... or risk being buried by a cave-in.

Digging a water bore hole or open well in the basement of a High Rise Residential Building is also a possibility, if you have the means to get through concrete and to ground soil.

This water will most likely be heavily polluted and will need to be filtered through coffee type filters, boiled or distilled or put through a Lake Filter System to make it potable.

You won’t get some contaminants out of water, period... but you can remove most of them when you run the water through a carbon based Vitasalus Lake Filter System.

This is a dicey situation in some buildings as this can permanently flood your basement. Some High Rise Residential Buildings have such a problem with water seeping into their basements that they have to install sump pumps to pump water out and drainage systems to route the water to a storm drain.



Hand Dug Water Bore Hole or Open Well

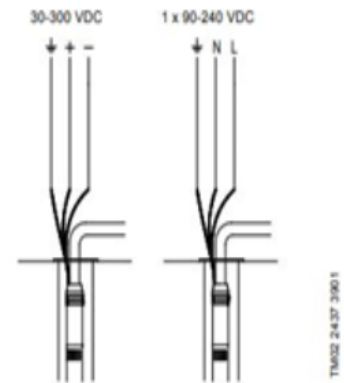
A word on water well pumps

My Friend and Electronics Engineer Dan D. is installing one of these variable voltage AC/DC well pumps on his new home as part of his preparedness program.

This is the Grundfos SQFlex Solar Well Pump. Grundfos has a great track record with pumps and various other items. If you have a hot water circulation pump on your home water heater, the chances are it is made by Grundfos.

I've used Grundfos equipment for years and it is extremely well engineered, quiet and reliable.

If you have a well, or are going to install one, this is the pump that gives your NPP the most options for power sources if shielded for EMP.



As the integrated electronic unit enables the motor to handle both DC and AC supply voltages, it makes no difference how the wires "+" and "-" or "N" and "L" are connected.

Grundfos SQFlex Solar Well Pump

The Triple-One Rule of Thumb

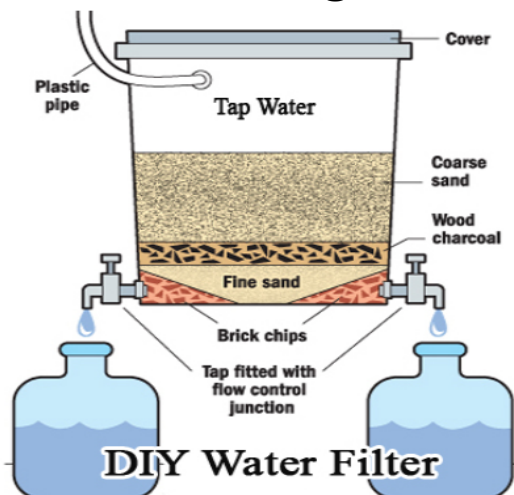
Water... the Triple-One Rule of Thumb. This 'rule of water use' will give each person in your NPP sufficient drinking, minimal cooking and wash cloth or sponge bathing water. This obviously depends on the time of year, your climate, and individual needs. But this rule will generally keep all Group Members functioning adequately.

You need to calculate water needs on the basis of...

One Gallon for One Person for One Day.

When a Crisis occurs remember to **immediately** fill everything you have in your home that will hold water... bath tubs, sinks (duct tape over the drains), containers, bowls, glasses, buckets etc. When the electricity goes out... water will stop flowing, or will soon.

Making water safe... water treatment procedures



You have to kill what you can't see in the water that is dangerous to you. Both Chlorine bleach, also known as Sodium Hypochlorite and granular Calcium Hypochlorite will kill most harmful bacteria and organisms in water. Granular Calcium Hypochlorite is better.

There are complete water treatment and storage systems available on the internet. Look at these... but I recommend what I am confident works. Sawyer Products has many readymade water purification and filter systems and kits at: <https://sawyer.com>

www.diysurvivalguide.com

DO-It-Yourself Survival Guide at: www.diysurvivalguide.com has Do-It-Yourself water filtration kits and plans. One from their website that will help you in taking the first step in treating water by filtering out large particulate with the gravity sediment principle.

Filter out large particulate first. For safe clean water you have to first filter large particulate out... then boil, distill, chemically treat, filter the water on the micron level or Ultraviolet Light disinfect. A Micron is smaller than a human hair.

You make potable, 'safe water' by doing the following...

- **Filter the Water.** Filter the majority of particles ('particulate' equals sand, mud, dirt, foreign matter-generally junk) from the water. You must filter the water through fine mesh cloth material or coffee filters. Filtered water can also be dangerous when you use carbon or paper filters and the filters are not changed or cleaned on a regular basis **THEN,**
- **Boil the water OR,**
- **Distill the water OR,**
- **Chemically Treat the water OR,**
- **Micron Particle Filtration.** After filtering out as much 'junk' or particulate (Think... sand, dirt, foreign matter and mud) as you can, put it through a fine micron particle water filtration system. This is not completely necessary with some filter systems like the 'Lake Filter System' depending on how much particulate is in the water... **OR,**
- **Ultraviolet Light Disinfect Treatment.**

Radioactivity and Water

To have radioactive water, the radioactive isotope has to fix to another particle, suspended chemical or heavy metal in the water... something other than the water molecule... because radioactive isotopes will not attach to the water molecule itself, unless within the proximity of a nuclear fireball.

For safe, clean, radioactivity minimized water, you have to **first filter large particulate out... then boil, distill, chemically treat, filter the water on the micron level or Ultraviolet Light disinfect.** Boiling or distilling water will not remove most radioactivity.

So super filtering the fine particles out of water down to the micron level does the most to reduce your radioactive exposure from water.

The exception is sea water. The sodium in sea water will remain radioactive for about 5 days, then will drop to 'half-life' tolerable levels safe enough for humans to use. So do not use sea water for anything, including hydrating foods, cooking or bathing for at least a week after sea water contamination from a nuclear blast.

Bacteria can grow within these filters themselves and contaminate the water. Some solid substances can be removed with filters, but few filter systems can remove viruses, bacteria, Pathogens, radioactive or chemical compounds and completely soluble pollutants. Think... the Lake Water System by Vitasalus as the most efficient that generates huge quantities of water.

You can also filter the water by letting the larger particles in it settle to the bottom of a large container and pouring the water out, or drawing the water out or draining the container with a tap or siphon above the particle line, being careful not to take the water back out containing the particles.

Boil the Water. This is the easiest way to purify water when you have a fuel source or the fuel for a fire or solar heated systems. Filter or strain the water before boiling by placing a coffee filter, close knit dishtowel or finely woven cloth over a container and pour the raw untreated water into the container through the filter cloth.

Boiling will kill bacteria, viruses and more importantly Cryptosporidium and Giardia Lamblia... small tough-assed little one celled parasitic organisms that can give you weeks of intestinal problems and bad diarrhea.

Again, diarrhea can kill faster than just about any affliction... have the drug Loperamide and Oral rehydration solution DripDrop on hand to control it.

Boiling does not remove heavy metals, nor will it remove dissolved chemicals or radioactive particles... distillation will remove most chemicals. You need to boil water three minutes at an elevation of 6500 feet and higher. A roiling boil... not a few bubbles. Boil for one minute at lower elevations. To put some taste back into boiled water, pour it back and forth between containers to aerate it.

Distill the Water. This process will give you cleaner and safer water when you have the fuel for a fire or a solar distillation system. In distillation of water, water is turned into steam and the steam is condensed and collected in another container. Distillation DOES NOT remove radioactive elements.

This method requires distillation equipment but it should be non-electric. There are scores of water distillation survival systems on the market. Solar powered and about every conceivable type of heating system. Search the internet or visit your area store that carries survival equipment.

Distillation will not only kill bacteria and viruses, but distilling removes almost all heavy metals and most chemicals. Filter or strain the particulate from water before distilling, the same as for all other methods.

Portable Water filtration systems

Bicyclist's and back packer's water purifying hand pumps and water purification tablets are available for cheap, but some of these systems are painfully slow to produce any volume of water. I recommend a **Survivor Filter PRO**.

Your NPP would have to have one of these for about every four people and producing water with one would consume a good part of someone's day. These are incredible systems though... you can literally filter muddy water through some of these and have clean, relatively safe drinking water. This type of water filter is more for if you're on the go.

I recommend each person in your NPP have a **LifeStraw Personal Water Filter**. Good for about 250 gallons of drinking water, in their backpack for on the go.

Getting into the realm of the ‘Big Boys’ and serious about water filtration. There are but loads of these on the market. Look on the internet. From expensive to inexpensive. Concentrate on non-fossil fuel or fire... passive powered systems if you can afford them, marked with an ‘*’

Distillation water systems

If you have the fuel or electricity, this is simple and an easy path to creating a realistic amount of useable potable water by getting a water distillation system. However, still look at having solar powered systems. Buy a water distillation unit like a...

WaterWise 1600 non-electric distiller, OR a

D-STIL Lite™ Do It Yourself Emergency Survival Water Distiller.

***SolAqua Rainmaker 550 Solar Distillation System.**

Stationary Water filtration systems

***Berkey Filter Crown System** water filter. The Berkey Company is in Pueblo, Colorado and their internet address is BerkeyFilter.com Their largest, ‘The Crown System,’ produces about 1 gallon per hour, has a 6 gallon water reservoir.

Berkey is a standalone, a passive, non-electric system and there is no fuel required to operate it... only Sir Isaac Newton’s “Law of Universal Gravitation.” Red food coloring dye will tell you if the filters are removing contaminants, because a properly functioning Berkey Filter removes the red food coloring as a contaminant.

Vitalus Lake Water Filtration System. Paul, the Author of the Chapter “Underground shelters and survival,” swears an ‘oath of allegiance on water treatment,’ to the Vitalus Lake Water Filtration System. I’m certain that Vitalus, as rumor has it, is putting a hand pump or rotary pump/siphon system together as an attachment to use for this filter system.

I recommend this for your NPP, if you have Vitalus put together a Lake Water System that will operate in a ‘Grid Down’ or aka ‘Off Grid’ with no electricity, less than normal water pressure, no other fuel system... that is tailored to remove what your water test reveals of what’s in the water from your water source.

The Vitalus Lake Water System will provide all the water you need for a normal sized NPP. Affordable if everyone chips in their fair share...

Vitalus at <http://www.Vitalus.com/LakeWaterSystem.htm>

Call them at 1-877-284-5042... they’re nice people too!

Treating water with chemicals

The prolonged use of any of these chemical bacteria and organism killers can be harmful in its self. Follow directions closely to avoid negative side effects. All of these additives for the chemical treatment of water will have a chemical taste to them.

Treating water with chemicals...

Granulated Calcium Hypochlorite, aka 'pool shock'

This is the number one way I recommend chemical treatment of water. Calcium Hypochlorite. Calcium Hypochlorite, aka 'Pool shock chemical,' available at most pool supply companies, Walmart and Costco Stores.

This chemical will kill the majority of organisms and contaminants after filtering the water, and will keep the water bacteria free for a week or so. This is the best aid when the water is going to be consumed soon.

The procedure to disinfect water with Calcium Hypochlorite, aka 'pool shock'

Dissolve one healthy teaspoon of granular Calcium Hypochlorite (about one-quarter of an ounce) per two gallons of water. **Use this blend as a 'Base Mixture' to disinfect larger amounts of 'end use water.'**

Do not use this Base Mixture for drinking, hydrating foods, cooking or bathing.

You make your potable drinking water by mixing your Base Mixture Disinfectant to the water you intend to use for drinking, cooking or bathing at a proportion of **1 part 'Base Mixture' to 100 parts of water. The 100 parts water you have treated are now generally potable and can be used for drinking, hydrating food, cooking or bathing purposes.** But, two little buggers may still be in your water. To rid the water of those nasty little gut bombs Cryptosporidium and Giardia Lamblia... boil the water.

I suggest pool supply companies, which have the higher 78 percent Calcium Hypochlorite content. It comes in a 25 pound four gallon plastic pail which is enough to sanitize the water for a small town for a year. Most 'big Box Stores' stock only the 48 percent or lower 'pool shock' because of the fire hazard this compound poses.

Calcium Hypochlorite is a fire hazard... an aid in combustion. The higher the percentage level, the more dangerous Calcium Hypochlorite is. You must store Calcium Hypochlorite away from combustible materials, preferably **outside, shallowly buried in a covered trash can, containing the pail of pool shock** and away from anything flammable.

Do not store Calcium Hypochlorite with your other survival supplies.

Calcium Hypochlorite is destroyed by heat over 95° Fahrenheit, so it would be best stored outside in the shade or in a container buried in the ground as I state here.

When mixing with water to make your 'Base Mixture,' **slowly add calcium hypochlorite to your water and mix this outside with a paint stirring stick! wear eye protection, long sleeve shirts and a use a respirator.** The fumes from mixing this are not healthy to humans.

As a side note for safety... these chemicals should never be mixed together...

- Bleach and Ammonia makes deadly Toxic Chloramine Vapor.
- Bleach and rubbing alcohol makes deadly Toxic Chloroform.
- Bleach and vinegar makes deadly Toxic Chlorine Gas.
- Vinegar and Peroxide makes deadly Peracetic Acid.

Treating water with chemicals...

Sodium Hypochlorite, aka Chlorine bleach

This is the number two way I recommend chemical treatment of water. Sodium Hypochlorite. Sodium Hypochlorite, aka Chlorine bleach has a shelf life of about two years for an unopened container that is kept at room temperature and not subjected to freezing or extreme heat. Make sure you use regular chlorine bleach and not the scented kind or a 'bleach substitute.'

The label should list the sole active ingredient of 5-6% Sodium Hypochlorite. When any other ingredients are listed, don't use it for water treatment. Chlorine bleach also has a limited shelf life so make you buy and use a fresh bottle. Some recommend way more treatment than I recommend. But what I recommend it sufficient for the time period.

The procedure to treat water with Sodium Hypochlorite, or chlorine bleach

Chlorine was one of the components of 'Mustard Gas' used to kill soldiers in World War I. It did a great job of killing people... so it's not healthy to handle or ingest in quantities more than suggested.

You need to add only **one drop** of chlorine per **two liter bottle**... that's about two quarts of water. **Two drops to a gallon of water. This has to be done every 6 months or sooner.** Before drinking it, pour your water in to large surface area containers or back and forth from container to container to evaporate most of the chlorine.

It pisses me off when my wife slathers everything in the kitchen and bathroom, laundry room and pool with this shite. You could do bacteria-free brain surgery on our kitchen floor. I'd rather have my body experience and build a tolerance to some of the germs this supposedly kills... and chlorine is in about every household cleaner, in some form or another.

Treating water with chemicals-Tincture of Iodine

This I reserve for next to last. You can disinfect water with Tincture of Iodine, like your Mother used to put on your cuts and abrasions as a child. About 2 to 3 % solution. I put it last because the danger of excess Iodine can cause your thyroid gland to stop working... the same as your pituitary gland not stimulating your thyroid to produce enough.

Not enough Iodine in the body is bad... too much Iodine in the body creates conditions the same as not enough. Iodine is also a danger for pregnant women and can cause problems for

people with allergic reactions to exoskeleton aquatic invertebrates such as crab, lobster, clams or shrimp.

Procedure to disinfect water with Tincture of Iodine. It takes 15 to 30 drops of this per gallon of untreated water, depending on how much particulate garbage you have filtered out of the water. It has to set for about an hour before use and makes the water taste treated. However, if you're really thirsty... the taste of any of these methods won't bother you, because that will be the last thing you'll be thinking of.

Treating water with Ultraviolet Light (UV) Irradiation

UV I reserve for last. You can disinfect water with Ultraviolet light. I know about as much about and how effective UV disinfection treatment of water is as I do ceremonial wedding rites of the Mamluk Tribes of Persia. However, there are loads of information and equipment available for this method. But remember, it requires electricity... something that may not be available.

Because of the popular, efficient and more reliable use of chlorination, UV treatment as a principle means of disinfecting water has gone by the wayside years ago. It is still used in pharmaceutical and medical industries. However, UV and boiling (distillation) of water will kill some contaminants that chlorine and other water disinfecting methods won't kill. Water must be filtered first as UV treatment of water does not remove suspended particles and contaminants that UV kills.

Ultraviolet light is part of the wide spectrum of light that comes with good old sunlight. It can be artificially produced with a bulb that puts out the higher frequency and smaller wavelength Ultraviolet ray invisible in sunlight to your eyes. It's somewhere between the X-ray and visible light on the light spectrum. There are three wavelengths of Ultraviolet light... UV-A, UV-B and UV-C. UV-C is the spectrum of ultraviolet light that will disinfect so that is the Ultraviolet wavelength bulb you must buy.

Beware though, UV-C light is very dangerous and neither the skin or eyes should be exposed to it. UV-C is filtered out by atmospheric ozone long before it reaches our fragile skin or eyes. With UV-B it may take hours to get sunburn... but with UV-C it takes only seconds. If your eyes are exposed... you get many times the effect as if you look at the sun or an arc welding machine's blue light. The next day, your eyes will feel like they have grains of sand in them amongst the other damage it does to your vision that you cannot feel, just after a few seconds of looking at UV-C Ultraviolet Light.

Scientists are working on a specific range of the Ultraviolet Light 'C spectrum' to develop one that kills Pathogens, but does not penetrate or damage skin or harm the human body, eyeballs excluded.

If you choose the path of UV water treatment, be aware that some organisms may not be killed by UV water treatment, contrary to what people selling or advocating this method say. I would have one of the alternative systems explained here as a backup water treatment procedure and at last and final resort... boil water.

If your people start to get the ‘trots,’ or hurried runs, to relieve themselves... start boiling all water used for drinking, cooking, ice cubes, rinsing vegetables, washing dishes and that is assuming that those bathing or showering what you suspect is not safe water do not ingest water from your problem source.

UV and 3 % Hydrogen Peroxide are both somewhat effective against Cryptosporidium and Giardia Lamblia... small tough-assed little one celled parasitic organisms that can give you weeks of intestinal problems and bad diarrhea. These nano-critters are hard to kill.

Storage of water

Successful storage of water for extended periods of time is more difficult than food storage.

Water is heavy! One gallon of water weighs 8 pounds. If you store 50 gallons of water you’ll have 400 pounds of weight. Put 300 gallons of water in a container or containers and you have 2400 pounds of weight... over one ton of water. This may be dangerous if you store water in 55 gallon containers in one small area or larger amounts in a small area.

There are gazillions of container systems for water storage and transportation on the internet and in stores that sell survival equipment.

You must make certain your floor will support the weight of water storage containers and not collapse!

If you are on a second floor or your storage place has wooden truss or joist supported floors, the containers must be spread out, preferably next to the exterior walls of your building, to prevent floor damage or collapse of your floor. This is especially true of older buildings. **Consult an engineer about this.**

In a pinch, use kitchen pots and pans and dishes... anything that holds water. Cover open containers. Use containers that didn’t contain chemicals. If you wouldn’t drink the contents of a container... don’t use the empty ones for water storage. And if you would drink the contents, be sure the container is thoroughly rinsed out.

Always keep some of your water in one gallon containers and keep rice and beans in in 1 gallon mylar bags, placed in 5 gallon buckets. Pails helps keep bugs and mice out, they stack and carry easier. But break the pails open for packages that will fit in a backpack... in case you have to quickly move. 5 gallon buckets have a ton of great other uses after you take the food out. They can be used to collect rain water, carry water from a nearby lake or stream and be use with old bucket brigade firefighting method. Fill them with sand or dirt for added protection from gunfire. Passed on to me my ‘ahead of everyone his age with preparedness,’ Nephew of the 82nd Airborne.

Store your water inside where it won’t freeze and burst the containers. Water stored away from wildly fluctuating outside temperatures, stored in your house or in a Root Cellar at more consistent temperatures, will stay stabilized and potable for longer periods of time. Label all treated water containers and mark the date on the label with a black marker. Use a computer

date like 20200201 which represents ‘year 2020, month 02 or February, day 01’ or February 01, 2020 or the date 02/Feb/20. Spell out the three digit abbreviated month.

If you use 02/11/2020, is that by the American date system or the European date system? So that date could be either February 11, 2020 or November 02, 2020? Clearly label and use the same date system so others aren’t confused. Rotate dumping, treating, refilling and re-dating water containers to maintain a fresh as possible supply.

Save every plastic bottle and jar that has a screw on top. The heavier the plastic container, the better. Store at least one case of bottled water in the 16 ounce or 20 ounce heavy plastic bottles. Completely dry out the empty bottles and lightly the screw the caps back on. Water bottles will allow you to measure of how much water each person is drinking daily.

Start rinsing out and saving 2 liter soda bottles. All containers must be rinsed and free of residue of what they contained. If you store water in 2 liter soda bottles... they must be the hard clear plastic type and not the soft ‘milky’ looking plastic.



Emergency water storage ‘Blue Barrels’

Milk type jugs are designed to biodegrade under most condition in about six months, but will last for three or four months. The problem with plastic milk jugs is that the milk permeates the plastic and will contaminate the water and cause higher than normal bacteria growth... so don’t use milk jugs unless you intend to use the water within 6 months and intend to boil the water before using it. At the first sign of trouble fill EVERYTHING with water.

Again... you must make certain your floor will support the weight of water storage containers and not collapse!

If you are on a second floor or your storage place has wooden truss or joist supported floors, the containers must be spread out, preferably next to the exterior walls of your building, to prevent floor damage or collapse of your floor. This is especially true of older buildings. **Again, consult an engineer about this.**

Do not consume this emergency water, except in emergency. Stored water is safer if you again treat it before use by chemically treating it, boiling it, distilling it or running it through a water filter again that will remove the bacteria and organisms plus some of the chlorine also.

How to get enough water to keep you alive almost anywhere with a Solar Survival Hole

There are many different improvised ways to collect, that to the naked eye, water that doesn’t exist. I’m just hoping you will remember the Solar Survival Hole as a method of obtaining enough water to keep your body hydrated in a worst-case situation.

Water is all around us, even in the most arid places on the face of this earth. In those places, it’s just not in as plentiful quantities or as easy to gather, but it’s there. From morning mists,

clouds, rain, rivers, oceans, snow and ice... water is under constant movement and change of state in nature. Change from vapor... to liquid... to solid... to vapor, and movement from wet to dry are never ending cycles. The trick is, where there's no visible water... to cause that movement and change of state, to water that enables you to keep dehydration from killing you.

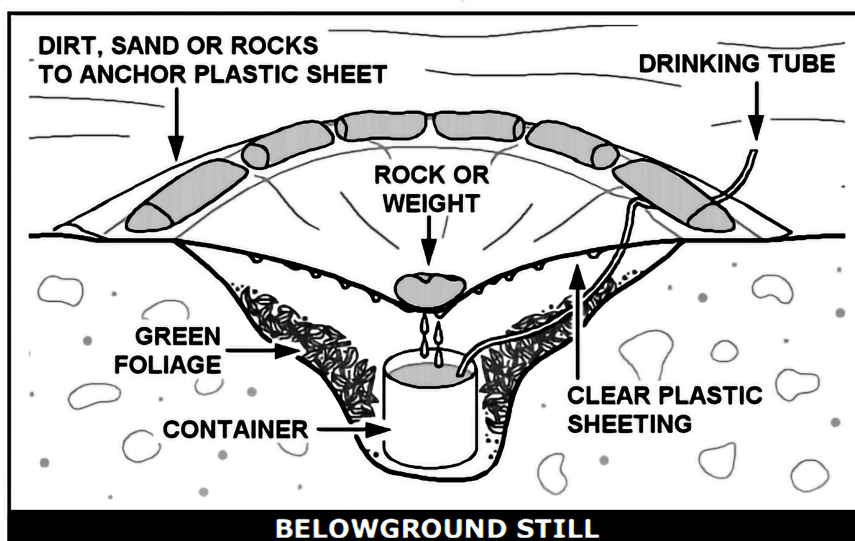
Something as simple as the Solar Survival Hole is amazing in itself to me... and it can save a person's life when enveloped in a survival situation. The following are two methods you can use with the Solar Survival Hole. They both depend on digging a hole. Generally, the bigger and deeper the hole, the more moisture will be available for your process... conversely, the more difficult it will be to cover it.

The evaporative method

One. For the first one you need plastic sheeting, glass or some material for a cover and a collection container. By this method, the Solar Survival Hole is essentially a 'still' and works by evaporation and condensation of moisture... unlike 'distilling' which boils, evaporates and then condenses the water or liquids. It functions best by sunshine, however, it will also work, not as well or as quickly, by temperature differential of the up and down day and night temperatures.

The principle for the first method of the Solar Survival Hole is... evaporation... caused by the

heat of the sun. **You need a piece of plastic sheeting to put over the hole, preferably clear... like your auto glass or plastic sheeting from your interior.** If you break your windshield carefully, it will stay in one piece because auto windshield safety glass has a layer of plastic bonded in between the glass. Not so for side windows... those are designed to break into non-jagged pieces.



The Solar Survival Hole diagram

Moisture from the ground

reacts with the heat from the sun to produce water vapor inside the hole which condenses on the plastic. The amount depends on moisture in the soil evaporating and condensing on a relatively airtight water resistant cover over the top of the hole. There, the condensed water runs towards the center of the cover, which is weighted down with a pebble or formed concave towards the bottom of the hole. When it gets to the lowest part of the cover it collects on the 'tit' or depression and drips down into the collection container placed directly underneath it in the bottom of the hole.

In the desert or when on 'moonscape' ground, choose the place to dig your hole. Find where bushes or trees grow or go to ravines and 'dry' river beds. Unless you're on shifting sand

dunes, there's water by digging down in those places. I've seen a gusher of water come into a hole dug twenty-eight-foot-deep, in the middle of endless square miles of barren ground that wouldn't grow the most noxious and prolific weed. But you don't have to dig down that far for the Solar Survival Hole. Dig a hole two foot around, knee deep to mid-thigh deep. The depth is determined by the soil changing from bone dry to moist.

Weight the plastic or glass edges down with stones and cover the edge of it with soil, to seal it the air inside the hole. If you have a long enough drinking hose or tube that you can place one end into your container in the hole, and have the other end come out under the plastic placed over the hole, you don't have disturb the condensation process to drink... just suck on the tube. Think... vehicle parts with non-toxic chemicals running through them.

The wicking method

Second. The second method works by 'wicking.' This won't give you much water, but it may be enough to keep you from dying of dehydration. The object is to absorb the moisture at the bottom of the hole with smooth pebbles or a piece of torn cotton cloth. Place the pebbles or cloth in the bottom of the hole and put a thin layer of sand or dirt over them. Then cover the hole to prevent air evaporation of the moisture from the hole. Cover with what? Use your imagination in conjunction with materials around you.

Branches laid across the hole, covered with layers of clothing, in turn covered with a very thin amount of fine soil to make it somewhat airtight, and then with a final cover of dark clothing will work. After twelve hours of sun, you can suck the pebbles and cloth to transfer enough water from them to the membranes in your mouth through to your body to prevent incapacitating dehydration.

With both methods, other items can add to this the amount of vapor produced for condensation. From seawater and urine in containers... to cut green foliage and moist shite placed in the bottom of the hole away from pebbles and cloth and around the collection container. Keep items placed in the bottom from contaminating your drinking water container and suck-able pebbles and cloth or dig shallow 'shelves' for these additional items slightly off the bottom an into the sides of the hole.

If you're not severely dehydrated and can afford the time to let your water sit overnight, do so. It will taste better. It will also taste better if you pour it from one container to another, being careful not to spill any of this precious fluid, because it takes so long to condense it. You can filter this water through cloth and suck the cloth dry afterwards.

I'm astounded that people die of thirst from dehydration where there is sufficient water ... but they're ignorant as to how to gather it and how to preserve what they have in their bodies. Such as preserving body fluid levels by movement in the dark hours, when it's cooler and staying in shade during the heat of the day, when traversing barren, dry and hot landscapes.

These people struggle in the dry and hot desert, in their semi-comatose state of mind, to put one foot in front of the other in taking their last steps towards civilization and help... but what becomes more than often, the place that they will die. They may as well be blind as they walk

